



Electronic Components

High Quality

CAPACITORS

CONDUCTIVE POLYMER HYBRID ALUMINUM ELECTROLYTIC CAPACITORS
ALUMINUM ELECTROLYTIC CAPACITORS WITH CONDUCTIVE POLYMER SOLID ELECTROLYTE
ALUMINUM ELECTROLYTIC CAPACITORS
ELECTRIC DOUBLE LAYER CAPACITORS "DYNACAP®"
PLASTIC FILM CAPACITORS

ELNA CO., LTD.

CAT.No.2019/2020E

Certifications of Quality Management System (as of Dec. 2018)

Factory	Applicable Standard	Certification Number	Item	Applicable Organization
ELNA TOHOKU CO., LTD. AOMORI Factory (Japan)	ISO 9001	JP05/060268	Aluminum electrolytic capacitors Conductive Polymer Hybrid Aluminum Electrolytic Capacitors Aluminum Electrolytic Capacitors With Conductive Polymer Solid Electrolyte Electric double layer capacitors	SGS
ELNA CO., LTD. SHIRAKAWA Tech. (Japan)	IATF 16949	IATF0282303 SGS JP14/062589	Aluminum electrolytic capacitors Conductive Polymer Hybrid Aluminum Electrolytic Capacitors Aluminum Electrolytic Capacitors With Conductive Polymer Solid Electrolyte Electric double layer capacitors	SGS
TANIN ELNA CO., LTD.	IATF 16949	IATF0320356 44 111 060686	Aluminum electrolytic capacitors Electric double layer capacitors	ΤÜV
(Thailand)	ISO 9001 44 100 990506 Aluminum electrolytic capacitors Electric double layer capacitors		,	ΤÜV
ELNA-SONIC SDN. BHD.	ONIC SDN. BHD. IATF 16949 IATF0336376 Aluminum electrolytic capacit			Kiwa
(Malaysia)	ISO 9001	IAF19, 22 17318-A	Aluminum electrolytic capacitors	Kiwa

Certifications of Environmental Management System (as of Nov. 2018)

Factory	Applicable Standard	Certification Number	Applicable Organization
ELNA TOHOKU CO., LTD. AOMORI Factory (Japan)	ISO 14001	JQA-EM2918	Japan Quality Assurance (JQA)
TANIN ELNA CO., LTD. (Thailand)	ISO 14001	04104 990506	ΤÜV
ELNA-SONIC SDN. BHD. (Malaysia)	ISO 14001	MY03/60718	SGS

Please read the following warning and cautions !!

The Electronic components shown in this catalog are designed and produced mainly for such general purpose electronic equipment as audio and visual equipment, home appliances, office equipment and information processing and communication equipment.

If you wish to use these components in medical equipment, transportation equipment, (automotive, train, ships, etc), aircraft, spacecraft, security systems or other equipment that requires high security application, you are required to confirm application through your own testing and own judgment.

Regardless of a component intended use, if high safety application is required, it is recommended that you shall establish a protective or redundant circuit and shall conduct own evaluation test.

It is highly recommended that you shall follow our "Cautions for using"

Also it is recommended that you shall obtain technical specifications from Elna Co., Ltd to ensure that the component is suitable for your intended use.

It is not our responsibility for any kind of problems without technical specifications.

Specifications and dimensions shown in this catalog are subject to change without prior notice.



Be sure to read "Cautions for Using Electrolytic Capacitors", before using those products.



Aluminum Electrolytic Capacitors

— 5

Conductive Polymer Hybrid Aluminum Electrolytic Capacitors

Aluminum Electrolytic Capacitors With Conductive Polymer Solid Electrolyte

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POLYMER HYBRID

Chip Type Aluminum Electrolytic Capacitors

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Miniature Type Aluminum Electrolytic Capacitors

_ 99

Large Capacitance Aluminum Electrolytic Capacitors

—155

Aluminum Electrolytic Capacitors for Audio

—207



Electric Double Layer Capacitors "DYNACAP"

-231



Plastic film Capacitors

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PLASTIC FILM



■ "GREEN CAP"

"GREEN CAP", ELNA considers the global environment and it is a product that doesn't use the hazardous substance and "Lead Free" in the plating of terminals and outer Sleeves.

The product in this catalog is 'GREEN CAP'.

The hazardous substance is

Pb: lead, Cr⁶⁺: hexavalent chromium, Hg: mercury and Cd: cadmium, PBB: the polybrominated biphenyl, PBDE: the polybromo-diphenyl ether,

■Regarding to various environmental Regulations

- · It suits "EU RoHS Directives".
- According to the content of RIP3.8TGD(Technical Guidance Document which is published on 26 May 2008), our electronic components are "articles without any intended release".

Therefore they are not applicable for "Registration" for EU REACH Regulation Article 7 (1).

ELNA develops the products without substance of very high concern(SVHC). DEHP(CASNo.117-81-7) was contained as some covering material.

· If you need "Halogen-Free" products, please consult with us.

Terminal area plating material and sleeve material

Aluminum (Polymer hybrid, Conductive Polymer Solid Electrolyte) electrolytic capacitors

	Category	Terminal area plating	Plating thickness	Sleeve
	φ3 to 6.3	Sn-Bi	12µm	Sleeve less
SMD	φ8,10	Sn-Bi	12µm	Sleeve less (or PET)
SMD (Chip type) ϕ 12.5		Sn 100%	12µm	Sleeve less (or PET)
	φ16 to 18	Sn 100%	12µm	Sleeve less
	Supplementary terminal of RT* type	Sn 100%	12µm	Sleeve less (or PET)
Lead ter	minal	Sn 100%	12µm	Sleeve less (or PET)
Snap-in		Sn 100%	12µm	PET
Screw te	erminal	_		PET

Electric double layer capacitors

	Category	-	Terminal area plating	Plating thickness	Sleeve
	SMD	Single cell	Sn 100% or Sn+Cu	5µm	Sleeve less
Coin cell	SIVID	Piled cell	Sn 100%	5µm	PET
	Lead typ	oe	Sn 100%	5µm	PET
Large	Lead ter	minal	Sn 100%	12µm	PET
capacitance	Snap-in	terminal	Sn 100%	12µm	PET

Note: Sn: Tin Bi: Bismuth Cu: Copper

Please inquire when hoping excluding the above-mentioned terminal plating and sleeve.



About the Sn whisker

1. Sn whisker-generating mechanism on the lead wire

On the surface of the lead wire, Sn and aluminum will get mixed instead of getting dissolved.

The surface condition is complex, aluminum will expand due to the heat and humid causing the oxidation and hydration. This reaction will cause the inner stress and influence the development of the whisker.

2. Generation control of the Sn whisker

In the past, Sn whisker was reduced by adding a lead(Pb). Aluminum electrolytic capacitor was also using the Sn-plate with Pb on the lead wire.

But due to environmental regulation such as the "ELV" and "RoHS", Pb was strictly prohibited since 2000.

Lead wire not containing the Pb was used, which caused the Sn whisker problem to happen again.

Since Sn whisker is influenced by the mixture of aluminum, method of reducing the aluminum on the welding surface was to clean the lead terminal using the alkali.

However since the welding area of the large case size is larger compared to the small ones, whisker will generate even if it is cleaned by alkali. This whisker will scatter outside of the capacitor and potentially cause the short-circuit. Countermeasure of keeping the whisker inside the capacitor is being discussed.

3. Prevention of scattering of Sn whisker

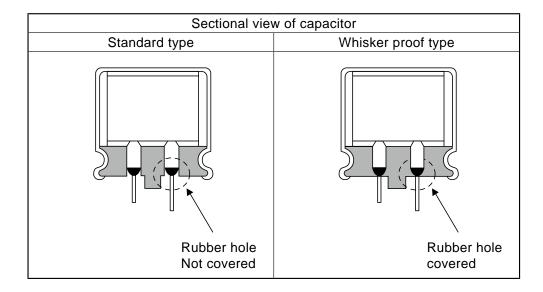
In the past Sn-plate with Pb was used and recently plate with Bi is being introduced to prevent the whisker from generating. However the whisker will still generate under the temperature and moisture condition.

Therefore, the current method of preventing the whisker will not completely prevent the whisker from generating.

In our company, we are developing and supplying products with design of preventing the whisker from scattering outside the capacitor.

This design corresponds to series such as the RJD and RJE for 105°C use, RKD and RPK for 125°C use.

If it is required for the other series, please feel free to make an inquiry.





■ Ordering Information

Please order by the multiples of the minimum order quantity (MOQ).

Aluminum Electrolytic Capacitors

Classification dDXL (mm) Long lead Forming lead Taping (flat box) Taping (reel)			Case Size				Quantity (PCS.)			
Aminin Extoylic Capacities With Capacities Wit	Classifica	ition				-	0		-1- (, , ,
Alarikam Bestudylic Capitar With Type Gazdaria With Type Gazdari			, , ,	(= : -)		((Q'ty/Box)
Capacitics With Capacitors W	Aluminum Electrolytic								,	-,
Sold Electoryle Conductive Polymer Hydric Alaminan Electrolytic Capacities A Type OH Type		- "							,	-,
Conductive Polymer Hybrid Aluminum 66:38		Type								,
Hydrid Alminim Electrolytic Capacitors 04 Type										/
## 10×10 to 12.5		04.7	,		,		,	/		
Chip Type	Electrolytic Capacitors	U4 Type	,		,		,	7		
Chip Type #5 to φ6.3×4.5 to 7.7.φ8×6.5					/					
Chip Type Φ8 to φ10x10 to 10.5										- 7
Chip Type										-,
Φ16×16.5,Φ18×16.5	Chip Ty	pe	, ,							7
φ16×21.5,φ18×21.5			,							,
φ4 to φ5×5,φ4×7 200 2,000 200 5,000 2,000 - - - φ5×7 200 2,000 200 4,000 2,000 - - - φ6×5×5,φ6×7 200 2,000 200 2,000 2,000 - - - φ8×5 to 7 200 2,000 200 2,000 1,000 - - φ8×15 to 7 200 2,000 200 2,000 1,000 - - φ8×15 200 2,000 200 2,000 1,000 - - φ8×15 200 1,000 200 1,000 1,000 - - φ8×20 200 1,000 200 1,000 1,000 - - φ10×12.5 200 1,000 200 1,000 500 - - φ10×25 to 30 200 1,000 200 1,000 500 - - φ10×25 to 30 200 1,000 100 1000 500 - - φ12.5×25 100 500 1000 100 500 - - φ12.5×30 100 500 200 1000 500 - - φ12.5×30 100 500 200 1000 500 - - φ12.5×40 100 500 200 1000 500 - - φ16×31.5 to 35.5 50 200 400 100 1000 1000 000 φ18×25 50 100 100 100 1000 1000 000 φ18×25 50 100 100 100 1000 1000 000 - - φ18×31.5 to 35.5 50 200 100 100 1000 1000 - - φ18×31.5 to 35.5 50 200 100 100 1000 1000 - - φ18×31.5 to 35.5 50 250 100 100 1000 1000 - - φ18×31.5 to 35.5 50 250 100 100 1000 1000 - - φ18×31.5 to 35.5 50 250 100 100 1000 1000 - - φ18×31.5 to 35.5 50 250 100 100 1000 1000 - - φ18×25 50 100 100 100 1000 1000 - - φ18×31.5 to 35.5 50 250 100 100 1000 1000 - - φ18×31.5 to 35.5 50 50 100 100 1000 1000 - - φ18×25 50 50 100 100 1000 1000 1000 - - φ18×31.5 to 35.5 50 50 100 100 1000 1000 1000 - φ20×25 to 50 50 50 100 100 1000 1000 1000 - φ20×25 to 50 50 50 100 100 1000 1000 1000			,							
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φ10×16 200 1,000 200 1,000 500 — — φ10×20 200 1,000 200 1,000 500 — — φ10×25 to 30 200 1,000 100 (200) 500 (1000) 500 — — φ12.5×15 to 20 100 1,000 100 1000 (500) 500 — — φ12.5×25 100 500 (1000) 100 1000 (500) 500 — — φ12.5×35 100 500 200 (100) 2000 (500) 500 — — φ12.5×35 100 500 (100) 200 (100) 2000 (500) 500 — — φ12.5×40 100 500 (100) 200 (100) 2000 (500) 500 — — φ18.16 to 25 100 500 100 1000 (100) — — — φ18×40 50 (100) 100 100 1000 (100) — — — — φ18									_	_
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			φ22×40 to 50	50	100 (200)	100	400 (100)	_	_	_
φ22 to φ25 — 100	1.4* 1.7	-*	φ22 to φ25	_	100					
LA*, LT*	LA', LI			_	50					
331Type or Others	331Type or	Others								

(Note) It may become the numerical value in ().

Electric Double Layer Capacitors

8.5×17×24

10.5×21×29 10.5×21×39

	0				Quantity (PCS.)			
Series	Case size φD×L(mm)	Long	lead	Standa	rd lead	Taping (f lat box)	Tapin	g (reel)
	φυλε(ΠΙΙΠ)	(Q'ty/Bag)	MOQ/Box	(Q'ty/Bag)	MOQ/Box	MOQ/Box	MOQ/Reel	(Q'ty/Box)
DX,DXJ,DXN,DXS(H or V Terminal)	φ11.5	_	_	200	2,000	_	_	_
DX,DXJ,DXN(V Terminal)	φ19	_	_	100	500	_	_	_
DH,DHL,DHC,DBJ	φ13.5	-	_	200	1,000	_	_	_
DB,DBN,DBS	φ21.5	_	_	100	500	_	_	_
DC,DCK	φ6.8	-	_	200	6,000	_	_	_
DS.DSK	φ4.8	_	_	_	_	_	2,000	10,000
DS,DSK	φ6.8	-	_	_	_	_	1,500 to 2,000*	6,000 to 8,000*
DVN,DVS	φ12.5×8.5	_	_	_	_	_	300	1,500
DVL	φ12.5×10.5	_	-	_	_	_	250	1,250
					Quantity (PCS.)			
Series	Case size φD×L(mm)	Long	lead	Formir	ng lead	Taping (f lat box)	Tapin	g (reel)
	φυλι(ΠΙΠ)	(Q'ty/Bag)	MOQ/Box	(Q'ty/Bag)	MOQ/Box	MOQ/Box	MOQ/Reel	(Q'ty/Box)
	φ6.3	200	2,000	200	2,000	2,000	_	_
	φ8×12	200	2,000	200	2,000	1,000	_	_
	φ8×15 to 22	200	1,000	200	1,000	1,000	_	_
	φ10×20 to 25	200	1,000	100	500	500	_	_
	φ10×30 to 35	200	1,000	100	500	500	_	_
DU	φ12.5×25	100	500	100	1,000	500	_	_
DUK DZ	φ12.5×35	100	500	200	2,000	_	_	_
DZN	φ16×20 to 25	100	500	100	1,000	_	_	_
DZH	φ16×31.5 to 35.5	50	200	100	1,000	_	_	_
	φ16×40	50	100	100	800	_	_	_
1	φ18×35	50	100	100	1,000	_	_	_
	φ18×40	50	250	100	800	_	_	_
	φ25	_	50 or 100*	_	_	_	_	_
	φ35	_	50 or 100*	_	_	_	_	_
	8.5×17×16							

^{*} Please inquire.

DZP

^{*} Please inquire.

ELNA®

Aluminum Electrolytic Capacitors

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■ Type List for Aluminum Electrolytic Capacitors

★ : New series

● Aluminum (Conductive Polymer, Hybrid) Electrolytic Capacitors

ategory	Category Series Page	Application	Temp.	egory Range C)	Range (hours)		Rated \ Rar (V.I	nge	Rated Capacitance Range (μF)		φD x L (mm)		Outside color	JIS onfigurati	Note	
				Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.		ŏ	Ш
	HV	28	Low ESR Hybrid Polymer Chip	-55	+105	100	000	6.3	100	10	820	5×5.8	12.5×13.5	Silver	32	☆
	нт	28	Low ESR Hybrid Polymer Chip, Vibration resistance	-55	+105	100	000	6.3	100	15	820	8×10	12.5×13.5	Silver	32	☆
	HVK	30	Low ESR, 125°C, Hybrid Polymer Chip	-55	+125	4000	6000	6.3	100	10	820	5×5.8	12.5×13.5	Silver	32	☆
Hybrid	нтк	30	Low ESR, 125°C, Hybrid Polymer Chip, Vibration resistance	-55	+125	4000	6000	6.3	100	15	820	8×10	12.5×13.5	Silver	32	☆
ž	HVX	32	Low ESR, 135℃, Hybrid Polymer Chip	-55	+135	40	000	16	50	68	470	8×10	10×10	Silver	32	☆
	нтх	32	Low ESR, 135°C, Hybrid Polymer Chip, Vibration resistance	-55	+135	40	000	16	50	68	470	8×10	10×10	Silver	32	☆
	HR	34	Low ESR Hybrid Polymer, lead terminal type	-55	+105	100	000	25	100	15	560	8×10	10×12.5	Silver	04	*
	HRK	36	Low ESR, 125°C, Hybrid Polymer, lead terminal type	-55	+125	4000	6000	25	100	15	560	8×10	10×12.5	Silver	04	*
	PVG	38	Ultra Low ESR Conductive Polymer Chip	-55	+105	20	000	2.5	6.3	120	1200	5×5.7	10×7.7	Silver	32	
	PVX	40	Ultra Low ESR Conductive Polymer Chip	-55	+105	20	000	2.5	10	100	1200	5×5.7	10×7.7	Silver	32	
olymer	PVM	42	Super Low ESR Conductive Polymer Chip	-55	+105	20	000	2.5	16	33	1200	5×5.7	10×7.7	Silver	32	
-	PVK	44	Super Low ESR, High Temp. Conductive Polymer Chip	-55	+125	10	000	2.5	16	33	1000	6.3×5.7	10×7.7	Silver	32	
	PRM	46	Super Low ESR Conductive Polymer, lead terminal type	-55	+105	20	000	2.5	10	220	1500	6.3×8.0	10×12.5	Silver	04	

● Chip Type Aluminum Electrolytic Capacitors

Category	Series	Page	Application	Temp.	Category Temp. Range (°C) Life time Range (hours)		nge	Rar		Ra	apacitance ange uF)	φD x L (mm)		Outside color	JIS Configurati	Note
F				Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.			
ard	RV4	58	4.5mm L	-40	+85	20	000	6.3	50	1	100	4×4.5	6.3×4.5	Silver	32	
Standard	RV5	56	High CV	-40	+85	20	000	4	100	1	2200	4×5.3	12.5×13.5	Silver	32	
Ľ,	RVB	59	Non Polarized	-40	+85	20	000	6.3	50	1	47	4×5.3	6.3×5.3	Silver	32	
	RVE	89	105℃ , 4.5mmL	-40	+105	10	000	6.3	50	1	100	4×4.5	6.3×4.5	Silver	32	
	RVS	60	105℃ , 5.5mm L	-55	+105	10	000	6.3	50	1	1500	4×5.3	10×10.5	Silver	32	
≥	RVL	62	105℃ , 5.5mm L	-55	+105	20	000	6.3	50	1	100	4×5.7	6.3×5.7	Silver	32	
liabili	RVJ	64	105°C, Higher Capacitance	-55	+105	2000	5000	6.3	100	10	1000	8×6.5	12.5×13.5	Silver	32	
High Reliability	RVR	66	105°C, Long Life, High CV	-40	+105	20	000	4	50	1	1500	4×5.3	10×10.5	Silver	32	
Ìੌੌ	RVI	90	105℃ , Non Polarized, 2000h	-40	+105	20	000	6.3	50	1	47	4×5.8	6.3×5.8	Silver	32	
	RVC	68	105°C, 3000h/5000h	-40	+105	3000	5000	6.3	50	1	1000	4×5.8	10×10	Silver	32	
	RZH	70	105°C, 5000h/7000h	-55	+105	5000	7000	6.3	35	22	1000	6.3×5.8	10×10	Silver	32	*
	RVZ	72	105℃ , Low Impedance	-55	+105	1000	5000	6.3	35	4.7	2700	4×5.3	12.5×13.5	Silver	32	
ability	RVD	74	105℃, Low Impedance, Long life	-55	+105	2000	5000	6.3	100	4.7	2200	4×5.8	12.5×13.5	Silver	32	
High Reliability	RVV	76	105℃ , Low Impedance, High CV	-55	+105	20	000	6.3	50	33	1500	6.3×5.8	10×10	Silver	32	☆
, E	RZD	78	105°C , Low Impedance, High CV	-55	+105	20	000	6.3	80	22	2200	6.3×5.8	10×10	Silver	32	☆
Low ESR,	RVT	80	125℃ , Low ESR	-40	+125	1000	5000	10	100	4.7	1000	4×5.8	12.5×13.5	Silver	32	
	RZJ	82	125℃ , Low ESR, Long Life	-40	+125	2000	3000	10	35	47	470	6.3×7.7	10×10	Silver	32	*
Low Impedance,	RZF	84	125℃ , Low ESR, Long Life, High CV	-40	+125	2000	4000	10	80	22	680	6.3×5.8	10×10	Silver	32	☆
w Im	RZE	86	125℃ , Low ESR, High CV	-40	+125	20	000	35	35	47	100	6.3	×7.7	Silver	32	☆
2	RVX	88	135℃, Higher Reliability	-40	+135	10	000	25	35	22	330	8×10	10×10	Silver	32	
nge	RTZ	92	105℃, Low Z, High CV, 30G Vibration resistance	-55	+105	1000	5000	6.3	35	33	8200	6.3×5.8	18×21.5	Silver	32	☆
Resista	RTD	94	105℃, Low Z, High CV, 30G Vibration resistance	-55	+105	2000	4000	6.3	100	10	8200	6.3×5.8	18×21.5	Silver	32	☆
For Vibration Resistance	RTT	96	125°C, Low ESR, High CV, 30G Vibration resistance	-40	+125	1000	5000	10	100	10	4700	6.3×5.8	18×21.5	Silver	32	☆
For Vik	RTQ	98	150℃, Low ESR, High CV, 30G Vibration resistance	-40	+150	10	000	10	35	33	470	8×10	10×10	Silver	32	

st Be sure to "Cautions for using Aluminum Electrolytic capacitors", before using these products.

★ : New series

☆: Upgrade

■ Type List for Aluminum Electrolytic Capacitors

Miniature Aluminum Electrolytic Capacitors

Category	Series	Page	Application Application	Temp.	egory Range C)	Life Rar (ho	nge	Rated \ Rar (V.I	nge	Ra	apacitance ange uF)	Size ι φD x l		Outside	JIS Configurati	Note
ပိ	O)			Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	0	S	
	RC3	100	5mmL, Standard	-40	+85	10	000	4	50	1	470	4×5	8×5	Blue	04	
	R3S	101	5mmL, 105°C	-55	+105	10	000	6.3	50	1	100	4×5	6.3×5	Black	04	
Low profile	RB3	102	5mmL, Bipolar	-40	+85	10	000	6.3	50	0.33	47	4×5	6.3×5	Blue	04	
Low	RC2	103	7mmL, Standard	-40	+85	10	000	4	100	1	330	4×7	8×7	Blue	04	
	R2S	104	7mmL, 105°C	-55	+105	10	000	6.3	50	1	100	4×7	6.3×7	Black	04	
	RB2	105	7mmL, Bipolar	-40	+85	10	000	6.3	50	0.33	47	4×7	6.3×7	Blue	04	
	RE3	106	Miniaturized Standard	-40	+85	20	000	6.3	450	0.47	22000	5×11	18×40	Blue	04	
	R2B	108	Bipolarity Standard	-40	+85	20	000	6.3	100	1	4700	5×11	18×35.5	Blue	04	
Standard	RJP	109	105℃ , Bipolar	-40	+105	1000	2000	6.3	50	1	6800	5×11	18×35.5	Black	04	
Stan	RJ5	112	105°C , Miniaturized, High CV	-55 -40	+105	1000	2000	6.3 160	100 450	1	22000 470	5×11 6.3×11	18×40 18×40	Black	04	
	RJ4	114	105°C , Miniaturized	-55 -40	+105	1000	2000	6.3	100	1	22000 330	5×11 6.3×11	18×40 18×35.5	Black	04	
	RJ3	116	105°C , Low Impedance	-55	+105	1000	2000	6.3	100	1	15000	5×11	18×35.5	Black	04	
pecial	RLB	110	Low-leakage Current	-40 -40	+85	10	000	160 6.3	400 50	1	220 2200	6.3×11 5×11	18×40 18×35.5	Blue	04	
≥	RJB	118	105℃, Low Impedance, Miniaturized	-55	+105	2000	5000	6.3	100	3.3	10000	5×11.5	16×31.5	Black	04	
Reliability	RJH	120	105°C , Extra Low Impedance	-55	+105	2000	5000	6.3	100	1	15000	5×11.5	18×40	Black	04	
gh Re	RJF	123	105℃, Extra Low Impedance, Miniaturized	-40	+105	1000	10000	6.3	100	5.6	6800	4×7	16×25	Black	04	
ESR, High	RJM	126	105℃, Long life, Low Impedance	-40	+105	6000	10000	6.3	50	27	8200	5×11.5	16×25	Black	04	☆
	RJD	128	105℃, Low ESR, High Ripple, Miniaturized	-55	+105	2000	8000	6.3	100	10	18000	5×11.5	20×40	Black	04	
ce, Lo	RKD	140	125°C , Low ESR, Miniaturized	-40	+125	2000	5000	10	100	100	8200	8×12	20×40	Black	04	
Low Impedance, Low	RKB	142	135℃ , Low ESR, Miniaturized	-40	+135	2000	3000	10	100	220	6800	10×12.5	18×40	Silver	04	
w Imp	RKC	144	135℃ , Low ESR, Miniaturized	-40	+135	2000	3000	25	100	160	12000	12.5×20	18×40	Silver	04	
Lo	RQA	146	150℃ , Miniaturized	-40	+150	10	000	10	63	220	4700	10×14.5	18×42.5	Silver	04	
For Air bag	RJE	131	105℃ , Low ESR, High Ripple, For Airbag	-55	+105	50	000	25	35	830	11000	12.5×15	18×40	Black	04	
	RJK	132	105℃, High CV, Low ESR, High Ripple, For Airbag	-55	+105	50	000	25	35	2500	17000	16×20	20×40	Black	04	☆
stance	RPK	148	125℃, Low ESR, 30G Vibration resistance	-40	+125	50	000	10	100	220	8200	12.5×15	20×40	Black	04	
n Resi	RKE	150	125℃ , Low ESR, 40G Vibration resistance	-40	+125	50	000	25	50	1200	8200	16×31.5	22×40	Silver	04	
For Vibration Resistance	RKF	152	135℃ , Low ESR, 40G Vibration resistance	-40	+135	2000	3000	25	100	180	10000	12.5×25	22×40	Silver	04	
	RKG	154	150℃, Low ESR, 40G Vibration resistance	-40	+150	1000	2000	25	80	800	4700	18×42	22×42	Silver	04	
e, long	RHS	134	105℃ , Long Life, High Ripple, For OBC	-40	+105	4000	5000	160	450	1	1000	10×12.5	22×50	Black	04	☆
Ripple, Life	RHC	136	105℃ , Long Life, High Ripple, For OBC	-40	+105	5000	10000	160	450	2.2	1000	10×12.5	22×50	Black	04	☆
High	RHD	138	105°C , Long Life, High Ripple, For OBC	-40	+105	8000	12000	160	450	3.3	1000	10×12.5	22×50	Black	04	☆

^{*} Be sure to "Cautions for using Aluminum Electrolytic capacitors", before using these products.

Some of the series listed in the below table have been removed from the catalogue. Please select from the new series for a designing your(new) application.

Category	Series	Application	Temp.	egory Range C)	Life time Range (hours)		Rated Voltage Range (V.DC)		Rated Capacitance Range (µF)		Size range φD x L (mm)		Substitute series to
			Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	recomend
	PVH	Low ESR Conductive Polymer Chip	-55	+105	20	000	2.5	35	10	1000	6.3×5.7	10×7.7	PVM
Polymer	PV3	Super Low ESR Conductive Polymer Chip, 4.0mmL	-55	+105	10	000	2.5	6.3	150	220	5×	4.0	_
Folymer	PV2	Super Low ESR Conductive Polymer Chip, 4.5mmL		+105	20	000	2.5	25	15	390	5×4.5	6.3×4.5	_
	PVS	Super Low ESR, High Voltage Conductive	-55	+105	20	000	35	63	18	100	6.3×5.7	10×7.7	_
	RV2	85°C, 5.5mm L, Standard	-40	+85	20	000	4	50	0.1	220	3×5.3	6.3×5.3	RV5
	RV3	85℃, High CV	-40	+85	20	000	6.3	50	4.7	330	4×5.3	6.3×7.7	RV5
	RV	85°C, Large Capacitance	-40	+85	20	000	6.3	100	10	2200	8×6.5	12.5×13.5	RV5
Chip	RVK	125°C, Standard	-40	+125	1000	5000	10	63	10	1000	8×10	12.5×13.5	RVT
	RTJ	105°C, Vibration resistance	-55	+105	20	000	6.3	100	10	470	8×10	10×10.5	RTZ
	RTK	125℃, Vibration resistance	-40	+125	1000	1250	10	63	10	330	8×10	10×10.5	RTT
	RYK	125°C, Horizontal type	-40	+125	10	000	6.3	63	56	820	9.5×19.0	9.5×24.0	_
	RJJ	105°C , Low Impedance	-55	+105	2000	5000	6.3	100	0.47	15000	5×11.5	18×40	RJH
Miniature	RK	125°C, Standard	-40	+125	2000	5000	10	63	47	10000	8×12	18×40	RKD
	RJL	105°C, Long life, Low Impedance	-40	+105	4000	10000	6.3	100	6.8	6800	5×11.5	16×25	RJF, RJM



■ Type List for Aluminum Electrolytic Capacitors

★ : New series ☆ : Upgrade

■ Large Capacitance Aluminum Electrolytic Capacitors

ategory	Category Series Page		Application		egory Range C)	Life time Range (hours)	Rated Voltage Range (V.DC)		Rated Capacitance Range (μF)		φD x L (mm)		Outside color	JIS onfigurati	Note
0				Min.	Max.	(1.04.0)	Min.	Max.	Min.	Max.	Min.	Max.		ŏ	
	LA5	156	Miniaturized	-40 -25	+85	2000	10 	400 450	56 47	150000 820	22×20	35×50	Black	692	
	LAH	166	105℃, Standard	-40 -25	+105	2000	16 160	100 450	390 56	82000 2200	22×20	35×50	Black	692	
	LAT	172	105℃ , Miniaturized	-25	+105	2000	160	500	22	3900	22×20	35×60	Black	692	☆
Snap-in	LAZ	178	High-Reliability, High Ripple, Long Life	-40 -25	+105	3000	16 160	100 500	390 39	82000 3900	22×20	35×50 35×60	Black	692	☆
0	LAX	188	105℃, Ultra Long Life	-25	+105	5000	160	500	39	3900	22×20	35×60	Black	692	☆
	LJ6	194	105℃, Higher Capacitance, Ultra Long Life	-25	+105	5000	200	500	390	3900	35×40	40×80	Black	_	☆
	LJ2	194	105℃, Higher Capacitance, Ultra Long Life	-25	+105	5000	200	500	560	3900	40×45	40×80	Black	_	☆
Special	LPM	196	High ripple current	-25	+85	2000	250	400	45	220	35×40	35×50	Black	692	
Spe	LM	196	High ripple current, Higher Capacitance	-25	+85	2000	250	400	90	440	35×80	40×100	Black	_	
a	LYX	198	105°C . Ultra Long Life	-40	+105	5000	350	450	1000	15000	51×75	90×236	Black	331	
terminal	LYL	200	Ultra Long Life	-40	+85	20000	350	450	1000	15000	51×75	90×236	Black	331	
Screw t	LY6	202	High Ripple, Miniaturized	-25	+85	5000	400	600	1000	22000	51×115	101×237	Black	331	
Š	LY5	204	Standard	-40 -25	+85	2000	10 350	250 630	1500 470	820000 18000	36×53 36×83	90×171 101×220	Black	331	

Aluminum Electrolytic Capacitors for Audio

Category	Series	Page	Application		egory Range C)	e Life time Range (hours)	Rated Voltage Range (V.DC)		Rated Capacitance Range (μF)		Size range φD x L (mm)		Outside color	JIS Configurati	Note
0				Min.	Max.	(**************************************	Min.	Max.	Min.	Max.	Min.	Max.		ŏ	
	RVO	208	Chip Type (PURECAP)	-40	+85	2000	6.3	50	0.33	1000	4×5.3	10×10	Silver	32	
	RVF	209	Chip Type (SILMIC)	-40	+85	2000	10	50	1	100	4×5.3	8×10	Silver	32	
	RVM	210	Chip Type 105°C , 2000h	-55	+105	2000	6.3	50	1	470	4×5.8	10×10.5	Silver	32	
	RVG	211	Chip Type	-40	+85	2000	6.3	35	3.3	470	4×5.3	10×10	Silver	32	
	RFS	212	High Grade (SILMIC II)	-40	+85	1000	6.3	100	3.3	3300	5×11	18×40	Brown	04	
Audio	ROS	213	High Grade (SILMIC)	-40	+85	1000	16	100	10	2200	6.3×11	18×40	Brown	04	
For A	ROB	214	Miniaturized Standard (TONEREX)	-40	+85	1000	6.3	100	1	10000	5×11	18×40	Black	04	
	RFO	215	Standard (PURECAP)	-40	+85	1000	6.3	100	1	15000	5×11	18×35.5	Black	04	
	RA3	216	Miniaturized Standard	-40	+85	2000	6.3	100	1	22000	5×11	18×35.5	Brown	04	
	RW5	217	105℃ , Miniaturized	-55	+105	1000	16	25	100	15000	5×11.5	18×40	Black	04	
	RBD	218	Miniaturized Bipolar	-40	+85	2000	6.3	100	1	4700	5×11	18×35.5	Black	04	
	LAO	219	For Audio, Higher Capacitance	-40	+85	1000	16	100	680	10000	22×20	35×50	Black	692	

^{*} Be sure to "Cautions for using Aluminum Electrolytic capacitors", before using these products.

● Some of the series listed in the below table have been removed from the catalogue. Please select from the new series for a designing your(new) application.

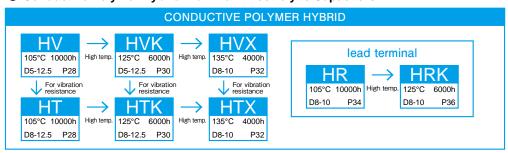
Category	Series	es Application		egory Range C)	Range Range C) (hours)		Rated Voltage Range (V.DC)		Rated Capacitance Range (μF)		Size range φD x L (mm)		Substitute series to recomend
			Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Tecomena
	PVO	For Audio, Conductive Polymer Chip	-55	+105	20	000	4	25	6.8	470	6.3×5.7	10×7.7	
	RVW	105°C, Chip Type (PURECAP)	-55	+105	10	000	6.3	50	0.33	470	4×5.3	10×10	
For Audio	ROA	High Grade (Cerafine)	-40	+85	10	000	6.3	100	0.47	6800	5×11	18×40	Please consult
	R2A	7mmL	-40	+85	10	000	6.3	50	0.33	330	4×7	8×7	
	R3A	5mmL	-40	+85	10	000	4	50	0.22	220	4×5	6.3×5	

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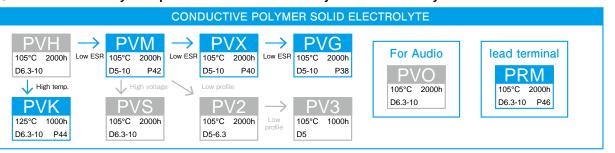


■ Systematized Classification of Aluminum Electrolytic Capacitors

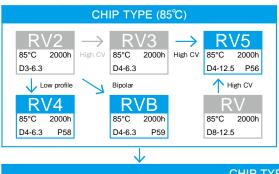
Conductive Polymer Hybrid Aluminum Electrolytic Capacitors

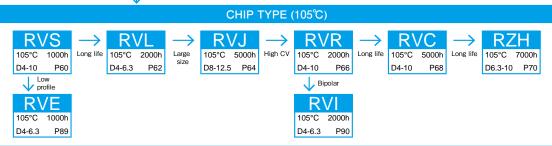


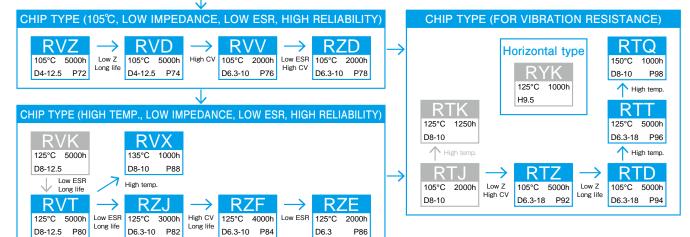
■ Aluminum Electrolytic Capacitors with Conductive Polymer Solid Electrolyte



Chip Type Aluminum Electrolytic Capacitors

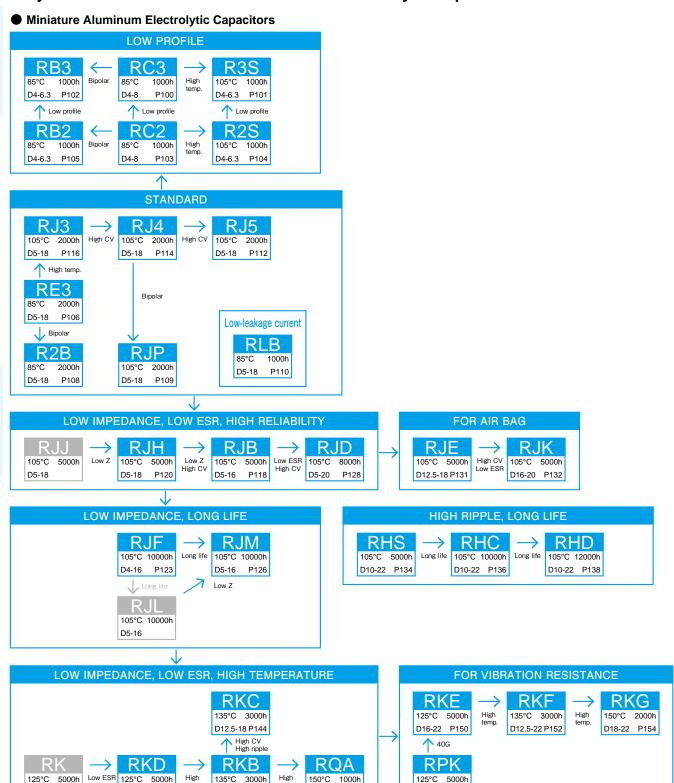








■ Systematized Classification of Aluminum Electrolytic Capacitors



High CV

D8-20

P140

D10-18 P142

D8-18

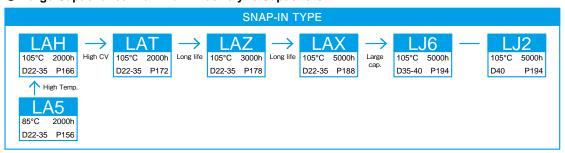
D10-18 P146

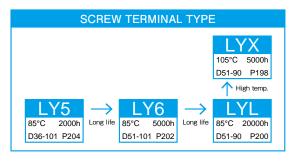
D12.5-20 P148

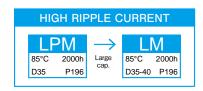
■ Systematized Classification of Aluminum Electrolytic Capacitors

Large Capacitance Aluminum Electrolytic Capacitors

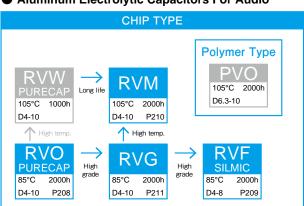
ELNA®

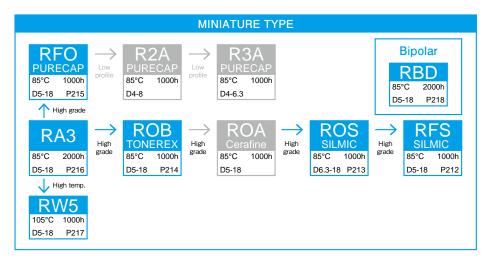




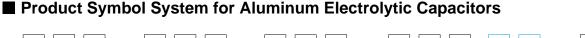


Aluminum Electrolytic Capacitors For Audio









1Series code

②Rated voltage symbol

③Rated capacitance symbol

4 5 Casing symbol

⑥Optional symbol

7 Taping, Lead-forming symbol

1Series code

Please refer to the page of each series.

2 Rated voltage symbol

Write down the rated voltage itself; however, write 2R5 for 2.5V, 6 for 6.3V.

3 Rated capacitance symbol

The symbol denoting nominal capacitance shall consist of three numerals. The first and second numerals shall represent the significant figures of nominal capacitance in the unit of microfarad (μF).

And the third numeral shall represent the number of zeros following the significant figures.

A decimal point is expressed with "R."

Example

Rated capacitance (µF)	Symbol
0.1	R10
1	010
2.2	2R2
33	330
100	101
2200	222
33000	333
470000	474

4 Capacitance tolerance symbol

Example

Capacitance tolerance	Symbol
±10%	К
±20%	М
-10 to +30%	Q
-10 to +50%	Т

5 Casing symbol

Please refer to the page of each series.

6 Optional symbol

Plating

Example

Symbol	Contents
#	Sn 100% plating +PET sleeve (lead terminal type)
U	Sn-Bi plating (chip type)
Т	Sn 100% plating (chip type)

For Automotive

Example

Symbol	Contents
Q	Based on AEC-Q200
N	Based on AEC-Q200

7Taping, Lead-forming symbol

Write down one of the forming symbols given on page 16 to 19 for taping and lead-forming capacitors. When taping or lead-forming is not necessary, leave the boxes blank.

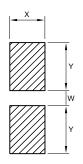
LAND PATTERN

ELNA®

ELECTROLYTIC CAPACITORS AND SIZE

■ Recommended land pattern and size (Vertical chip type)

Standard type

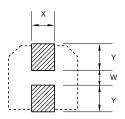


				(Unit:mm)
Case Size		Land Size		Thickness of
φD×L	Х	Y	W	Solder paste
4×4.5, 5.3, 5.7, 5.8	1.6	2.6	1.0	0.15
5×4.5, 5.3, 5.7, 5.8	1.6	3.0	1.4	0.15
6.3×4.5, 5.3, 5.7, 5.8	1.6	3.6	1.9	0.15
6.3×7.7	1.6	3.6	1.9	0.15
8×6.5, 6.7, 7.7, 8.7	1.6	4.0	2.1	0.15
8×10, 10.5	2.5	*3.5	*3.0	0.15
10×7.7, 8.7, 10, 10.5, 12.5	2.5	*4.0	*4.0	0.15
12.5×13.5	3.2	6.0	4.0	0.15

*For Vibration resistance use \$\phi \times 6.5\$ Y=4.5 W=1.0 \$\phi \times 10.\$ \phi \times 10.5 Y=4.5 W=1.0 \$\phi \times 10.\$ \phi \times 10.\$ \times 12.5 Y=4.5 W=3.0 \$\phi \times 12.5\$ Y=4.5 W=3.0

For vibration resistance type

RTZ, RTD, RTT, RTQ, RTV, RMH, RMD, RMJ, RMF, RME, HT, HTK, HTX series



(Unit : mir									
Case Size		Land Size							
φD	Х	Y	W	Solder paste					
6.3	3.0	4.0	1.6	0.20					
8	5.0	4.0	2.5	0.20					
10	5.0	4.8	3.6	0.20					
12.5	7.0	6.6	3.2	0.20					
16	10.5	7.8	5.0	0.20					
18	10.5	8.8	5.0	0.20					

SOLDERING

CONDITIONS

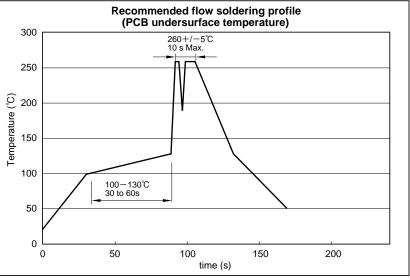


■ Recommended soldering conditions (Lead free)

• Aluminum (Conductive Polymer, Hybrid) electrolytic capacitors (Lead terminal type, Snap-in type)

- (1) Soldering iron conditions Iron tip temperature shall be 400°C±5°C within the duration of 3^{*1} seconds.
- Iron tip temperature shall be 400°C±5°C within the duration of 3 sec (2) Flow soldering conditions

The recommendation soldering conditions of the product in which flow soldering is possible are as graph.



Caution for Using aluminum Electrolytic Capacitors

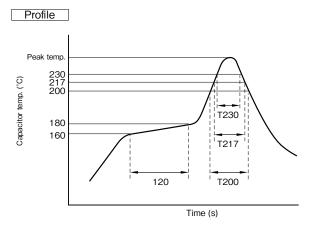
- (1) Do not dip the capacitor into melted solder.
- (2) Do not flux other part than the terminals.
- (3) If there is a direct contact between the sleeve of the capacitor and the printed circuit pattern or a metal part of another component such as a lead wire, it may cause shrinkage of crack.
- (4) If the application is for extended use, understand and manage the soldering characteristics to avoid abnormal current caused by a contact failure between the capacitor and the PCB.
- (5) Please refer to cautions for using on page 24 to 26 or 50 to 53 and product specifications about other notes.

ELNA®

■ Recommended soldering conditions (Lead free)

• Chip type aluminum (Conductive Polymer, Hybrid) electrolytic capacitors

- Soldering iron conditions
 Iron tip temperature shall be 400°C±5°C within the duration of 3^{*1} seconds.
- (2) Reflow soldering conditions



- T200 : Duration while capacitor head temperature exceeds 200°C (s) T217 : Duration while capacitor head temperature exceeds 217°C (s) T230 : Duration while capacitor head temperature exceeds 230°C (s)
- The measurement temperature point is the case top.

- Preheating shall be under 180°C within 120 seconds.
- Peak temperature shall be within the following table.
- 3. For conditions exceeding the tolerances, consult with us.

SOLDERING

CONDITIONS

• Chip type aluminum Conductive Polymer, Hybrid electrolytic capacitors

Series	Size	Peak temp. (5sec or less)	T230	T217	T200	Reflow cycle
HV, HVK, HVX, HT, HTK, HTX, PVG, PVX,	φ5 to φ6.3	250°C Max.	40 sec. max.	50 sec. max.	60 sec. max.	2 times or less
PVM, PVK,	φ8 to φ10	240°C Max.	40 sec. max.	50 sec. max.	60 sec. max.	2 times or less

Chip type aluminum electrolytic capacitors

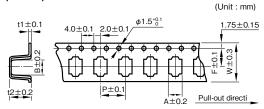
Series	Size	Peak temp. (5sec or less)	T230	T217	T200	Reflow cycle
RV2, RV3, RV5, RV, RVB, RVS, RVL, RVR,	φ4 to φ6.3	250°C Max.	40 sec. max.	50 sec. max.	60 sec. max.	2 times or less
RVC, RZH, RVZ, RVD, RVV, RZD, RVT, RZJ, RZF, RZE, RVX, RVE,	φ8 to φ10	240°C Max.	40 sec. max.	50 sec. max.	60 sec. max.	2 times or less
RVI, RVO, RVF, RVM, RVG	φ12.5	240°C Max.	20 sec. max.	30 sec. max.	50 sec. max.	2 times or less
RV4	φ4 to φ5	250°C Max.	40 sec. max.	50 sec. max.	60 sec. max.	2 times or less
	φ6.3	240°C Max.	40 sec. max.	50 sec. max.	60 sec. max.	2 times or less
RVJ	φ8 to φ10	240°C Max.	40 sec. max.	50 sec. max.	60 sec. max.	2 times or less
	φ12.5	230°C Max.	_	20 sec. max.	30 sec. max.	2 times or less
RZA, RZB, RZC	φ4 to φ6.3	260°C Max.	40 sec. max.	90 sec. max.	_	2 times or less
	φ8 to φ10	250°C Max.	40 sec. max.	90 sec. max.	_	2 times or less
RTZ, RTD, RTT, RTQ,	φ6.3	250°C Max.	40 sec. max.	60 sec. max.	80 sec. max.	2 times or less
RTV, RMH, RMD, RMJ, RMF, RME	φ8 to φ10	250°C Max.	30 sec. max.	60 sec. max.	80 sec. max.	2 times or less
	φ12.5 to φ18	240°C Max.	20 sec. max.	30 sec. max.	50 sec. max.	2 times or less

^{*}Please ensure that the capacitor became cold enough to the room temperature (5 to 35°C) before the second reflow.

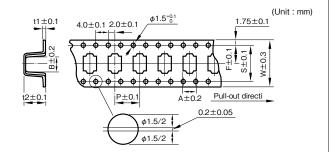


■ Taping

- Carrier tape dimension (taping polarity R)
- \bullet ϕ 4 to ϕ 10



\bullet ϕ 12.5 to 18

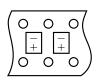


(Unit:mm)

■ Taping polarity

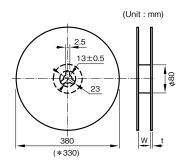
(The all series except bypolar type)





Outside size φD×L	W	А	В	Р	t2	F	t1	S
4×4.5	12	4.7	4.7	8.0	4.8	5.5	0.4	
4×5.3	12	4.7	4.7	8.0	5.8	5.5	0.4	_
4×5.7, 5.8	12	4.7	4.7	8.0	6.2	5.5	0.4	_
5×4.5	12	5.7	5.7	12	4.8	5.5	0.4	_
5×5.3	12	5.7	5.7	12	5.8	5.5	0.4	_
5×5.7, 5.8	12	5.7	5.7	12	6.2	5.5	0.4	_
6.3×4.5	16	7.0	7.0	12	4.8	7.5	0.4	_
6.3×5.3	16	7.0	7.0	12	5.8	7.5	0.4	_
6.3×5.7, 5.8	16	7.0	7.0	12	6.2	7.5	0.4	_
6.3×7.7	16	7.0	7.0	12	8.3	7.5	0.4	_
8×6.5	16	8.7	8.7	12	6.8	7.5	0.4	_
8×6.7	24	8.7	8.7	12	7.2	11.5	0.4	_
8×7.7	24	8.7	8.7	12	8.2	11.5	0.4	_
8×8.7	24	8.7	8.7	16	9.5	11.5	0.4	_
8×10	24	8.7	8.7	16	11	11.5	0.4	_
8×10.5	24	8.7	8.7	16	11.5	11.5	0.4	_
10×7.7	24	10.7	10.7	16	8.2	11.5	0.4	_
10×8.7	24	10.7	10.7	16	9.5	11.5	0.4	_
10×10	24	10.7	10.7	16	11	11.5	0.4	_
10×10.5	24	10.7	10.7	16	11.5	11.5	0.4	_
10×12.5	24	10.7	10.7	16	13.0	11.5	0.4	_
12.5×13.5	32	13.4	13.4	24	14.5	14.2	0.5	28.4
16×16.5	44	17	17	28	17.5	20.2	0.5	40.4
16×21.5	44	17	17	28	22.5	20.2	0.5	40.4
18×16.5	44	19	19	32	17.5	20.2	0.5	40.4
18×21.5	44	19	19	32	22.5	20.2	0.5	40.4

■ Reel dimension



■ Reel material

Card board : symbol R

Polystyrene: symbol R2 (ϕ 10 or less) R5 (ϕ 12.5 or more)

		(Ur	nit : mm)
	Outside size	Reel dir	nension
	φD×L	W	t
	4	14	3
	5	14	3
	6.3	18	3
	8×6.5	18	3
	8×6.7	26	3
	8, 10	26	3
:	12.5	34	3
:	16	46	3
:	18	46	3

■ Packing quantity (Reel)

	Outside size φD×L	Quatity (PCS.)
	4	2000
	5, 6.3	1000
	8×6.5, 6.7	1000
	8×7.7 to 10.5	500
	10×7.7 to 10.5	500
	10×12.5	400
*	12.5×13.5	200
*	16×16.5	125
*	16×21.5	75
*	18×16.5	125
*	18×21.5	75

ELECTRIC DOUBLE LAYER CAPACITORS (LEAD TERMINAL TYPE) MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS LEAD FORMING

■ Lead Forming

• In order to facilitate insertion into printed circuit board, lead wires are cut or formed.

Product Size Table

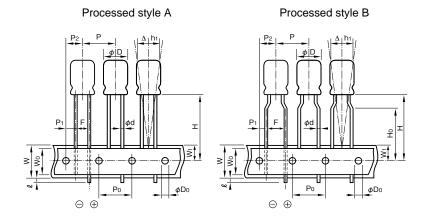
Unit: mm

	Lead		ension	Chile Outline depuise				
Forming name	forming symbol	F (Lead pitch)	φD (Case diameter)	Style	Outline drawing			
	F10	2.0	4	В				
	F1	2.0	5	Α	Processed style A Processed style B			
	F12	2.5	4 to 5	В				
	F1	2.0	6.3	Α				
Forming cut	F1	3.5	8	Α				
	F4	0.0	4 to 8	В				
	F	5.0	4 to 8	В	L 4.5±0.5 L 4.5±0.5 4.5±0.5 2.5Max. (5mmL, 7mmL : 2.0 Max.)			
	F	0.0	10 to 12.5	Α	Z.OWAA. (OHIIIL, THIIL . Z.O WAA.)			
	F	7.5	16 to 18	Α				
	S1	5.0	4 to 8	В	Processed style A Processed style B			
	S1	0.0	10 to 12.5	Α				
	S1	7.5	16 to 18	Α				
Snap-in					4.5±0.5 2.0Max. (5mmL, 7mmL: 1.5 Max.) 4.5±0.5			
	F49		10 to 12.5		F49 3.2±0.5 F51 3.1 ^{+0.4}			
	F51	5.0	10 to 12.5		G			
	F58	-	10					
Forming cut	F49		16 to 18					
(restrict series)	F51	7.5	16 to 18		F58 3.3±0.5			
		•						

	Lead	Dimension				
Forming name	forming symbol	F (Lead pitch)	φD (Case diameter)	lо	l ₁	Outline drawing
	G9, G10	3.5	8	5.5	1.0	
	G59, G60		8	3.6	1.0	
	G9, G10	- 5.0	10 to 12.5	5.5	1.0	
	G55, G56		12.5	7.5	2.5	L 05 100 100 100 100 100 100 100 100 100
	G59, G60		10 to 12.5	3.6	1.0	ℓ₁±0.5 U å
For 90° side mount of case	G95, G96		12.5	0.95	4.9	
	G99, GA0		10	1.0	1.9	
	GAS, GAT		10 to 12.5	4.5	1.0	
	G9, G10	7.5	16 to 18	5.5	1.0	⊖ ⊕ ⊕ ⊖ OCO OFF OCO
	GAS, GAT	1.5	16 to 18	16 to 18 4.5		G9, G55, G59, G10, G56, G60, G95, G99, GAS G96, GAO, GAT
		•				300, 300, 3.10

■ Taping

• For automatic insertion (radial lead type)



^{*}The shape of a lead wire sandwiched by the mounting strips may differ from the ones shown in the figures.

Product Size Table

Unit: mm

Item	Symbol	Tolerance		5L to 8L				
nem	Symbol	roierance	φ4 to φ8(ex	cept φ8×7L)	φ4 to φ8			
Lead forming symbol	_	_	Т36	T58	T2			
Style	_	_	A	or B	В			
Lead-wire diameter	φd	±0.05		0.4 or 0.45				
Lead to lead distance	F	+0.8 -0.2	2	.5	5.0			
Height of component from tape center	Н	+0.75 -0.5	18.5	17	7.5			
Lead-wire clinch height	Ho	±0.5	_	16.0 (φ4)	16.0			
Pitch of component	Р	±1.0		12.7				
Feed hole pitch	Po	±0.3		12.7				
Hole center to lead	P1	±0.5	5	.1	3.85			
Hole center to component	P2	±1.0		6.35				
Tape width	W	±0.5		18.0				
Hold down tape width	Wo	Min.		6.0				
Feed hole position	W1	±0.5		9.0				
Max. lead protrusion	l	Max.		1.0				
Feed hole diameter	φDo	±0.2		4.0				
Alignment of component to center	Δh	±1.0	0 0					
Alignment of component to center	Δh1	±1.0						
Total tape thickness	t	±0.2		0.7				

ELNA®

■ Taping

• For automatic insertion (radial lead type)

Product Size Table

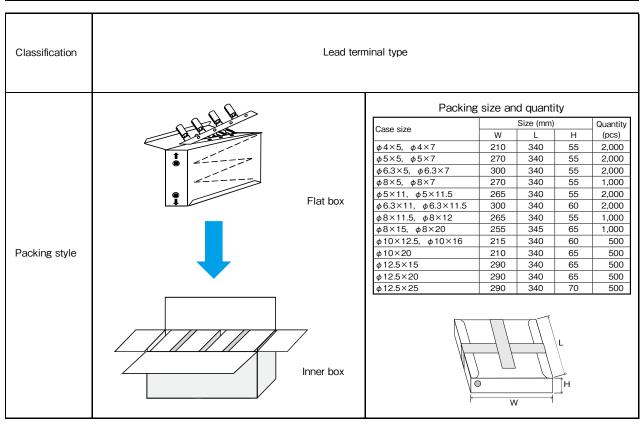
Product Size Table					11L t	o 25L		Unit	
Item	Symbol	Tolerance		φ5, φ6.3		φ8	φ10	φ12.5	
Lead forming symbol	_	_	T36	T58	T2	T2	T2	T4	
Style	_	_	A	or B	E	3	A		
Lead-wire diameter	φd	±0.05		0.5 or 0.6			0.6		
Lead to lead distance	F	+0.8 -0.2	2	2.5		5	5.0		
Height of component from tape center	Н	+0.75 -0.5	18.5 17.5 18.5 20.0		18	18.5			
Lead-wire clinch height	Ho	±0.5	-	_	16	5.0	_	_	
Pitch of component	Р	±1.0	12.7					15.0	
Feed hole pitch	Po	±0.3	12.7					15.0	
Hole center to lead	P1	+0.5 (10 to φ18 ±0.7)	5	.1		3.85	5.0		
Hole center to component	P2	±1.0			6.35			7.5	
Tape width	W	±0.5			18	3.0			
Hold down tape width	Wo	Min.			6	.0			
Feed hole position	W1	±0.5			9	.0			
Max. lead protrusion	l	Max.			1	.0			
Feed hole diameter	φD0	±0.2			4	.0			
Alignment of component to center	Δh	±1.0	0						
Alignment of component to center	Δh1	±1.0			(0			
Total tape thickness	t	±0.2			0	.7			

Part numl	Part numbering system (example: Series RJB, 10V470µF, 5mm pitch taping)										
RJB — 10 V				471	М	G3	# —	T2			
Series code	Series code Rated voltage symbol			Rated capacitance symbol	Capacitance tolerance symbol	Casing symbol		Taping symbol			



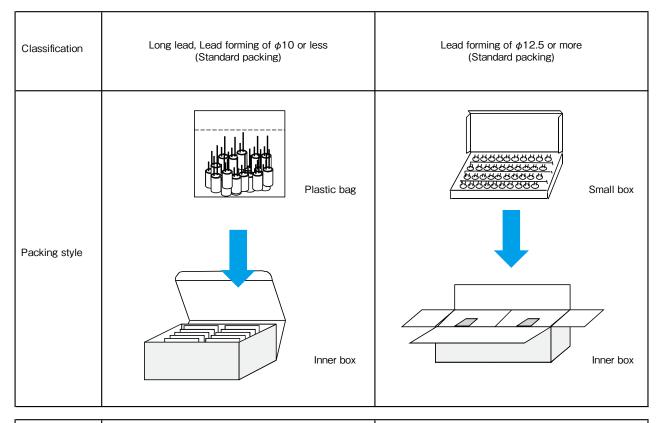
■ Standard packing specification of aluminum (Conductive Polymer, Hybrid) electrolytic capacitors (taping article)

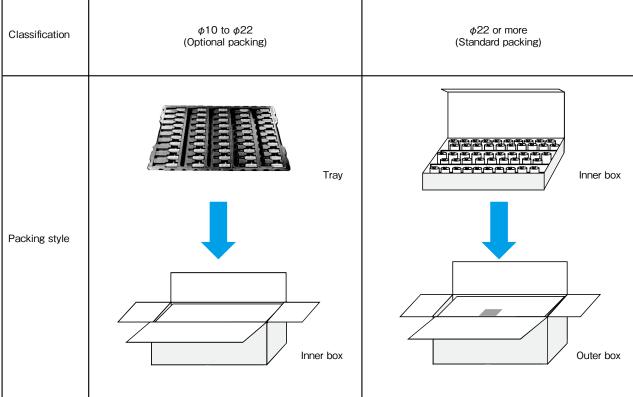
	Chi	p type		
Classification	Conductive Polymer Hybrid Aluminum Electrolytic Capacitors, Aluminum electrolytic capacitors	Aluminium electrolytic capacitors with conductive polymer solid electrolyte		
	Reel	Reel		
Packing style		Dampproof bag		
	Inner box	Inner box		



Please inquire for details.

■ Standard packing specification of aluminum electrolytic capacitors (long lead, lead forming)





Please inquire for details.

ELNA®

Aluminum Electrolytic Capacitors

Conductive Polymer Hybrid Aluminum Electrolytic Capacitors

Aluminum Electrolytic Capacitors With Conductive Polymer Solid Electrolyte

Chip Type Aluminum Electrolytic Capacitors

Large Capacitance Aluminum Electrolytic Capacitors

Aluminum Electrolytic Capacitors for Audio

POLYMER HYBRID

CAUTION CONDUCTIVE POLYMER HYBRID ALUMINUM ELECTROLYTIC CAPACITORS ALUMINUM ELECTROLYTIC CAPACITORS WITH CONDUCTIVE POLYMER SOLID ELECTROLYTE



■ Cautions for Using Conductive Polymer Hybrid Aluminum Electrolytic Capacitors, Aluminum Electrolytic Capacitors With Conductive Polymer Solid Electrolyte

Please be sure to read this specification before using this product. Before placing an order, please inquire about the Specification to check details.

■Cautions for Usage

- 1. Conductive Polymer Hybrid Aluminum Electrolytic Capacitors, Solid Conductive Polymer **Aluminum Electrolytic Capacitors are polarized.**
- Using a capacitor with reversed polarity causes abnormal current flow, resulting in a short circuit.
- · Cannot use for the circuit to which the polarity reverses by ripple voltage.

2. Prohibited Circuits

- Since leakage current problem may arise, capacitors cannot be used in the following circuits.
 - 1)Coupling circuits
 - ②Circuits greatly affected by leakage current

3. Use capacitors within the rated voltage.

· The application of voltages exceeding the rated voltage can significantly increase leakage current, resulting in a short failure. Please do not apply a voltage exceeding the rated voltage.

4. Be careful of excessive rush current.

 Using capacitors in the circuit where excessive rush current passes may cause characteristic deterioration or a short. When the rush current exceeds 10 A, we recommend use of protection circuits to ensure high reliability.

5. Use the allowable ripple voltage and the rated ripple current below the specified values.

- When superimposing a ripple voltage on a DC bias voltage, exercise care that the peak voltage value does not exceed the rated voltage and does not reverse the polarity.
- The rated ripple current shall be below the specified value.

6. Changes in characteristics due to operating temperature

 The characteristics of conductive polymer hybrid aluminum electrolytic capacitors, solid conductive polymer aluminum electrolytic capacitors vary by temperature as follows. These variations are temporary and recover when the temperature goes back (except for the case of characteristic deterioration because of high temperatures over a long time). Note that using capacitors over the upper category temperature increases leakage current, resulting in a short and destruction.

Be careful of the capacitor temperature considering not only the ambient temperature where the equipment is placed and the temperature inside the equipment but also radiation heat from the heating element inside the equipment, and self-heat generation by ripple current.

- (1) Capacitance expressed in the value at 20°C, 120 Hz increases with increased temperature and decreases with decreasing temperature.
- ②Tangent of loss angle ($tan\delta$) expressed in the value at 20°C, 120 Hz is temperature-independent.
- 3 Equivalent series resistance (ESR) expressed in the value at 20°C, 100 kHz is temperature independent.
- 4)Leakage current increases with increased temperature and decreases with decreasing temperature.

7. Changes in characteristics due to frequency

- The characteristics of conductive polymer hybrid aluminum electrolytic capacitors, solid conductive polymer aluminum electrolytic capacitors vary by operating frequency as follows.
 - ①Capacitance expressed in the value at 20°C, 120 Hz decreases with increased frequency.
 - ②Tangent of loss angle ($tan\delta$) expressed in the value at 20°C, 120 Hz increases with increased frequency.
 - ③Equivalent series resistance (ESR) expressed in the value at 20°C, 100 kHz increases with decreasing frequency.

8. Failure modes of solid conductive polymer aluminum electrolytic capacitors

- · The failure modes of solid conductive polymer aluminum electrolytic capacitors are a wear-out failure by deterioration of electrical performance and a random failure by a short. The failure rate level is 0.5%/1,000h at the reliability level of 60% with the specified voltage applied at 105°C.
- · If a short occurs and continues with the application of a voltage exceeding the rated voltage, increasing the internal temperature, the internal pressure increases by vaporization of the cathode material, which may cause the aluminum case to come off.

9. Operating environments

- Do not use capacitors in an environment directly exposed to water, saltwater spray, oil spill or condensation.
- · Do not use capacitors in an environment filled with toxic gas such as hydrogen sulfide, sulfurous acid, nitrous acid, chlorine, ammonia, etc.
- Do not use capacitors in a place exposed to ozone, ultraviolet rays, or radiation.

10. Fumigation Process

- Before transportation of electronic equipment to overseas, fumigation process may be subjected to wooden packing material with a halogen (compound) gas such as methyl bromide. Exercise care that this halogen gas may corrode capacitors. Also, be careful of epidemic preventive agent as corrosive component such as halogen may be contained.
- 11. The case of Conductive Polymer Hybrid Aluminum Electrolytic Capacitors, Solid Conductive Polymer Aluminum Electrolytic Capacitors and the cathode terminal are not insulated.
 - The case and the cathode terminal are not insulated as being connected through inconstant resistance.

12. Double-sided PCB's

- When using capacitors on a double-sided PCB, exercise care that the wiring pattern does not touch the area where the capacitors are mounted. Failure to do so may cause a short to occur to the PCB depending on the mounting conditions.
- 13. Regarding Connection of Conductive Polymer
 Hybrid Aluminum Electrolytic Capacitors, Solid
 Conductive Polymer Aluminum Electrolytic
 Capacitors
- When connecting more than one capacitor in parallel, consider the current balance.

14. Use at a high altitude

 The use of capacitors at high altitudes such as on an airplane causes a large difference between the internal pressure of the capacitors and the atmospheric pressure. However, there is no problem in use under atmospheric pressure up to about an altitude of 10,000 meters.

If the condition is severe like space, please contact us.

15. Other Notes

- Do not use capacitors on a circuit where rapid charge and discharge are repeated.
- Electrical characteristics of capacitors vary by variations in temperature and frequency. Please consider these variations when designing a circuit.

■Cautions for Mounting

1. Cautions for Mounting

- Do not reuse capacitors that have been assembled in a set and energized. Capacitors cannot be reused except for those which have been measured on electrical performance during periodic inspection.
- Before mounting, confirm the capacitor ratings (rated capacitance and rated voltage).
- Capacitors may generate transient recovery voltage. In this case, discharge through a resistor of about 1 k Ω .

- Before mounting, confirm the polarity of capacitor.
- Do not drop capacitors onto a floor nor use them.
- Do not mount deformed capacitors.
- Do not mount heating parts around capacitors and on the back of the PCB under or back of capacitors).

2. Do not apply excessive pressure to the capacitor or its terminals

 Be careful of the shock force that can be produced by absorbers, product checkers, and centering on automatic inserters and installers.

3. Soldering

- Do not solder capacitor body by dipping into melted solder.
- Soldering conditions (preheating, soldering temperature, terminal dipping time) should be within the ranges specified in the catalog or the delivery specification.
 - Please refer to page 15.
- Flux should not adhere to the parts other than the terminals.
- When using a soldering iron, avoid excessive stress to capacitor body.
- Although leakage current may increase (from a few µA to hundreds of µA) after soldering, it can be reduced through self-repair by applying voltage. It is advised to operate the set properly after treating with the recommended voltage.
- In case of a long-term use of equipment, control the soldering characteristics so that capacitors and PCB do not fail to connect to avoid abnormal current passage by a failure of soldering to mount.

4. Handling after Soldering

- Do not tilt, fall, raise or twist capacitor body.
- Do not pick up or move PCB by holding a capacitor.
- Do not bump capacitors against objects. When stacking PCB's, make sure that capacitors do not touch the PCB's or other components.
- Do not subject capacitors to excessive stress.

5. Cleaning after Soldering

- Recommended cleaning method
 - ①Cleaning solutions:
 - (a) CLEANTHROUGH 710M, 750H, 750L
 - (b) PINEALPHA ST-100S
 - (c) Techno Care FRW-4~17
 - (d) Isopropyl alcohol (2-propanol)
 - **2Cleaning conditions:**
 - (a) The temperature of cleaning solution shall be less than 60°C.
 - (b) Use immersion or ultrasonic waves within two minutes.

- (c) After cleaning, capacitors and PCB's shall thoroughly be rinsed and dried with hot blast for more than 10 minutes. The temperature of such breeze should be less than the upper category temperature.
- (d) After cleaning, do not keep capacitors in cleaning solution atmosphere or airtight containers.
- During cleaning, control the cleaning solution against contamination.

6. Fixing adhesives and coating materials.

- Do not use halogenated fixatives and coatings.
- Before using a fixative or coating, remove flux residues and contaminants from between the PCB and the sealing section of capacitors.
- Dry the cleaning solution before using the adhesive or coating.
- Do not cover up all the sealing sections (terminal side) of capacitors with the adhesive or coating.
- Heat curing conditions of fixative and coating.

Other Cautions

 Do not directly touch the terminals of Conductive Polymer Hybrid Aluminum Electrolytic Capacitors, Solid Conductive Polymer Aluminum Electrolytic Capacitors.

Failure to do so can cause electric shock or burns. Before use, allow capacitors to discharge through a $1k\Omega$ resistor (with a sufficient margin to the heat generation capacity) as needed.

- 2. Do not short-circuit between the terminals of the Conductive Polymer Hybrid Aluminum Electrolytic Capacitors, Solid Conductive Polymer Aluminum Electrolytic Capacitors. Do not subject capacitors to conductive solutions such as acid and alkaline water solutions.
- 3. Periodic inspection should be performed on the capacitors for the industrial equipment application.

Check the following checkpoints.

- Visual inspection to check for significant defects.
- Electrical performance: leakage current, rated capacitance, tangent of loss angle, ESR, and items specified in the catalog or the specification.

4. Be careful of the following cases of emergency.

- In case of a short during use of capacitors in sets, producing gas, turn off the main power of the set or unplug the power cord from the outlet.
- In case of a short, producing gas, it may take a few seconds to a few minutes depending on the conditions. Therefore, ensure that the protective circuit of the power supply works during this time.
- If the gas gets in your eyes, rinse them immediately.
 Gargle if the gas is inhaled.

 Do not lick the electrolyte of capacitors. When the electrolyte gets on your skin, wash it off with soap immediately.

5. Storage Conditions.

- Do not store at high temperature and high humidity.
 Store at a temperature of 5 to 35°C and a relative humidity of less than 75%, keeping free from direct sunlight.
- Solid conductive polymer aluminum electrolytic capacitors are during delivery, stored in airtight moistureproof bags to ensure satisfactory soldering. Once the bag is opened right before mounting, it is better to use up the capacitors.
- If some are unavoid-ably left over, return them to the moisture proof bag, and seal the opening hermetically.
- Solid conductive polymer aluminum electrolytic capacitors may have increased leakage current when unused or stored for a long time after mounted on equipment. This phenomenon often occurs at high ambient temperatures; however, leakage current will decrease through voltage treatment. If leakage current still increases after a lapse of more than one year at ambient temperature (shorter time at high temperatures), treat with voltage as needed. In design of equipment, consider the effect of increase in initial current, and install protective circuits as needed.

Please check that recommended voltage treatment conditions are provided for each series.

- Do not store capacitors in an environment directly exposed to water, saltwater spray, oil spill or condensation.
- Do not store capacitors in an environment filled with toxic gas such as hydrogen sulfide, sulfurous acid, nitrous acid, chlorine, ammonia, etc.
- Do not store capacitors in a place exposed to ozone, ultraviolet rays, or radiation.
- Please take the following actions when disposing of Conductive Polymer Hybrid Aluminum Electrolytic Capacitors, Solid Conductive Polymer Aluminum Electrolytic Capacitors.
- Entrust to specialists of industrial waste treatment for incineration.

7. Others

 Before using capacitors, check the details of the specification and catalog as well as the following.

Technical Report of Japan Electronics and Information Technology Industries Association

EIAJ RCR-2367B

Guideline of notabilia for fixed aluminum electrolytic capacitors for use in electronic equipment

CONDUCTIVE POLYMER HYBRID ALUMINUM ELECTROLYTIC CAPACITORS



Conductive Polymer Hybrid Capacitors

GREEN CAP





- Low ESR and high ripple current are realized.
- HT is resist to vibration. (30G guaranteed)
- Equivalent to conductive polymer type Aluminum Electrolytic Capacitor. (There are little characteristics change by temperature and frequency)
- Guaranteed 105°C, 10000 hours.

Vibration resistance

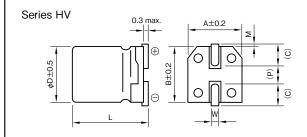


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Specifications

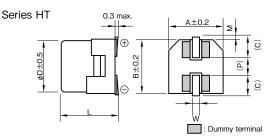
Specifications												
Item			Per	formance								
Category temperature range (°C)		-55~+105										
Tolerance at rated capacitance (%)				±20						(20℃,	120Hz)	
Leakage current (μA) (max.)	0.01CV or 3 whichever is larger (after 2 minutes) C : Rated capacitance (μF) , V : Rated voltage (V)									(20°C)		
Towns of loss souls	Rated voltage (V)	6.3	10	16	25	35	50	63	80	100	1	
Tangent of loss angle	tanδ (max.)	0.20	0.18	0.16	0.14	0.12	0.10	0.08	0.08	0.08	1	
(tanδ)		(20)										
Characteristics at high and low temperature	Impedance ratio (max.)		Z-25°C/Z+20°C 1.5 Z-55°C/Z+20°C 2.0							(1	O0kHz)	
	Test time				1000	00 hours					7	
F==k===== (105°0)	Leakage current				The	initial spec	ified value	or less			1	
Endurance (105°C)	Percentage of capacitance change				With	in ±30% d	of initial val	lue				
(Applied ripple current)	Tangent of the loss angle		200% or less of the initial specified value									
	ESR change											
Shelf life (105°C)	Test time: 1000hours; other items are	same as th	e endurand	e. Voltag	e application	on treatme	nt : Accord	ling to JIS	C5101-4 4	l.1.		

Outline Drawing Unit:mm



()	:	Reference	size

φD	L	Α	В	С	М	W	Р	Casing symbol
5	5.8±0.3	5.3	5.3	2.3	0.4±0.2	0.5 to 0.8	1.5	E61
6.3	5.8±0.3	6.6	6.6	2.7	0.4±0.2	0.5 to 0.8	2.0	F61
6.3	7.7±0.3	6.6	6.6	2.7	0.4 ± 0.2	0.5 to 0.8	2.0	F80
8	8.7±0.3	8.4	8.4	3.0	0.4 ± 0.2	0.5 to 0.8	3.1	G90
8	10±0.5	8.4	8.4	3.0	0.4 ± 0.2	0.7 to 1.1	3.1	G10
10	8.7±0.3	10.4	10.4	3.3	0.4±0.2	0.7 to 1.1	4.7	H90
10	10±0.5	10.4	10.4	3.3	0.4±0.2	0.7 to 1.1	4.7	H10
10	12.5±0.5	10.4	10.4	3.3	0.4±0.2	0.7 to 1.1	4.7	HC5
12.5	13.5±0.5	13.0	13.0	4.9	0.7±0.3	1.0 to 1.4	4.6	ΙE



(): Reference size

	φD	L	Α	В	С	М	W	Р	Casing symbol
	8	10±0.5	8.4	8.4	3.0	0.4±0.2	0.7 to 1.1	3.1	G10
	10	10±0.5	10.4	10.4	3.3	0.4±0.2	0.7 to 1.1	4.7	H10
	10	12.5±0.5	10.4	10.4	3.3	0.4±0.2	0.7 to 1.1	4.7	HC5
ĺ	12.5	13.5±0.5	13.0	13.0	4.9	0.7±0.3	1.0 to 1.4	4.6	ΙE

- · Soldering conditions are described on page 15.
- Land pattern size are described on page 13.
- The taping specifications are described on page 16.

Coefficient of Frequency for Rated Ripple Current

Frequency (Hz) Rated voltage (V)	120	1k	10k	100k or more
6.3 to 100	0.10	0.30	0.60	1

Part nun			em					
HV	_	35	٧	271	М	H10	E-	
Series code		Rated voltage symbol		Rated capacitance symbol	Capacitance tolerance symbol	Casing symbol		Taping symbol
HT (example	e : 35	V270μF)						
HT	_	35	٧	271	М	H10	E —	
Series code		Rated voltage symbol	-	Rated capacitance symbol	Capacitance tolerance symbol	Casing symbol		Taping symbol

HV,HT

CONDUCTIVE POLYMER HYBRID ALUMINUM ELECTROLYTIC CAPACITORS

Standard Ratings

Rated voltage (V)		6.3			10			16			25	
Rated Item	Case	ESR	Rated ripple current									
capacitance (µF)	φD×L (mm)	(mΩ max.)	(mArms)									
33	-	-	_	-	_	_	-	_	_	5×5.8	80	900
47	_	_	_	_	_	_	5×5.8	70	900	_	_	_
56	_	_	_	-	_	_	_	_	_	6.3×5.8	50	1300
82	_	_	_	_	_	_	6.3×5.8	45	1600	_	_	_
100	_	_	_	6.3×5.8	45	1600	_	_	_	6.3×7.7	30	2000
150	_	_	_	_	_	_	6.3×7.7	27	2200	8×8.7	27	2100
220	6.3×5.8	45	1600	6.3×7.7	24	2300	_	_	_	8×10	27	2300
270	_	_	_	_	_	_	8×10	22	2500	10×8.7	25	2400
330	6.3×7.7	24	2300	8×10	22	2500	_	_	_	10×10	20	2500
470	_	_	_	10×10	18	2600	10×10	18	2600	_	_	_
560	8×10	22	2500	-	-	-	-	-	-	10×12.5	18	3500
820	10×10	18	2600	_	_	_	_	_	_	12.5×13.5	15	4000

Rated voltage (V)		35			50			63	
Item Rated	Case	ESR	Rated ripple current	Case	ESR	Rated ripple current	Case	ESR	Rated ripple current
capacitance (µF)	φD×L (mm)	(mΩ max.)	(mArms)	φD×L (mm)	(mΩ max.)	(mArms)	φD×L (mm)	(mΩ max.)	(mArms)
10	_	_	_	5×5.8	120	750	6.3×5.8	120	1000
22	5×5.8	100	900	6.3×5.8	80	1100	6.3×7.7	80	1500
27	_	_	_	_	_	_	8×8.7	50	1600
33	-	_	_	6.3×7.7	40	1600	8×10	40	1600
47	6.3×5.8	60	1300	8×8.7	35	1700	10×8.7	35	1700
56	_	_	_	_	_	_	10×10	30	1800
68	6.3×7.7	35	2000	8×10	30	1800	_	_	_
82	_	_	_	10×8.7	28	1900	_	_	_
100	8×8.7	30	2100	10×10	28	2000	10×12.5	26	2500
120	_	_	_	_	_	_	12.5×13.5	22	3000
150	8×10	27	2300	10×12.5	24	3000	_	_	_
220	10×8.7	25	2400	_	_	_	-	_	-
270	10×10	20	2500	-	-	-	-	-	-
330	-	-	-	12.5×13.5	20	3600	-	-	-
390	10×12.5	18	3500	_	_	_	-	_	_
560	12.5×13.5	15	4000	_	-	_	_	-	_

Rated voltage (V)		80			100	
Rated Item	Case	ESR	Rated ripple current	Case	ESR	Rated ripple current
capacitance (µF)	φD×L (mm)	(mΩ max.)	(mArms)	φD×L (mm)	(mΩ max.)	(mArms)
15	_	-	-	10×10	45	1600
22	8×10	45	1550	_	_	_
33	10×10	36	1700	_	_	_

(Note) Rated ripple current : 105°C , 100kHz ; ESR : 20°C , 100kHz

ALUMINUM

POLYMER HYBRID

105℃

125℃



Conductive Polymer Hybrid Capacitors

SMD



- •Low ESR and high ripple current are realized.
- HTK is resist to vibration. (30G guaranteed)
- Equivalent to conductive polymer type Aluminum Electrolytic Capacitor. (There are little characteristics change by temperature and frequency)
- Guaranteed 125°C, 6000 hours.

 $(\phi 5, 6.3V \text{ to } 16V, 63V \text{ or more} : 4000 \text{ hours})$



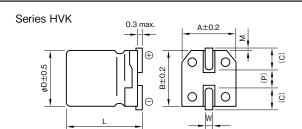


Vibration resistance High temperature

Specifications

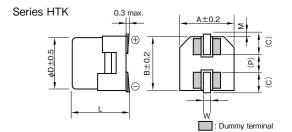
Specifications											
Item			Perl	ormance							
Category temperature range (°C)			-55	~+125							
Tolerance at rated capacitance (%)				±20						(20°C,	120Hz)
Leakage current (μA) (max.)			3 whicheve apacitance								(20℃)
Tangent of less angle	Rated voltage (V)	6.3	10	16	25	35	50	63	80	100	1
Tangent of loss angle	tanδ (max.)	0.20	0.18	0.16	0.14	0.12	0.10	0.08	0.08	0.08	
(tanδ)										(20℃,	120Hz)
Characteristics at high and low temperature	Impedance ratio (max.)		Z−25°C/ Z−55°C/			1.5 2.0				(1	00kHz)
Endurance (125°C)	Test time Leakage current Percentage of capacitance change			The init	ours (φ5, ial specifie	d value or	less	more : 400	0 hours)		
(Applied ripple current)	Tangent of the loss angle				or less of th			ue			1
	ESR change				or less of th]
Shelf life (125°C)	Test time: 1000hours; other items are sa	me as th	e enduranc	e. Voltag	e application	on treatme	nt : Accord	ing to JIS (C5101-4 4	.1.	

Outline Drawing



()	:	Reference	siz

φD	L	Α	В	С	М	W	Р	Casing symbol
5	5.8±0.3	5.3	5.3	2.3	0.4±0.2	0.5 to 0.8	1.5	E61
6.3	5.8±0.3	6.6	6.6	2.7	0.4±0.2	0.5 to 0.8	2.0	F61
6.3	7.7±0.3	6.6	6.6	2.7	0.4±0.2	0.5 to 0.8	2.0	F80
8	8.7±0.3	8.4	8.4	3.0	0.4±0.2	0.5 to 0.8	3.1	G90
8	10±0.5	8.4	8.4	3.0	0.4±0.2	0.7 to 1.1	3.1	G10
10	8.7±0.3	10.4	10.4	3.3	0.4±0.2	0.7 to 1.1	4.7	H90
10	10±0.5	10.4	10.4	3.3	0.4±0.2	0.7 to 1.1	4.7	H10
10	12.5±0.5	10.4	10.4	3.3	0.4±0.2	0.7 to 1.1	4.7	HC5
12.5	13.5±0.5	13.0	13.0	4.9	0.7±0.3	1.0 to 1.4	4.6	IE



(): Reference size

Unit: mm

φD	L	Α	В	С	М	W	Р	Casing symbol
8	10±0.5	8.4	8.4	3.0	0.4±0.2	0.7 to 1.1	3.1	G10
10	10±0.5	10.4	10.4	3.3	0.4±0.2	0.7 to 1.1	4.7	H10
10	12.5±0.5	10.4	10.4	3.3	0.4±0.2	0.7 to 1.1	4.7	HC5
12.5	13.5±0.5	13.0	13.0	4.9	0.7±0.3	1.0 to 1.4	4.6	ΙE

- · Soldering conditions are described on page 15.
- •Land pattern size are described on page 13.
- The taping specifications are described on page 16.

Coefficient of Frequency for Rated Ripple Current

6.3 to 100 0.10 0.30 0.60 1	Frequency (Hz) Rated voltage (V)	120	1k	10k	100k or more
	6.3 to 100	0.10	0.30	0.60	1

Part nun			em	(6000	hours guar	antee	d)	
HVK	_	35	٧	271	М	H10	В —	
Series code		Rated voltage symbol		Rated capacitance symbol	Capacitance tolerance symbol	Casing symbol		Taping symbol
HTK (examp	le : 3	5V270μF)						
HTK	_	35	٧	271	М	H10	В —	
Series code		Rated voltage symbol	-	Rated capacitance symbol	Capacitance tolerance symbol	Casing symbol		Taping symbol

HVK -	– 16	V	471	M	H10	E —	
Series code	Rated voltage symbol		Rated capacitance symbol	Capacitance tolerance symbol	Casing symbol		Taping
HTK (example	: 63V56µF)						
HTK -	– 63	\/	560	M	H10	F	Г

CONDUCTIVE POLYMER HYBRID ALUMINUM ELECTROLYTIC CAPACITORS

Standard Ratings

Rated voltage (V)		6.3			10			16		25			
Rated Item	Case	ESR	Rated ripple current	Case	ESR	Rated ripple current	Case	ESR	Rated ripple current	Case	ESR	Rated ripple current	
capacitance (µF)	ϕ D×L (mm)	(mΩ max.)	(mArms)	φD×L (mm)	(m Ω max.)	(mArms)	ϕ D×L (mm)	(mΩ max.)	(mArms)	ϕ D×L (mm)	(m Ω max.)	(mArms)	
33	_	_	_	_	-	_	-	_	_	5×5.8	80	550	
47	_	_	_	_	_	_	5×5.8	70	600	_	_	_	
56	_	_	_	_	-	_	_	_	_	6.3×5.8	50	900	
82	_	-	_	_	_	_	6.3×5.8	45	950	_	_	-	
100	_	_	_	6.3×5.8	45	950	_	_	_	6.3×7.7	30	1400	
150	_	_	_	_	-	_	6.3×7.7	27	1450	8×8.7	27	1500	
220	6.3×5.8	45	950	6.3×7.7	24	1450	_	_	_	8×10	27	1600	
270	_	-	_	_	_	_	8×10	22	1700	10×8.7	25	1700	
330	6.3×7.7	24	1450	8×10	22	1700	_	_	-	10×10	20	2000	
470	_	_	_	10×10	18	2100	10×10	18	2100	_	_	-	
560	8×10	22	1700	-	_	_	_	_	-	10×12.5	18	3000	
820	10×10	18	2100	_	_	_	_	_	_	12.5×13.5	15	3500	

Rated voltage (V)		35			50			63	
Rated Item	Case	ESR	Rated ripple current	Case	ESR	Rated ripple current	Case	ESR	Rated ripple current
capacitance (µF)	ϕ D×L (mm)	(mΩ max.)	(mArms)	ϕ D×L (mm)	(mΩ max.)	(mArms)	ϕ D×L (mm)	(mΩ max.)	(mArms)
10	_	_	_	5×5.8	120	500	6.3×5.8	120	700
22	5×5.8	100	550	6.3×5.8	80	750	6.3×7.7	80	900
27	_	_	_	_	_	_	8×8.7	50	1000
33	_	_	_	6.3×7.7	40	1100	8×10	40	1100
47	6.3×5.8	60	900	8×8.7	35	1200	10×8.7	35	1200
56	-	-	-	-	-	-	10×10	30	1400
68	6.3×7.7	35	1400	8×10	30	1250	_	_	_
82	_	_	_	10×8.7	28	1400	_	_	_
100	8×8.7	30	1500	10×10	28	1600	10×12.5	26	2000
120	_	_	-	_	_	_	12.5×13.5	22	2500
150	8×10	27	1600	10×12.5	24	2500	_	_	_
220	10×8.7	25	1700	_	_	_	_	_	_
270	10×10	20	2000	-	-	-	-	-	_
330	-	-	-	12.5×13.5	20	3000	-	-	_
390	10×12.5	18	3000	-	-	-	-	-	_
560	12.5×13.5	15	3500	_	_	-	_	_	_

Rated voltage (V)		80		100				
Rated Item	Case	ESR	Rated ripple current	Case	ESR	Rated ripple current		
capacitance (µF)	ϕ D×L (mm)	(mΩ max.)	(mArms)	φD×L (mm)	(mΩ max.)	(mArms)		
15	_	-	-	10×10	45	1000		
22	8×10	45	1100	_	_	_		
33	10×10	36	1200	_	-	-		

(Note) Rated ripple current : 125° C , 100kHz ; ESR : 20° C , 100kHz



Conductive Polymer Hybrid Capacitors







- •Low ESR and high ripple current are realized.
- HTX is resist to vibration. (30G guaranteed)
- Equivalent to conductive polymer type Aluminum Electrolytic Capacitor. (There are little characteristics change by temperature and frequency)
- •Guaranteed 135°C, 4000 hours.



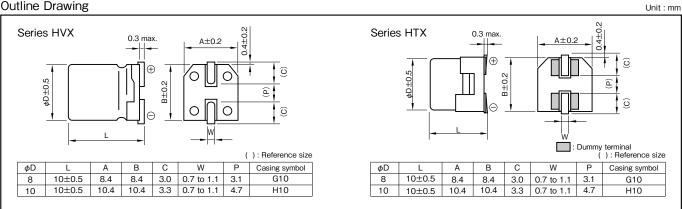


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Specifications

Specifications												
Item		Performa	ince									
Category temperature range (°C)		-55~+1	135									
Tolerance at rated capacitance (%)		±20			(20	°C, 120Hz)						
Leakage current (μΑ) (max.)		0.01CV or 3 whichever is larger (after 2 minutes) C: Rated capacitance (μF), V: Rated voltage (V)										
T	Rated voltage (V)	16	25	35	50							
Tangent of loss angle (tanδ)	tanδ (max.)	0.16	0.14	0.12	0.10							
(tario)					(20	°C, 120Hz)						
Characteristics at high and low temperature	Impedance ratio (max.)	Z-25°C/Z+2 Z-55°C/Z+2		1.5		(100kHz)						
	Test time		4000 hours									
Frank	Leakage current		The initial spec	cified value or less								
Endurance (135°C)	Percentage of capacitance change		Within ±30% of	of initial value								
(Applied ripple current)	Tangent of the loss angle		200% or less of the initial specified value									
	ESR change		200% or less of the initial specified value									
Shelf life (135°C)	Test time: 1000hours; other items are s	ame as the endurance. \	/oltage application	n treatment : According to JIS	S C5101-4 4.1.							

Outline Drawing



- · Soldering conditions are described on page 15.
- · Land pattern size are described on page 13.
- The taping specifications are described on page 16.

Coefficient of Frequency for Rated Ripple Current

Frequency (Hz) Rated voltage (V)	120	1k	10k	100k or more
16 to 50	0.10	0.30	0.60	1

Part numbering system HVX (example : 16V270µF)											
HVX	_	16	٧	271	М	G10	_				
Series code		Rated voltage symbol		Rated capacitance symbol	Capacitance tolerance symbol	Casing symbol		Taping symbol			
HTX (examp	le : 16	6V270μF)									
HTX	_	16	٧	271	М	G10	_				
Series code		Rated voltage symbol		Rated capacitance symbol	Capacitance tolerance symbol	Casing symbol		Taping symbol			

CONDUCTIVE POLYMER HYBRID ALUMINUM ELECTROLYTIC CAPACITORS

Standard Ratings

Rated voltage (V)		16			25			35		50		
Rated	Case	ESR	Rated ripple current									
capacitance (µF)	φD×L (mm)	(mΩ max.)	(mArms)									
68	_	_	_	_	_	_	_	_	_	8×10	30	1250
100		_	_	_	_	_	_	_	_	10×10	28	1600
150	-	_	_	-	_	_	8×10	22	1600	_	-	_
220	ı	_	_	8×10	22	1600	_	_	_	_	-	_
270	8×10	20	1700		_	_	10×10	20	2000	_	-	_
330	1	_	1	10×10	20	2000	1	_	_	1	-	_
470	10×10	18	2100	_	_	_	_	_	_	_	_	_

(Note) Rated ripple current : 135° C , 100kHz ; ESR : 20° C , 100kHz

135℃

ALUMINUM

105℃

CONDUCTIVE POLYMER HYBRID ALUMINUM ELECTROLYTIC CAPACITORS



Hybrid Capacitors radial lead type





- •Low ESR and high ripple current are realized.
- Equivalent to conductive polymer type Aluminum Electrolytic Capacitor.
- Guaranteed 105°C, 10000 hours.



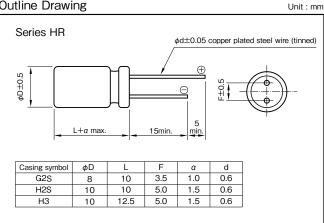
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Specifications

Specifications												
Item			Performance									
Category temperature range (℃)			- 55 to +105									
Tolerance at rated capacitance (%)			±20				(20℃,	, 120Hz)				
Leakage current (μΑ) (max.)		0.01CV or 3 whichever is larger (after 2 minutes) C: Rated capacitance (μF), V: Rated voltage (V) (20°C										
Towns of loss souls	Rated voltage (V)	25	35	50	63	80	100	ا ر				
Tangent of loss angle (tanδ)	tanδ (max.)	0.14	0.12	0.10	0.08	0.08	0.08] '				
(tario)							(20°C,	, 120Hz)				
Characteristics at high and low temperature	Impedance ratio (max.)	Z-25										
and low temperature		Z-55	°C/Z+20°C		2.0		(100kHz)				
	Test time		1000	00 hours				ī				
Endurance (105°C)	Leakage current		The i	initial specified	value or less			7				
Endurance (105°C)	Percentage of capacitance change		Withi	in ±30% of init	ial value			7 '				
(Applied ripple current)	Tangent of the loss angle		200% or less of the initial specified value									
	ESR change		200% or less of the initial specified value									
Shelf life (105°C)	Test time: 1000hours; other items are sa	ame as the endura	ance. Voltage	application trea	atment : Accordi	ng to JIS C510	1-4 4.1.					

HR

Outline Drawing



- · Soldering conditions are described on page 14.
- The taping specifications are described on page 18,19.

Coefficient of Frequency for Rated Ripple Current

Frequency (Hz) Rated voltage (V)	120	1k	10k	100k
25 to 100	0.10	0.30	0.60	1

	Part numbering system HR (example : 35V270µF)											
HR — 35 V 271 M H2S E —												
Series code	Series code Rated voltage symbol			Rated capacitance symbol	Capacitance tolerance symbol	Casing symbol	-	Taping (Forming) symbol				



HR

Standard Ratings

Rated voltage (V)		25			35			50		63		
Rated	Case	ESR	Rated ripple current									
capacitance (µF)	φD×L (mm)	(mΩ max.)	(mArms)									
33	_	_	_	_	_	_	_	=	_	8×10	40	1600
56		_	_	_	-	_	_	_	_	10×10	30	1800
68	1	1	_	I	_	-	8×10	30	1800	1	_	_
100	ı	_	_	_	-	_	10×10	28	2000	10×12.5	26	2500
150	ı	_	_	8×10	27	2300	10×12.5	24	3000	_	-	_
220	8×10	27	2300	_	-	_	_	_	_	_	-	_
270	1	1	_	10×10	20	2500	1	1	1	1	_	_
330	10×10	20	2500		=	_	_	_	-	_	_	_
390	_	_	_	10×12.5	18	3500	_	_	_	_	_	_
560	10×12.5	18	3500	_	_	_	_	_	_	_		_

Rated voltage (V)		80		100			
Rated Item	Case	ESR	Rated ripple current	Case	ESR	Rated ripple current	
capacitance (µF)	φD×L (mm)	(mΩ max.)	(mArms)	φD×L (mm)	(mΩ max.)	(mArms)	
15	-	_	_	10×10	45	1600	
22	8×10	45	1550	_	_	_	
33	10×10	36	1700	_	_	_	

(Note) Rated ripple current : 105° C , 100kHz ; ESR : 20° C , 100kHz

POLYMER HYBRID

105℃



Hybrid Capacitors radial lead type





- •Low ESR and high ripple current are realized.
- Equivalent to conductive polymer type Aluminum Electrolytic Capacitor.
- Guaranteed 125°C, 6000 hours.

(63V or more: 4000 hours)



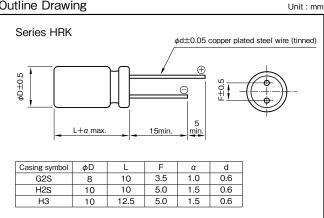


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Specifications

Specifications								
Item	Performance							
Category temperature range (°C)	— 55 to +125							
Tolerance at rated capacitance (%)		±20 (20°C						
Leakage current (μΑ) (max.)		0.01CV or 3 whichever is larger (after 2 minutes) C : Rated capacitance (μF) , V : Rated voltage (V) (20)						
Tangent of loss angle (tanδ)	Rated voltage (V)	25	35	50	63	80	100	7
	tanδ (max.)	0.14	0.12	0.10	0.08	0.08	0.08	٦
							(20℃	, 120Hz)
Characteristics at high and low temperature	Impedance ratio (max.)	Z-25°C/Z+20°C Z-55°C/Z+20°C			1.5		ı	(100kHz)
Endurance (125°C) (Applied ripple current)	Test time		6000	hours (63V o	r more : 4000 h	nours)		7
	Leakage current	The initial specified value or less						
	Percentage of capacitance change	Within ±30% of initial value						٦
	Tangent of the loss angle	200% or less of the initial specified value						
	ESR change	ESR change 200% or less of the initial specified value				value		
Shelf life (125℃)	Test time: 1000hours; other items are same as the endurance. Voltage application treatment: According to JIS C5101-4 4.1.							

Outline Drawing



- · Soldering conditions are described on page 14.
- The taping specifications are described on page 18,19.

Coefficient of Frequency for Rated Ripple Current

Frequency (Hz) Rated voltage (V)	120	1k	10k	100k
25 to 100	0.10	0.30	0.60	1

Part nun (4000ho HRK (examp	ours	guarant		l)				
HRK		63	٧	560	М	H2S	E—	
Series code		Rated voltage symbol	•	Rated capacitance symbol	Capacitance tolerance symbol	Casing symbol	-	Taping (Forming) symbol
(6000hours guaranteed) HRK (example : 35V270µF)								
HRK	_	35	٧	271	М	H2S	В—	
Series code		Rated voltage symbol		Rated capacitance	Capacitance tolerance symbol	Casing	•	Taping (Forming)



Standard Ratings

Rated voltage (V)		25			35			50		63		
Rated	Case	ESR	Rated ripple current									
capacitance (µF)	φD×L (mm)	(mΩ max.)	(mArms)									
33	_	_	_	_	=	_	_	_	_	8×10	40	1100
56		_	_	_	_	_	_	_	_	10×10	30	1400
68	1	1	_	I	1	-	8×10	30	1250	1	_	_
100	ı	_	_	_	ı	_	10×10	28	1600	10×12.5	26	2000
150	ı	_	_	8×10	27	1600	10×12.5	24	2500	_	-	_
220	8×10	27	1600	_	_	_	_	_	_	_	-	_
270	1	1	-	10×10	20	2000	1	1	1	1	_	_
330	10×10	20	2000			_	_	_	-	_	_	_
390	_	_	_	10×12.5	18	3000	_	_	_	_	_	_
560	10×12.5	18	3000	_	_	_	_	_	_	_		_

Rated voltage (V)		80		100				
Rated Item	Case	ESR	Rated ripple current	Case	ESR	Rated ripple current		
capacitance (µF)	φD×L (mm) (mΩ max.)		(mArms)	φD×L (mm)	(mΩ max.)	(mArms)		
15	-	_	_	10×10	45	1000		
22	8×10	45	1100	_	_	_		
33	10×10	36	1200	_	_	_		

(Note) Rated ripple current : 125°C , 100kHz ; ESR : 20°C , 100kHz

125℃



Chip Type

GREEN CAP







- Super low ESR and high ripple current are realized.
- •Guaranteed 105°C, 2000 hours.





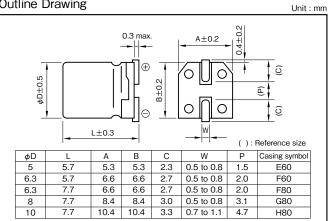
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Specifications

Item		Performance										
Category temperature range (°C)		-55 to +105										
Tolerance at rated capacitance (%)		±20 (20°C,120Hz)										
Leakage current (µA)		0.2CV (after 2 minutes)										
(max.)	C · Patod	capacitance (µF), V: Rated volta	go (V)									
*Note	O . Hateu		BC (V)	(20°C)								
Tangent of the loss angle (tanδ)		0.12 or less		(20°C,120Hz)								
Characteristics at high	Impedance ratio (max.)	Z-25°C/Z+20°C	1.15									
and low temperature	, ,	Z-55°C/Z+20°C	1.25	(100kHz)								
	Test time	2000 hou	rs .									
Endurance (105°C)	Leakage current	The initial	specified value or less									
,	Percentage of capacitance change	Within ±2	0% of initial value									
Applied ripple current)	Tangent of the loss angle	150% or I	ess of the initial specified value									
	ESR change	150% or I	ess of the initial specified value									
	Test time	500 hours	i									
Bias Humidity	Leakage current	The initial	specified value or less									
60°C. 90 to 95%RH	Percentage of capacitance change	Within ±2	0% of initial value									
00 C, 90 to 95 /6hh	Tangent of the loss angle	150% or I	ess of the initial specified value									
	ESR change	150% or I	ess of the initial specified value									
	The capacitors shall be subject to 1000 cycles each through a protective resister (Rc=1k Ω) in 6 minutes p			seconds								
Characteristics of applied	Leakage current	The initial	specified value or less									
surge voltage	Percentage of capacitance change	Within ±2	0% of initial value									
	Tangent of the loss angle	150% or I	ess of the initial specified value									
	ESR change	150% or I	ess of the initial specified value									
Failure tare	0.5% per 100	0 hours maximum (Confidence lev	el 60% at 105℃)									

^{*}Note: If any doubt arises, measure the leakage current after following voltage application treatment.

Outline Drawing



- Soldering conditions are described on page 15.
- Land pattern size are described on page 13.
- The taping specifications are described on page 16.

Part number	Part numbering system (example : 4V150µF)											
PVG —	4	٧	151	М	E60	_						
Series code	Rated voltage symbol	_	Rated capacitance symbol	Capacitance tolerance symbol	Casing symbol		Taping symbol					

Voltage application treatment : DC rated voltage are applied to the capacitors for 120 minutes at 105°C.

OMINOM

POLYMER HYBRID

105℃

Standard Ratings

Rated voltage (V)		2.5			4			6.3	
Item	Case	ESR	Rated ripple current	Case	ESR	Rated ripple current	Case	ESR	Rated ripple current
Rated capacitance (µF)	φD×L (mm)	(mΩ max.)	(mArms)	ϕ D×L (mm)	(mΩ max.)	(mArms)	φD×L (mm)	(mΩ max.)	(mArms)
120	_	_	_	_	_	_	5×5.7	8	4000
150	_	_	_	5×5.7	8	4000	_	_	_
220	5×5.7	8	4000	6.3×5.7	6	4500	6.3×5.7	7	4300
270		_	_	6.3×5.7	6	4500	6.3×7.7	7	4600
330	6.3×5.7	6	4500	6.3×7.7	6	4800	8×7.7	7	4700
390	6.3×5.7	6	4500	6.3×7.7	6	4800	_	_	_
470	6.3×7.7	6	4800	8×7.7	6	5000	8×7.7	7	4700
560	6.3×7.7	6	4800	_	_	_	8×7.7	7	4700
680		_	_	8×7.7	6	5000	_		_
820		_	_	_	_	_	10×7.7	7	4900
1000	8×7.7	6	5000	10×7.7	6	5200	_	1	_
1200	10×7.7	6	5200	_	_	_	_		_

(Note) Rated ripple current : 105°C, 100kHz ; ESR : 20°C, 100kHz



Chip Type

GREEN CAP









- Super low ESR and high ripple current are realized.
- •Guaranteed 105°C, 2000 hours.





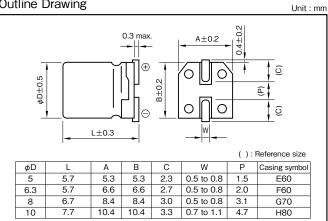
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Specifications

Item		Performance										
Category temperature range (°C)		-55 to +105										
Tolerance at rated capacitance (%)		±20 (20°C,120Hz)										
Leakage current (µA)		0.2CV (after 2 minutes)										
(max.)	C : Patod	capacitance (µF) ; V : Rated volta	go (\/)									
*Note	O . Hated		BC (V)	(20℃)								
Tangent of the loss angle (tanδ)		0.12 or less		(20°C,120Hz)								
Characteristics at high	Impedance ratio (max.)	Z-25°C/Z+20°C	1.15									
and low temperature	impodance ratio (max.)	Z-55°C/Z+20°C	1.25	(100kHz)								
	Test time	2000 hour	rs .									
Endurance (105°C)	Leakage current	The initial	specified value or less									
` '	Percentage of capacitance change	Within ±2										
Applied ripple current)	Tangent of the loss angle	150% or le	ess of the initial specified value									
	ESR change	150% or le	ess of the initial specified value									
	Test time	500 hours	i									
Bias Humidity	Leakage current	The initial	specified value or less									
60°C. 90 to 95%RH	Percentage of capacitance change	Within ±2	0% of initial value									
60 C, 90 to 95%HI	Tangent of the loss angle	150% or le	ess of the initial specified value									
	ESR change	150% or le	ess of the initial specified value									
	The capacitors shall be subject to 1000 cycles each through a protective resister (Rc=1k Ω) in 6 minutes p			seconds								
Characteristics of applied	Leakage current	The initial	specified value or less									
surge voltage	Percentage of capacitance change	Within ±2	0% of initial value									
	Tangent of the loss angle	150% or le	ess of the initial specified value									
	ESR change	150% or le	ess of the initial specified value									
Failure tare	0.5% per 100	0 hours maximum (Confidence lev	rel 60% at 105°C)									

^{*}Note: If any doubt arises, measure the leakage current after following voltage application treatment.

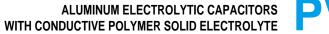
Outline Drawing



- Soldering conditions are described on page 15.
- Land pattern size are described on page 13.
- The taping specifications are described on page 16.

I	Part numbering system (example : 4V150µF)												
	PVX —	4	٧	151	М	E60							
	Series code Rated voltage symbol		-	Rated capacitance symbol	Capacitance tolerance symbol	Casing symbol		Taping symbol					

Voltage application treatment : DC rated voltage are applied to the capacitors for 120 minutes at 105°C.



Standard Ratings

Rated voltage (V)		2.5			4			6.3			10	
Item	Case	ESR	Rated ripple current	Case	ESR	Rated ripple current	Case	ESR	Rated ripple current	Case	ESR	Rated ripple current
Rated capacitance (µF)	φD×L (mm)	(mΩ max.)	(mArms)	φD×L (mm)	(mΩ max.)	(mArms)	φD×L (mm)	(mΩ max.)	(mArms)	ϕ D×L (mm)	(mΩ max.)	(mArms)
100	_	_	_	_	_	_	5×5.7	15	3100	5×5.7	15	3100
120	_	_	_	_	_	_	_	_	_	6.3×5.7	13	3300
150	5×5.7	10	3800	5×5.7	10	3800	5×5.7	15	3100		_	_
220	5×5.7	10	3800	5×5.7	10	3800	6.3×5.7	9	4000	8×6.7	10	3800
270	5×5.7	10	3800	1	_	_	ı	1	_	I	_	_
330	6.3×5.7	9	4000	6.3×5.7	9	4000	8×6.7	8	4300	8×6.7	10	3800
390	6.3×5.7	9	4000	ı	_	_	8×6.7	8	4300	ı	1	_
470	8×6.7	8	4300	8×6.7	8	4300	8×6.7	8	4300	10×7.7	10	4000
560	8×6.7	8	4300	8×6.7	8	4300	ı	1	_	ı	_	_
680	8×6.7	8	4300	10×7.7	8	4600					_	_
820	_	_	_	-	_	_	10×7.7	8	4600		_	_
1000	10×7.7	8	4600	10×7.7	8	4600	ı	l		ı		_
1200	10×7.7	8	4600	_	_	_	_	_	_	_	_	_

(Note) Rated ripple current : 105°C, 100kHz ; ESR : 20°C, 100kHz



Chip Type

GREEN CAP









- Super low ESR and high ripple current are realized.
- •Guaranteed 105°C, 2000 hours.





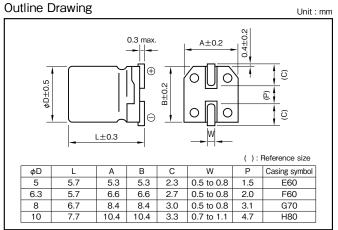
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Specifications

Item		Performance									
Category temperature range (°C)		-55 to +105									
Tolerance at rated capacitance (%)		±20		(20°C,120Hz)							
Leakage current (μA)		0.2CV (after 2 minutes)									
(max.)	C + Per	ted capacitance (µF) , V : Rated vo	altogo (A)								
*Note	C: Na	ted capacitarice (μr) , v : Hated vo	onage (v)	(20°C)							
Tangent of the loss angle (tanδ)		0.12 or less		(20°C,120Hz)							
Characteristics at high	Impedance ratio (max.)	Z-25°C/Z+20°C	1.15								
and low temperature	impedance ratio (max.)	Z-55°C/Z+20°C	1.25	(100kHz)							
				(10011112)							
	Test time	2000 hours	S								
Endurance (105°C)	Leakage current	The initial:	specified value or less								
` ′	Percentage of capacitance change	Within ±20	0% of initial value								
(Applied ripple current)	Tangent of the loss angle	150% or le	ess of the initial specified value	Э							
	ESR change	150% or le	ess of the initial specified value	e							
	Test time	500 hours									
	1001	***************************************	specified value or less								
Bias Humidity	Leakage current		Specified value or less 0% of initial value								
60°C, 90 to 95%RH	Percentage of capacitance change Tangent of the loss angle		ess of the initial specified value								
	<u> </u>		ess of the initial specified value								
	ESR change	190% 01 16	ess of the initial specified value	-							
	The capacitors shall be subject to 1000 cycles each through a protective resister (Rc=1k Ω) in 6 minutes p			or 30 seconds							
Characteristics of applied	Leakage current	The initial:	specified value or less								
surge voltage	Percentage of capacitance change	· · ·									
	Tangent of the loss angle		ess of the initial specified value								
	ESR change	150% or le	ess of the initial specified value	e							
Failure tare	0.5% per 100	0 hours maximum (Confidence leve	el 60% at 105°C)								
Niste of secondaries	measure the leakage current after following voltage applicati		,								

^{*}Note: If any doubt arises, measure the leakage current after following voltage application treatment.

Voltage application treatment: DC rated voltage are applied to the capacitors for 120 minutes at 105°C.



- Soldering conditions are described on page 15.
- · Land pattern size are described on page 13.
- The taping specifications are described on page 16.

Part number	Part numbering system (example : 4V150μF)											
PVM —	4	٧	151	М	E60							
Series code	Rated voltage symbol	F	Rated capacitance symbol	Capacitance tolerance symbol	Casing symbol		Taping symbol					

16

ESR

(mArms)

φD×L (mm) (mΩ max.)

Case

POLYMER HYBRID

105℃

33 - - - - - - - - - 5x5.7 35 2070 39 - - - - - - - - - 5x5.7 35 2070 47 - - - - - - - - - - - - 5x5.7 28 2310 6.3x5.7 28 2340 56 -																
47 - - - - - - - - 555.7 28 2310 6.3x5.7 28 2340 56 -	33	_	_	_	_	_	_	_	_	_	_	_	_	5×5.7	35	2070
56 — — — —	39	_	_	_	_	_	_	_	_	_	_	_	_	5×5.7	35	2070
68 — — — — — — — 5x5.7 28 2310 6.3x5.7 28 2340 100 — — — 5x5.7 22 2610 5x5.7 24 2500 6.3x5.7 25 2530 8x6.7 24 3010 150 —	47	_	1	_	_	_	_	_	_	_	5×5.7	28	2310	6.3×5.7	28	2340
100 — — — 5×5.7 22 2610 5×5.7 24 2500 6.3×5.7 25 2530 8×6.7 24 3010 120 — — — — — — — 5×5.7 24 2500 6.3×5.7 25 2530 8×6.7 24 3010 150 —	56	_		_	_	_	_	_	_	_	5×5.7	28	2310	_	_	_
120 — — — — — 5×5.7 24 2500 6.3×5.7 25 2530 8×6.7 24 3010 150 —	68	_	_	_	_	_	_	_	_	_	5×5.7	28	2310	6.3×5.7	28	2340
150 — — — 5×5.7 22 2610 — <td< td=""><td>100</td><td>_</td><td>_</td><td>_</td><td>5×5.7</td><td>22</td><td>2610</td><td>5×5.7</td><td>24</td><td>2500</td><td>6.3×5.7</td><td>25</td><td>2530</td><td>8×6.7</td><td>24</td><td>3010</td></td<>	100	_	_	_	5×5.7	22	2610	5×5.7	24	2500	6.3×5.7	25	2530	8×6.7	24	3010
180 5×5.7 21 2670 — <td< td=""><td>120</td><td>_</td><td>1</td><td>_</td><td>_</td><td>_</td><td>_</td><td>5×5.7</td><td>24</td><td>2500</td><td>6.3×5.7</td><td>25</td><td>2530</td><td>8×6.7</td><td>24</td><td>3010</td></td<>	120	_	1	_	_	_	_	5×5.7	24	2500	6.3×5.7	25	2530	8×6.7	24	3010
220 5×5.7 21 2670 5×5.7 22 2610 6.3×5.7 15 3160 8×6.7 21 3220 10×7.7 22 3450 270 — — — 6.3×5.7 15 3160 — — — 8×6.7 21 3220 — — — 330 6.3×5.7 15 3160 8×6.7 14 3950 10×7.7 19 3800 — — — 390 6.3×5.7 15 3160 — — — 8×6.7 14 3950 10×7.7 19 3800 — — — 470 8×6.7 13 3600 8×6.7 14 3950 8×6.7 14 3950 10×7.7 19 3800 — — — 560 8×6.7 13 3600 8×6.7 14 3950 — — — — — — — — — <td>150</td> <td>_</td> <td>1</td> <td>_</td> <td>5×5.7</td> <td>22</td> <td>2610</td> <td>_</td> <td>_</td> <td>_</td> <td>_</td> <td>_</td> <td>_</td> <td>_</td> <td>_</td> <td>_</td>	150	_	1	_	5×5.7	22	2610	_	_	_	_	_	_	_	_	_
270 — — 6.3×5.7 15 3160 — — — 8×6.7 21 3220 —	180	5×5.7	21	2670	_	_	_	_	_	_	_	_	_	_	_	_
330 6.3×5.7 15 3160 6.3×5.7 15 3160 8×6.7 14 3950 10×7.7 19 3800 — — — 390 6.3×5.7 15 3160 — — — 8×6.7 14 3950 — — — — — 470 8×6.7 13 3600 8×6.7 14 3950 8×6.7 14 3950 10×7.7 19 3800 — — — 560 8×6.7 13 3600 8×6.7 14 3950 — — — — — — — — — 680 8×6.7 13 3600 —<	220	5×5.7	21	2670	5×5.7	22	2610	6.3×5.7	15	3160	8×6.7	21	3220	10×7.7	22	3450
390 6.3×5.7 15 3160 — — — 8×6.7 14 3950 — — — — — — 470 8×6.7 13 3600 8×6.7 14 3950 8×6.7 14 3950 — — — — — — 560 8×6.7 13 3600 8×6.7 14 3950 — — — — — — — 680 8×6.7 13 3600 — — — — — — — — — 820 — — — — — — — — — — — 1000 10×7.7 13 4450 10×7.7 14 4300 — — — — — — — — — — — —	270	_	_	_	6.3×5.7	15	3160	_	_	_	8×6.7	21	3220	_	_	_
470 8×6.7 13 3600 8×6.7 14 3950 8×6.7 14 3950 10×7.7 19 3800 — — — 560 8×6.7 13 3600 8×6.7 14 3950 — — — — — — — — 680 8×6.7 13 3600 — — — — — — — — — — 820 — — — — — — — — — — — 1000 10×7.7 13 4450 10×7.7 14 4300 — — — — — — —	330	6.3×5.7	15	3160	6.3×5.7	15	3160	8×6.7	14	3950	10×7.7	19	3800	_	_	_
560 8×6.7 13 3600 8×6.7 14 3950 —	390	6.3×5.7	15	3160	_	_	_	8×6.7	14	3950	_	_	_	_	_	_
680 8×6.7 13 3600 —	470	8×6.7	13	3600	8×6.7	14	3950	8×6.7	14	3950	10×7.7	19	3800	_	_	_
820 — — — — — — 10×7.7 14 4300 — — — — — — — — — — — — — — — — — —	560	8×6.7	13	3600	8×6.7	14	3950	_	_	_	_	_	_	_	_	_
1000 10×7.7 13 4450 10×7.7 14 4300 — — — — — — — — — —	680	8×6.7	13	3600	_	_	_	_	_	_	_	_	_	_	_	_
	820	_		_	_	_	_	10×7.7	14	4300	_	_	_	_	_	_
1200 10×7.7 13 4450 — — — — — — — — — — — — —	1000	10×7.7	13	4450	10×7.7	14	4300	_	_	_	_	_	_	_	_	_
	1200	10×7.7	13	4450	_	_	_	_	_	_	_	_	_	_	_	_

Case

6.3

ESR

 ϕ D×L (mm) (m Ω max.)

ALUMINUM ELECTROLYTIC CAPACITORS
WITH CONDUCTIVE POLYMER SOLID ELECTROLYTE

Case

(mArms)

10

ESR

(mArms)

φD×L (mm) (mΩ max.)

(Note) Rated ripple current : 105°C, 100kHz ; ESR : 20°C, 100kHz

2.5

ESR

(mArms)

 $\phi D \times L \text{ (mm)} \text{ (m}\Omega \text{ max.)}$

4

ESR

(mArms)

Case

φD×L (mm) (mΩ max.)

Standard Ratings Rated voltage (V)

Rated capacitance (µF)

Case



Chip Type





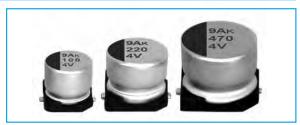




- · Super low ESR and high ripple current are realized.
- Guaranteed 125°C, 1000 hours.

High temperature





Marking color : Blue print

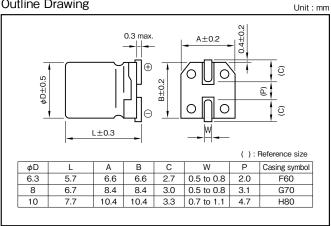
Specifications

Item		Performance						
Category temperature range (°C)		-55 to +125						
Tolerance at rated capacitance (%)		±20		(20°C,120Hz)				
Leakage current (µA)		0.2CV (after 2 minutes)						
(max.)	C · I	Rated capacitance (µF) , V : Rated vo	oltage (V)	(00°0)				
*Note			mage (V)	(20°C)				
Tangent of the loss angle (tanδ)		0.12 or less		(20°C,120Hz)				
Characteristics at high		Z-25°C/Z+20°C	1.15					
and low temperature	Impedance ratio (max.)	Z-55°C/Z+20°C	1.25	(100kHz)				
		1000						
	Test time	1000 hours						
Endurance (125°C)	Leakage current		specified value or less					
Applied ripple current)	Percentage of capacitance change	*********	0% of initial value					
	Tangent of the loss angle		ss of the initial specified value					
	ESR change	150% or le	ss of the initial specified value					
	Test time	500 hours						
Die a Lhamidie	Leakage current	The initial s	specified value or less					
Bias Humidity	Percentage of capacitance change	Within ±20	0% of initial value					
60°C, 90 to 95%RH	Tangent of the loss angle	150% or le	ss of the initial specified value					
	ESR change	150% or le	ss of the initial specified value					
	The capacitors shall be subject to 1000 cycles each through a protective resister (Rc=1kΩ) in 6 minutes			r 30 seconds				
Characteristics of applied	Leakage current	The initial s	specified value or less					
surge voltage	Percentage of capacitance change Within ±20% of initial value							
	Tangent of the loss angle	150% or le	ss of the initial specified value					
	ESR change	150% or le	ss of the initial specified value					
Failure tare	0.5% per 10	000 hours maximum (Confidence leve	el 60% at 125°C)					

^{*}Note: If any doubt arises, measure the leakage current after following voltage application treatment.

Voltage application treatment: DC rated voltage are applied to the capacitors for 120 minutes at 125°C.

Outline Drawing



- Soldering conditions are described on page 15.
- · Land pattern size are described on page 13.
- The taping specifications are described on page 16.

l	Part nun	nbe	ering sy	ste	em (exan	nple: 4V1	50μF)		
	PVK	_	4	٧	151	M	F60	E —	
	Series code	е	Rated voltage symbol		Rated capacitance symbol	Capacitance tolerance symbol	Casing symbol		Taping symbol



Standard Ratings

Rated voltage (V)		2.5			4			6.3			10			16	
Item	Case	ESR	Rated ripple current												
Rated capacitance (µF)	φD×L (mm)	(mΩ max.)	(mArms)												
33	_	_	_	_	_	_	_	_	_	_	_	_	6.3×5.7	37	590
39	_	_	_	_	_	_	_	_	_	_	_	_	6.3×5.7	37	590
47	_	_	_	_	_	-	_	-	-	6.3×5.7	31	680	6.3×5.7	37	590
56	_	_	_	_	_	_	_	_	_	6.3×5.7	31	680	_	_	_
68	_	_	-	_	_	-	6.3×5.7	27	720	_	_	-	_	_	_
82	_	_	-	_	-	_	6.3×5.7	27	720	-	_	_	8×6.7	30	830
100	_	_		6.3×5.7	26	770	6.3×5.7	27	720	8×6.7	27	880	8×6.7	30	830
120	_	_	-	_	_	_	6.3×5.7	27	720	8×6.7	27	880	_	_	_
150	_	_	_	6.3×5.7	26	770	8×6.7	25	960	8×6.7	27	880	10×7.7	26	930
180	_	_	-	_	_	_	_	_	_	_	_	_	10×7.7	26	930
220	6.3×5.7	25	770	8×6.7	25	960	8×6.7	25	960	10×7.7	24	1010	_	_	_
270	_	_	_	_	_	_	_	_	_	10×7.7	24	1010	_	_	_
330	8×6.7	23	960	8×6.7	25	960	10×7.7	20	1100	10×7.7	24	1010	_	_	_
470	8×6.7	23	960	10×7.7	20	1100	10×7.7	20	1100	_	_	_	_	_	_
560	8×6.7	23	960	_	_	_	_	_	_	_	_	_	_	_	_
680	_	_	_	10×7.7	20	1100	_	_	_	_	_	_	_	_	_
1000	10×7.7	19	1100	_	_	_	_	_	_	_	_	_	_	_	_

ALUMINUM ELECTROLYTIC CAPACITORS WITH CONDUCTIVE POLYMER SOLID ELECTROLYTE

(Note) Rated ripple current : 125°C, 100kHz ; ESR : 20°C, 100kHz



PRM ALUMINUM ELECTROLYTIC CAPACITORS WITH CONDUCTIVE POLYMER SOLID ELECTROLYTE

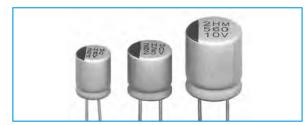






- •Low ESR and high ripple current are realized.
- Guaranteed 105°C, 2000 hours.





Marking color : Red print

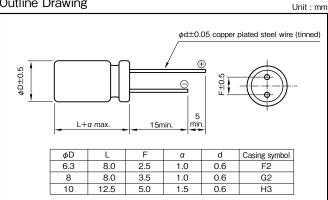
Specifications

Item		Performance						
Category temperature range (°C)		-55 to +105						
Tolerance at rated capacitance (%)		±20		(20°C,120Hz)				
Leakage current (µA)	0.2CV	or whichever is larger (after 2 mi	nutes)					
(max.)		• ,	,					
*Note	C : Rated	capacitance (μF) , V : Rated volt	age (V)	(20℃)				
Tangent of the loss angle (tanδ)	va	lues of Standard Ratings or less		(20°C,120Hz)				
Characteristics at high and low temperature	Impedance ratio (max.)	Z-55°C/Z+20°C	1.25	(100kHz)				
	Test time	2000 ho	urs					
F1 (105°0)	Leakage current	The initi	al specified value or less					
Endurance (105°C)	Percentage of capacitance change	Within ±	:20% of initial value					
(Applied ripple current)	Tangent of the loss angle	150% o	less of the initial specified value					
	ESR change	200% or less of the initial specified value						
	Test time	1000 ho	urs					
Damp heat, steady state	Leakage current	The initi	al specified value or less					
(humidity)	Percentage of capacitance change	Within ±	:20% of initial value					
60°C, 90 to 95%RH	Tangent of the loss angle	150% o	less of the initial specified value					
	ESR change	200% o	less of the initial specified value					
	The capacitors shall be subject to 1000 cycles each through a protective resister (Rc=1k Ω) in 6 minutes			30 seconds				
Characteristics of applied	Leakage current	The initi	al specified value or less					
surge voltage	Percentage of capacitance change	Within ±	:20% of initial value					
	Tangent of the loss angle	150% o	less of the initial specified value					
	ESR change	150% o	less of the initial specified value					
Failure tare	0.5% per 10	00 hours maximum (Confidence I	evel 60% at 105°C)					

*Note: If any doubt arises, measure the leakage current after following voltage application treatment.

Voltage application treatment: DC rated voltage are applied to the capacitors for 120 minutes at 105°C.

Outline Drawing



- Soldering conditions are described on page 14.
- •The taping specifications are described on page 18,19.

Part nun	nbe	ring sy:	ste	em (exam	ple : 4V5	60µF)	
PRM	_	4	٧	561	М	F2	В —	
Series code		Rated voltage symbol	-	Rated capacitance symbol	Capacitance tolerance symbol	Casing symbol	Optional symbol	Taping symbol

ALUMINUM ELECTROLYTIC CAPACITORS WITH CONDUCTIVE POLYMER SOLID ELECTROLYTE

Standard Ratings

Rated v	oltage (V)		2.	5			4	ļ			6.	3			10	0		
Rated	Item	Case	tanδ	ESR	Rated ripple current	Case	tanδ	ESR	Rated ripple current	Case	tanδ	ESR	Rated ripple current	Case	tanδ	ESR	Rated ripple current	
capacitance	(µF)	φD×L(mm)	tarro	(mΩ max.)	(mArms)	ϕ D×L(mm)	tarro	(mΩ max.)	(mArms)	φD×L(mm)	tarro	(mΩ max.)	(mArms)	φD×L(mm)	tarro	(mΩ max.)	(mArms)	
22	0	_	_	_	_	_	_	_	_	_	_	_	_	6.3×8.0	0.10	10	4680	
27	0	_	_	_	_	_	_	_	_	_	_	_	_	6.3×8.0	0.10	10	4680	
33	0	6.3×8.0	0.10	7	5600	_	_	_	_	6.3×8.0	0.10	10	4680	8×8.0	0.08	10	5000	
39	0	_	_	_	_	_	_	_	_	_	_		_	8×8.0	0.08	10	5000	
47	0	6.3×8.0	0.10	7	5600	_	_	_	_	6.3×8.0	0.10	7	5600	8×8.0	0.08	8	5700	
56	0	6.3×8.0	0.10	7	5600	6.3×8.0	0.10	7	5600	8×8.0	0.08	7	6100	10×12.5	0.12	12	5300	
68	0	_	_	_	_	8×8.0	0.08	6	6100	8×8.0	0.08	8	5700	_	_	_	_	
82	0	8×8.0	0.08	6	6100	8×8.0	0.08	6	6100	10×12.5	0.12	10	5500	_	_	_	_	
100	0	8×8.0	0.08	6	6100	10×12.5	0.12	8	5500	10×12.5	0.12	10	5500	_	_	_	_	
120	0	10×12.5	0.12	8	5500	10×12.5	0.12	8	5500	-	_	I	_	1	_	_	_	
150	0	10×12.5	0.12	8	5500	_	_	_	_	_	_	_	_	_	_	_	-	

(Note) Rated ripple current : 105°C , 100kHz ; ESR : 20°C , 100kHz

MUNIMU

POLYMER HYBRID

ALUMINUI

LUMINUM

LARGE ALUMINUM

Aluminum Electrolytic Capacitors

Conductive Polymer Hybrid Aluminum Electrolytic Capacitors

Aluminum Electrolytic Capacitors With Conductive Polymer Solid Electrolyte

Chip Type Aluminum Electrolytic Capacitors

Miniature Type Aluminum Electrolytic Capacitors

Large Capacitance Aluminum Electrolytic Capacitors

Aluminum Electrolytic Capacitors for Audio

■ Cautions for Using Aluminum Electrolytic Capacitors

Please read the specification before using ELNA products.

The following cautions should be observed when using our aluminum electrolytic capacitors to assure their maximum stability and performance. When your application design conditions or operating conditions exceed the limit of the product specification, please contact us. If used under conditions beyond the limit of our specifications, it may cause defects such as short circuit, open circuit, leakage, explosion or combustion.

■Cautions for usage

1. DC electrolytic capacitors are polarized.

 If used with a wrong polarity, it creates an abnormal current resulting in a short circuit or damage to itself. Use DC bipolar electrolytic capacitors for use with uncertain or unknown polarity. DC capacitors cannot be used in AC circuits.

2. Use within the rated voltage.

- If a voltage exceeding the rated voltage is applied, it may cause characteristic deterioration or damage due to the increased leakage current.
- When ripple current is loaded, make sure that the peak value of the ripple voltage does not exceed the rated voltage.

3. Using for power supply circuit.

- While aluminum electrolytic capacitors are operated electrolyte liquid inside dries up and E.S.R. (Equivalent Series Resistance) of the capacitor increases. In case operated longer than rated life time, the capacitance much decreases, tangent of loss angle and E.S.R. much increases. Therefore for some case the sum of bias direct voltage and the peak of ripple voltage is over the rated voltage of the capacitor.
- For any type of circuit, in case the sum of bias direct voltage and the peak of ripple voltage is over the rated voltage of the capacitors or in case the minimum voltage is lower than 0 (zero) volt, the voltage control for the capacitors shall be provided.

4. Do not use in a circuit which requires rapid charging or discharging.

If used in a circuit requiring rapid charging or discharging, it may cause characteristic deterioration or damage to itself due to the heat generated inside the capacitor. In such cases, contact us for our rapid charging/discharging capacitors.

5. Use within the rated ripple current.

 If applied ripple current exceeds rated ripple current, the life of the capacitor may be shortened, or in an extreme case it gets destroyed due to its internal heat. Use high-ripple type capacitors for such circuits.

6. Changes in characteristics due to operating temperature.

 The characteristics of an electrolytic capacitor will change with a change in the temperature. Such changes are temporary and the original characteristics will be restored at the original temperature (if the characteristics are not deteriorated by remaining at a high temperature for a long time). If used at a

- temperature exceeding the guaranteed temperature range, the capacitor may be damaged due to the increased leakage current. Pay attention to the capacitor temperature being affected by the ambient temperature of the unit, the temperature inside the appliance, the heat radiated by another hot component in the unit and the heat inside the capacitor itself due to the ripple current.
- (1) The electrostatic capacitance is normally shown as the value at 20°C-120Hz. It increases as the temperature raises and decreases as it lowers.
- (2)The tangent of loss angle $(\tan \delta)$ is normally shown as the value at 20°C-120Hz. It decreases as the ambient temperature gets high and increases as it gets low.
- (3)The leakage current increases as the temperature gets high and decreases as it gets low.

7. Changes in the characteristics due to frequency.

- The characteristics of an electrolytic capacitor will change according to the change in the operating frequency.
 - (1)The electrostatic capacity is normally shown as the value at 20°C-120Hz. It decreases as the frequency increases.
 - (2)The tangent of loss angle $(\tan \delta)$ is normally shown as the value at 20°C-120Hz. It increases as the frequency gets high.
 - (3)The impedance is normally shown as the value at 100kHz 20°C. It increases as the frequency lowers.

8. Aluminum electrolytic capacitor life.

The life of an aluminum electrolytic capacitor terminates when it fails due to the deterioration in its electronic characteristics. Temperature and the ripple current since they especially affect the life. See chart on page.

9. Changes in aluminum electrolytic capacitors during storage.

• After storage for a long period, whether unused of mounted on the appliance, the leakage current of an aluminum electrolytic capacitor will increase. This tendency is more prominent when the ambient temperature is high. If a capacitor has been stored for more than 2 years under normal temperature (shorter if high temperature) and it shows increased leakage current, a treatment by voltage application is recommended. Addition of a protective circuit in the design of the appliance is also recommended, considering the effect of the initial increased current.

NOTE: Design, Specifications are subject to change without notice.

It is recommended that you shall obtain technical specifications from ELNA to ensure that the component is suitable for your use.

Insulation between the capacitor case and the cathode terminal.

 The capacitor case and the cathode terminal are connected through the electrolyte which has uncertain resistance. If a complete insulation of the case is necessary, add an insulator at assembly.

11. NC terminal (the supplemental terminal) (series RPK, LJ6, LJ2)

• Since NC terminal is not insulated. It should be mounted at a position electronically independent from all other parts of the circuit.

12. External sleeve

ELNA®

 During a preheating or a hardening of mounting adhesive may cause a sleeve cracked.

The capacitors are usually sleeved with poly vinyl chloride or poly ethylene terephthalate for the indication purpose only. Please do not consider it as an insulation.

13. Fumigation Process

 When exporting electronic equipment abroad, fumigation process may be performed on wooden packaging material with a halogen (compound) gas such as methyl bromide. Exercise care as this halogen gas may corrode capacitors. Also, use caution to epidemic preventive agent as corrosive component such as halogen may be contained.

14. Specific Operating Environments

 Capacitors may corrode when stored or used in a place filled with acidic toxic gases (such as hydrogen sulfide, sulfurous acid, nitrous acid, chlorine, bromine, methyl bromide, etc.)

If capacitors are used or stored in such environments, please let us know.

15. Use at a high altitude

• The use of capacitors at high altitudes such as on an airplane causes a large difference between the internal pressure of the capacitors and the atmospheric pressure. However, there is no problem in use under atmospheric pressure up to about an altitude of 10,000 meters. Please check the operation of electronic equipment at the operating environmental temperature because the temperature lowers with increased altitude.

If the condition is severe like space, please contact us.

16. Hole pitch adjustment of the PCB to the capacitors.

 Set the hole pitch of the PCB to the lead pitch (the "F" distance in the catalog) of the capacitor. Be careful since a short circuit, a cut or an increase in the leakage current etc. may be caused by the stress given to the lead wire terminals due to the difference between the hole pitch and the lead pitch.

NOTE: Design, Specifications are subject to change without notice. It is recommended that you shall obtain technical specifications from ELNA to ensure that the component is suitable for your use.

17. Capacitors with pressure valves.

- A part of the capacitor case is made thin to have the function as the pressure valve in order to prevent explosion due to the rise of inside pressure when a reverse or excessive voltage is applied to the capacitor. Once it has worked as a valve, the whole capacitor needs to be replaced since the valve will not restore.
- When you use a capacitor with pressure valve, provide certain space above the pressure valve as below to prevent an interference when it works as a valve.

Diameter of the capacitor (mm)	18 or less	20 to 40
Required space above the valve (mm)	2.0 or more	3.0 or more

18. Double-sided PCB's

 When you use electrolytic capacitors on a double sided PCB, be careful not to have the circuit pattern run under where the capacitor is mounted. Otherwise it may cause a short circuit on the PCB depending on the condition of mounting.

19. Regarding to connection of capacitors

 Aluminum electrolytic capacitor has electrolyte liquid so that the most portion of electric loss characteristics came from E.S.R(Equivalent Series Resistance) of electrolyte liquid. Therefore the capacitor is an electronic devise which can flow high ripple current in case the temperature increases and it decreases E.S.R.

In case connecting two capacitors or more, E.S.R. of the capacitors is close to the resistance of the circuit. Therefore in case current is unbalanced and some capacitors has high ripple current, temperature increase, it makes more high current and finally it is over the rated ripple current.

For parallel connection of capacitors the proper design of electric circuit such as balancing of each capacitors resistance or control of total ripple current shall be provided to avoid excess ripple current and voltage.

 When two or more capacitors are arranged in series, the voltage given to each capacitors shall be kept below the rated voltage level, by also giving consideration to the balance of the voltage impressed on the capacitors. Further, partial pressure resistor which considers leakage current shall be provided parallel to each condenser not to have over-voltage impressed on.

Balance resistance are explained on p.106 of our Catalog.

■Cautions for Mounting

1. Cautions for mounting.

- Check the ratings (electrostatic capacitance and rated voltage) of the capacitor before mounting.
- Check the polarity of the capacitor to the chassis.
- Do not drop the capacitor to the floor. Do not use



the dropped capacitor.

Do not deform the capacitor for mounting.

2. Do not apply excessive pressure to the capacitor, its terminals or lead wires.

- Make sure that the contact path of the capacitor meets the hole pitch of the PCB before mounting.
- Transient recovery voltage may be generated in the capacitor due to dielectric absorption. If required, this voltage can be discharged with a resistor with a value of about 1 kΩ.
- A PCB self-standing (snap-in) type capacitor should be pushed to the end (till there is no space) to the PCB for mounting.
- Do not set the automatic insertion machine to clinch the capacitor lead wires too strong.
- Pay attention to the impact given by the component receptacles of the automatic insertion/mounting machines and the product checker, and from the centering operation.

3. Soldering.

- Do not dip the capacitor into melted solder.
- · The soldering conditions

Chip type: Please refer to page 15. small and large type: 260°C, 10 s (max.)

The preliminary heating and other conditions described in the catalog or product specifications.

- Do not flux other part than the terminals.
- If there is a direct contact between the sleeve of the capacitor and the printed circuit pattern or a metal part of another component such as a lead wire, it may cause shrinkage of crack.
- When you use the capacitor with its sleeve touching directly to the PCB, excessive solder temperature or excessive soldering time may cause the sleeve to shrink or crack during the heat.
- If the application is for extended use, understand and manage the soldering characteristics to avoid abnormal current caused by a contact failure between the capacitor and the PCB.

4. Handling after soldering.

- After soldering, do not tilt, push down or twist the capacitor.
- After soldering, do not hold the capacitor as a handle to carry the PCB.
- After soldering, do not hit the capacitor with any obstacle. If PCB's are piled up for storage, the capacitor should not touch another PCB or component.

5. Cleaning after Soldering

- Recommended cleaning method (1)cleaning solutions:
 - (a) CLEANTHROUGH 710M, 750H, 750L
 - (b) PINEALPHA ST-100S
 - (c) Techno Care FRW-4~17
 - (d) Isopropyl alcohol (2-propanol)

(2)Cleaning conditions:

- (a) The temperature of cleaning solution shall be less than 60°C.
- (b) Use immersion or ultrasonic waves within two minutes.
- (c) After cleaning, capacitors and PCB's shall thoroughly be rinsed and dried with hot blast for more than 10 minutes. The temperature of such breeze should be less than the upper category temperature.
- (d) After cleaning, do not keep capacitors in cleaning solution atmosphere or airtight containers
- During cleaning, control the cleaning solution against contamination.

6. Fixing adhesives and coating materials.

- Do not use fixing adhesive or coating material containing halogen-based solvent.
- Before applying the fixing adhesive or the coating material, make sure that there is no remaining flux or stains between the PCB and the sealed part of the capacitor.
- Before applying the fixing adhesive or the coating material, make sure that the detergent etc. has dried up.
- Do not cover the whole surface of the sealed part (terminal side) of the capacitor with the fixing adhesive or the coating material.
- Observe the description in the catalog or the product specifications concerning the thermal stiffening conditions of the fixing adhesive or the coating material. (If there is no such description, contact us.) When both discrete and SMT components are on the same PCB, the fixing material for the SMT components may cause crack, tear or shrinkage on the external sleeve depending on the thermal stiffening condition.
- Recommended fixing adhesives and coating materials

Fixing adhesives : Cemedine 1500, Diabond DN83K, Bond G103

Coating materials: Taffy TF1159, HumiSeal 1B66NS, 1A27NS

Other Cautions

1. Do not touch capacitor terminals with bare hands.

You may get electric shock or your hand may be burnt. Discharge it with a 1 $K\Omega$ resistance before use if necessary.

2. Do not short the capacitor terminals with a conductor

Do not spill conductive solution including acid or alkaline solution on the capacitor.

- 3. Periodical inspections should be established for the capacitors used in industrial appliances.
- The following items should be checked:

- (1)Appearance : Check if there is any open valve or leakage.
- (2)Electronic performance: Check the leakage current, the electrostatic capacitance, the tangent of loss angle and other items described in the catalog or the product specifications.

4. Take the following measures in case of emergency.

- If you see gas coming out of the capacitor valve when the set is in operation, turn off the power switch of the unit or unplug the power cord from the outlet.
- Keep your face away from the capacitor pressure valve, since the high temperature gas at over 100°C bursts out when the valve works. If the gas gets into your eyes or your mouth, wash your eyes or your mouth. Do not ingest the capacitor electrolyte. If the electrolyte gets on your skin, wash it out with soap.

5. Storing conditions.

- Avoid high temperature or high humidity when storing capacitors. Keep the storing temperature at 5°C to 35°C and the relative humidity not more than 75%.
- The leakage current of an aluminum electrolytic capacitor tends to increase when stored for a long time. This tendency becomes more prominent if the ambient temperature is high. The leakage current will be decreased by voltage application. If necessary, treatment by voltage application should

- be made on the capacitors which have been stored for a long period (more than 2 years after production).
- Do not store capacitors at a place where there is a possibility that they may get water, salt or oil spill.
- Do not store capacitors at a place where the air contains dense hazardous gas (hydrogen sulfide, sulfurous acid, nitrous acid, chlorine, ammonia, etc.).
- Fumigation treatment with toxic gas covering the whole wooden container frames as moth proofing during shipment may leave residual toxic gas.
- Do not store capacitors at a place where it gets ultraviolet or radioactive rays.

6. Disposing of capacitors.

- Punch a hole or crush the capacitors (to prevent explosion) before incineration at approved facility.
- If they are not to be incinerated, bring them to a professional industrial waste disposal company.

7. Other notes.

 Please refer to the following literature for anything not described in the specification or the catalog.

(Technical report of Japan Electronics and Information Technology Industries Association, EIAJ RCR-2367C "Guideline of notabilia for fixed aluminum electrolytic capacitors for use in electronic equipment")

LUMINUM

POLYMER HYBRID

LUMINUN

UMINUM

LARGE LUMINUM

Aluminum Electrolytic Capacitors

Conductive Polymer Hybrid Aluminum Electrolytic Capacitors

Aluminum Electrolytic Capacitors With Conductive Polymer Solid Electrolyte

Chip Type Aluminum Electrolytic Capacitors

Miniature Type Aluminum Electrolytic Capacitors

Large Capacitance Aluminum Electrolytic Capacitors

Aluminum Electrolytic Capacitors for Audio

RV5 VERTICAL CHIP TYPE ALUMINUM ELECTROLYTIC CAPACITORS



Chip Type 85°C High CV Capacitors

SMD

- · Compatible with surface mounting.
- Supplied with carrier taping.

Specifications

• Guarantees 2000 hours at 85°C.



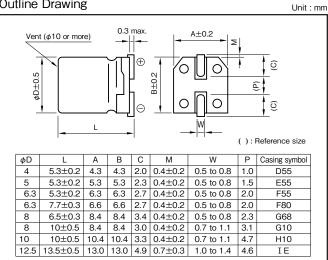


Marking color: Black print

There are also white print on a brown sleeve (φ10)

·				·									
Item				Perforr									
Category temperature range (°C)				−40 to	+85								
Tolerance at rated capacitance (%)				±2	20						(20°C,120Hz		
Leakage current (μA) (max.)	0.0	1CV or 3 whichever is la	arger (after	2 minutes)	C : Rated c	apacitance	e (μF) ; V : I	Rated volta	ge (V)		(20°C		
Tangent of loss angle	Rated vo	Rated voltage (V) 4 6.3 10 16 25 35 50 63 100											
	tanδ (i	tanő (max.) Refer to following page.											
(tanδ)		(20°C,120Hz)											
	Rated vo	oltage (V)	16	25	35	50	63	100					
Characteristics at high		Z-25°C/Z+20°C	7	4	3	2	2	2	2	2	2		
and low temperature	Impedance ratio (max.)	Z-40°C/Z+20°C	17	10	8	6	4	3	3	3	3		
											(120Hz		
	Test tin	ne			200	00 hours							
Endurance (85°C)	Leakage c	urrent			The	initial spe	cified value	or less					
(Applied ripple current)	Percentage of cap	pacitance change			Wit	hin ±30%	of initial val	lue					
	Tangent of the	Tangent of the loss angle 200% or less of the initial specified value											
Shelf life (85°C)	Test time: 1000	Test time: 1000hours; other items are same as the endurance. Voltage application treatment: According to JIS C5101-4 4.1											
Applicable standards			JIS C	5101-1, -1	8 (IEC 603	884-1, -18)							

Outline Drawing



- · Soldering conditions are described on page 15.
- Land pattern size are described on page 13.
- The taping spesifications are described on page 16.

Coefficient of Frequency for Rated Ripple Current

Frequency (Hz) Rated voltage (V)	50.60	120	1k	10k • 100k
4 to 16	0.80	1	1.15	1.25
25 to 35	0.80	1	1.25	1.40
50 to 63	0.80	1	1.35	1.50
100	0.70	1	1.35	1.50

Part numbering system φ8 or less (example : 16V470μF)													
RV5	_	16	٧	471	М	G10	U -	_					
Series code		Rated voltage symbol		Rated capacitance symbol	Capacitance tolerance symbol	Casing	•		Taping symbol				
φ10 sleeve	e les	s type (exa	mpl	e : 16V470μ	F) * Please i	inquire s	sleeve 1	type	P/N.				
φ10 sleeve less type (example : 16V470μF) * Please inquire sleeve type P/N. RV5 — 16 V 471 M H10 EU —													
RV5	_	16	٧	471	M	H10	EU -	_					
RV5 Series code	_	Rated voltage symbol	V	A71 Rated capacitance symbol	M Capacitance tolerance symbol	H10 Casing symbol	EU -	- .					
Series code		Rated voltage	_	Rated capacitance	Capacitance	Casing	EU -	_	Taping symbol				
Series code		Rated voltage symbol	_	Rated capacitance	Capacitance	Casing	EU -	- 					



Standard Ratings

Rated	Rated voltage(V) 4								10)		16				25					
Rated	Item		Casing	tan δ	Rated ripple current		Casing	tan δ	Rated ripple current	Case	Casing	tan δ	Rated ripple current	Case	Casing	tan δ	Rated ripple current	Case	Casing	tan δ	Rated ripple current
capacitance	e(μF)	φD×L (mm)	symbol		(mArms)	φD×L (mm)	symbol	tarro	(mArms)	φD×L (mm)	symbol	10110	(mArms)	φD×L (mm)	symbol	tarro	(mArms)	φD×L (mm)	symbol		(mArms)
1	0	-	-	-	-	-	-	-	_	4×5.3	D55	0.24	23	4×5.3	D55	0.20	26	4×5.3	D55	0.18	23
2	2	_	_	_	_	4×5.3	D55	0.28	31	4×5.3	D55	0.24	26	4×5.3	D55	0.28	30	4×5.3	D55	0.18	24
												-		5×5.3	E55	0.20	44	5×5.3	E55	0.18	43
3	3	4×5.3	D55	0.42	31	4×5.3	D55	0.35	28	4×5.3	D55	0.32	32	4×5.3	D55	0.28	32	5×5.3	E55	0.18	54
		1110.0	500	0	٥.	5×5.3	E55	0.28	44	5×5.3	E55	0.24	48	5×5.3	E55	0.28	44	6.3×5.3	F55	0.14	67
4	.7	4×5.3	D55	0.42	37	4×5.3	D55	0.35	34	4×5.3	D55	0.32	33	5×5.3	E55	0.28	52	6.3×5.3	F55	0.18	75
				0	<u> </u>	5×5.3	E55	0.28	52	5×5.3	E55	0.32	54	6.3×5.3	F55	0.20	75				
10	0	5×5.3	E55	0.42	63	5×5.3	E55	0.35	58	5×5.3	E55	0.32	54	6.3×5.3	F55	0.20	70	6.3×7.7	F80	0.18	124
10	0	3 × 3.0	Loo	0.72	- 00	6.3×5.3	F55	0.28	89	6.3×5.3	F55	0.24	98	0.0 × 0.0	1 00	0.20	/0	8×6.5	G68	0.18	118
15	0	_	_	_	_	6.3×5.3	F55	0.35	83	6.3×5.3	F55	0.32	79	6.3×7.7	F80	0.28	109	_	_	_	_
	•									6.3×7.7	F80	0.32	98								
22	0	6.3×5.3	F55	0.42	110	6.3×5.3	F55	0.35	88	6.3×7.7	F80	0.32	173	6.3×7.7	F80	0.28	162	8×10	G10	0.14	252
		0.0710.0	1 00	0.12	110	6.3×7.7	F80	0.35	113	8×6.5	G68	0.32	175	8×10	G10	0.20	220				
33	n	_	_	_	_	6.3×7.7	F80	0.35	188	8×10	G10	0.24	230	8×10	G10	0.20	260	8×10	G10	0.18	300
	0					8×6.5	G68	0.35	190	0 / 10	u i o	0.24	200	0 × 10	uio	0.20	200	10×10	H10	0.14	458
47	'n	_	_	_	_	8×10	G10	0.28	262	8×10	G10	0.32	310	8×10	G10	0.28	307	10×10	H10	0.14	458
						0/10	aio	0.20	202	0/10	uio	0.02	010	10×10	H10	0.20	458	10 / 10	1110	0.14	750
68	0	-	_	-	_	-	-	-	_	_	_	_	_	10×10	H10	0.28	380	_	-	_	_
82	-	-	-	-	_	8×10	G10	0.35	320	-	_	-	-	-	_	_	_	12.5×13.5	ΙE	0.14	552
100	_	_	-	_	_	10×10	H10	0.28	458	10×10	H10	0.24	454	12.5×13.5	ΙE	0.20	521	_	-	-	-
150		_	-	-	_	10×10	H10	0.35	489	12.5×13.5	ΙE	0.24	560	-	-	_	-	_	-	_	_
220	0	_	-	-	_	12.5×13.5	ΙE	0.30	651		_	-		_	-	-	_	_	-	-	_

Dated voltage(V)	Rated voltage(V) 35					50			63				100			
Haled voltage(V)						, JU				00				. 10	U	
Item	Case	Casing	tan δ	Rated ripple current		Casing	tan δ	Rated ripple current		Casing	tan δ	Rated ripple current		Casing		Rated ripple current
Rated capacitance(µF)	φD×L (mm)	symbol	tarro	(mArms)	φD×L (mm)	symbol	100	(mArms)	φD×L (mm)	symbol	100	(mArms)	φD×L (mm)	symbol	100	(mArms)
1	_	-	_	-	4×5.3	D55	0.10	10	_	-	_	_	_	-	_	_
2.2	-	-	-	_	4×5.3	D55	0.10	15	-	_	-	_	-	-	-	_
3.3	-	-	-	_	4×5.3	D55	0.10	19	4×5.3	D55	0.12	12	-	-	_	-
4.7	4×5.3	D55	0.12	20	4×5.3	D55	0.12	20	5×5.3	E55	0.12	20	_	_	_	_
4.7	4 ^ 3.3	555	0.12	20	5×5.3	E55	0.10	26	3 ^ 3.3	133	0.12	20				
10	4×5.3	D55	0.14	27	5×5.3	E55	0.12	34	6.3×5.3	F55	0.12	32	8×10	G10	0.10	94
10	5×5.3	E55	0.12	34	6.3×5.3	F55	0.10	44	0.5 ^ 5.5	155	0.12	32	0 ^ 10	410	0.10	94
22	5×5.3	E55	0.14	47	6.3×5.3	F55	0.12	47	6.3×7.7	F80	0.12	60	8×10	G10	0.12	94
22	6.3×5.3	F55	0.12	59	0.5 ^ 5.5	F55	0.12	47	8×6.5	G68	0.12	62	0^10	410	0.12	94
33	6.3×5.3	F55	0.14	67	6.3×7.7	F80	0.12	82	8×10	G10	0.10	139	8×10	G10	0.12	94
33	0.0 ^ 0.0	1 33	0.14	01	8×6.5	G68	0.12	83	0 × 10	uio	0.10	100	10×10	H10	0.10	189
47	6.3×5.3	F55	0.14	54	6.3×7.7	F80	0.12	85	8×10	G10	0.10	139	10×10	H10	0.12	189
47	6.3×7.7	F80	0.14	90	8×10	G10	0.10	252	10×10	H10	0.12	226	10.00	חוט	0.12	109
100	6.3×7.7	F80	0.14	120	8×10	G10	0.12	252	10×10	H10	0.10	226	12.5×13.5	ΙE	0.10	242
100	0.5 ^ 1.1	FOU	0.14	120	10×10	H10	0.10	458	10 ^ 10	ППО	0.10	220	12.5 ^ 15.5	1 -	0.10	242
220	8×10	G10	0.14	260	_	_	_	_	12.5×13.5	ΤE	0.10	343	_	_	_	_
220	10×10	H10	0.12	458					12.5 ^ 13.5	1	0.10	040				
330	10×10	H10	0.14	360	12.5×13.5	ΙE	0.10	451	-	-	-	_	-	-	-	-
470	12.5×13.5	ΙE	0.12	451	_	-	_	_	-	-	_	_	-	-		_

(Note) Rated ripple current : 85° C, 120Hz



Chip Type 85°C Capacitors (height:4.5mm)



- · Compatible with surface mounting for 4.5mm height capacitors.
- Supplied with carrier taping.
- Guarantees 2000 hours at 85℃.





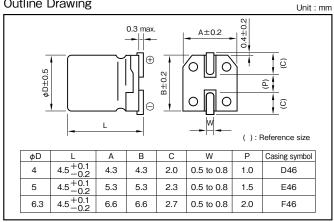


Marking color: Black print

Specifications

Item			Р	erformance									
Category temperature range (°C)			-	-40 to +85									
Tolerance at rated capacitance (%)				±20				(20°C	,120Hz)				
Leakage current (μΑ) (max.)	0.01	CV or 3 whichever is larg	ger (after 2 minu	utes) C : Rated	capacitance (µ	F); V: Rated v	oltage (V)		(20°C)				
Toward of loss souls	Rated vo	tage (V)	6.3	10	16	25	35	50	7				
Tangent of loss angle	tanδ (i	nax.)	0.30	0.24	0.19	0.16	0.14	0.12	7				
(tanδ)													
	Rated vo	tage (V)	6.3	10	16	25	35	50	7				
Characteristics at high	Impedance ratio (max.)	Z-25°C/Z+20°C	4	3	2	2	2	2					
and low temperature	impedance ratio (max.)	Z-40°C/Z+20°C	8	8	4	4	3	3					
									(120Hz)				
	Test	time		20	00 hours				7				
Endurance (85°C)	Leakage	current		Th	e initial specifie	d value or less							
(Applied ripple current)	Percentage of cap	acitance change		Wi	thin ±20% of in	itial value							
	Tangent of th	Tangent of the loss angle 300% or less of the initial specified value											
Shelf life (85°C)	Test time: 1000h	Test time: 1000hours; other items are same as the endurance. Voltage application treatment: According to JIS C5101-4 4.1											
Applicable standards			JIS C5101-1.	-18 (IEC 6038	34-118)								

Outline Drawing



Coefficient of Frequency for Rated Ripple Current

Rated vo	Frequency (Hz)	50 · 60	120	1k	10k • 100k
	6.3 to 16	0.80	1	1.15	1.25
	25 to 35	0.70	1	1.25	1.40
50	1 to 3.3μF	0.50	1	1.35	1.50
30	4.7 to 10μF	0.70	1	1.35	1.50

Part numbering system (example : 6.3V47µF)												
RV4 — 6 V 470 M E46 U — []												
Series code		Rated voltage symbol		Rated capacitance symbol	Capacitance tolerance symbol	Casing		Taping symbol				

- Soldering conditions are described on page 15.
- · Land pattern size are described on page 13.
- The taping specifications are described on page 16.

Standard Ratings

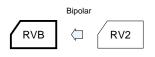
	- 0-																	
Rated voltage (V)		6.3			10			16			25			35			50	
Rated Item	Case	ESR	Rated ripple current	Case	ESR	Rated ripple current	Case	ESR	Rated ripple current	Case	ESR	Rated ripple current	Case	ESR	Rated ripple current	Case	ESR	Rated ripple current
	ϕ D(mm)	(Ω)	(mArms)	ϕ D(mm)	(Ω)	(mArms)	ϕ D(mm)	(Ω)	(mArms)	φD(mm)	(Ω)	(mArms)	ϕ D(mm)	(Ω)	(mArms)	φD(mm)	(Ω)	(mArms)
1	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	4	199	8
2.2	_	_	_		_	_	_	_	_	_	_	_		_	_	4	90	12
3.3	_	_		_	_	I –	_	_	_	_	_	_	_	_	_	4	60	15
4.7	_	_	I -	_	_	I -	_		_	4	56	17	4	49	18	5	42	21
10	_	_	_		_	_	4	32	22	5	27	28	5	23	30	6.3	20	35
22	4	23	26	5	18	34	5	14	38	6.3	12	49	6.3	11	52	_	_	_
33	5	15	37	5	12	42	6.3	10	55	6.3	8	60	_	_	_	_	_	_
47	5	11	45	6.3	8	59	6.3	7	76	_	_	_	_	_	_	_	_	_
100	6.3	5	76	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_

(Note) Rated ripple current : 85°C, 120Hz ; ESR : 20°C, 120Hz

VERTICAL CHIP TYPE ALUMINUM ELECTROLYTIC CAPACITORS RVB

Chip Type Bipolar Capacitors (height:5.5mm)

- Compatible with surface mounting for 5.5mm height capacitors.
- · Supplied with carrier taping.
- •Guarantees 2000 hours at 85℃.





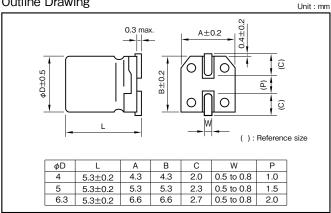
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Specifications

ELNA®

Specifications												
Item			F	erformance								
Category temperature range (°C)			-	-40 to +85								
Tolerance at rated capacitance (%)				±20				(20℃	C,120Hz)			
Leakage current (μA) (max.)	0.01	CV or 3 whichever is larg	ger (after 2 minu	ites) C : Rated	capacitance (µ	F); V: Rated ve	oltage (V)		(20°C)			
	Rated vol	tage (V)	6.3	10	16	25	35	50	7 l			
Tangent of loss angle	ton 5 (may)	tanδ (max.) φ4 0.35 0.30 0.25 0.25 0.25 0.25										
(tanδ)	tario (max.)	φ5, 6.3	0.30	0.25	0.20	0.15	0.15	0.15				
								(20℃	C,120Hz)			
	Rated vol	tage (V)	6.3	10	16	25	35	50				
Characteristics at high	Impedance ratio (max.)	Z-25°C/Z+20°C	3	3	2	2	2	2				
and low temperature	impedance ratio (max.)	Z-40°C/Z+20°C	8	5	4	3	3	3				
									(120Hz)			
	Test tim	ne		2000 hours	(with the polarit	ty inverted ever	y 250 hours)		7			
Endurance (85°C)	Leakage ci	urrent		The initial sp	pecified value o	r less			7			
(Applied ripple current)	Percentage of cap	acitance change		Within ±20°	% of initial value	Э						
	Tangent of the	Tangent of the loss angle 200% or less of the initial specified value										
Shelf life (85°C)	Test time: 1000hours; other items are same as the endurance. Voltage application treatment: According to JIS C5101-4 4.1											
Applicable standards			JIS C5101-1	-18 (IEC 6038	34-1, -18)							

Outline Drawing



Coefficient of Frequency for Rated Ripple Current

Frequency (Hz) Rated voltage (V)	50 · 60	120	1k	10k • 100k
6.3 to 16	0.80	1	1.15	1.25
25 to 35	0.80	1	1.25	1.40
50	0.80	1	1.35	1.50

Part numbering system (example : 6.3V47µF)											
RVB — 6 V 470 M U —											
Series code		Rated voltage symbol		Rated capacitance symbol	Capacitance tolerance symbol		-	Taping symbol			

- · Soldering conditions are described on page 15.
- Land pattern size are described on page 13.
- The taping specifications are described on page 16.

Standard Ratings

0 1011 101011 01 1 10																		
Rated voltage (V)	6.3			10			16			25			35			50	
Rated Item	Case	ESR	Rated ripple current	Case	ESR	Rated ripple current	Case	ESR	Rated ripple current	Case	ESR	Rated ripple current	Case	ESR	Rated ripple current	Case	ESR	Rated ripple current
capacitance (µF)	φD(mm)	(Ω)	(mArms)	ϕ D(mm)	(Ω)	(mArms)	φD(mm)	(Ω)	(mArms)	φD(mm)	(Ω)	(mArms)	ϕ D(mm)	(Ω)	(mArms)	ϕ D(mm)	(Ω)	(mArms)
1	_	_	_		_	_	_	_	_	_	_	_	_	_	_	4	332	7.2
2.2	I -		_	_	_		_	_	_	_	_	_	4	151	10	5	113	14
3.3	_	_	_		_	_	_	_	_	4	101	13	5	75	17	5	75	17
4.7	_	_	_	_	_	_	4	88	14	5	53	20	5	53	21	6.3	53	24
10	I -		I –	4	50	18	5	33	26	6.3	25	35	6.3	25	35	_	_	_
22	5	23	27	6.3	19	40	6.3	15	45	_	_	_	_	_	_	_	_	_
33	6.3	15	45	6.3	13	50	6.3	10	55	_	_	_	_	_	_	_	_	_
47	6.3	11	54	_	_	_	_	_	_	_	_	_	_	_	_	_	_	

(Note) Rated ripple current : 85°C, 120Hz ; ESR : 20°C, 120Hz

RVS VERTICAL CHIP TYPE ALUMINUM ELECTROLYTIC CAPACITORS



Chip Type 105°C Standard Capacitors







- · Compatible with surface mounting.
- Supplied with carrier taping.
- Guarantees 1000 hours at 105°C.



High temperature



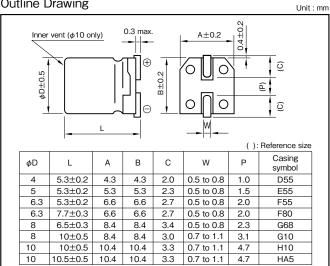


Marking color: Black print

Specifications

Item			F	erformance								
Category temperature range (°C)			-	-55 to +105								
Tolerance at rated capacitance (%)				±20				(20℃),120Hz)			
Leakage current (μA) (max.)	0.01	CV or 3 whichever is larg	ger (after 2 minu	ites) C : Rated	l capacitance (μ	F); V: Rated v	oltage (V)		(20°C)			
Tangant of loss angle	Rated vo	Itage (V)	6.3	10	16	25	35	50				
Tangent of loss angle	tanδ (max.)	0.30	0.26	0.22	0.16	0.13	0.12	7			
(tanδ)								(20℃	C,120Hz)			
	Rated vo	Itage (V)	6.3	10	16	25	35	50				
Characteristics at high	Impedance ratio (max.)	Z-25°C/Z+20°C	4	3	2	2	2	2				
and low temperature	impedance ratio (max.)	Z-40°C/Z+20°C	8	5	4	3	3	3				
									(120Hz)			
	Test	time		1000	hours							
Endurance (105°C)	Leakage	current		The ir	nitial specified v	alue or less			7			
(Applied ripple current)	Percentage of cap	acitance change		Withir	n ±20% of initia	al value			7			
	Tangent of the	e loss angle		200%	or less of the i	nitial specified	value					
Shelf life (105℃)	Test time : 1000l	Test time: 1000hours; other items are same as the endurance. Voltage application treatment: According to JIS C5101-4 4.1										
Applicable standards			JIS C5101-1.	-18 (IEC 6038	34-1, -18)							

Outline Drawing



- · Soldering conditions are described on page 15.
- · Land pattern size are described on page 13.
- The taping specifications are described on page 16.

Coefficient of Frequency for Rated Ripple Current

Frequency (Hz) Rated voltage (V)	50.60	120	1k	10k • 100k
6.3 to 16	0.80	1	1.15	1.25
25 to 35	0.80	1	1.25	1.40
50	0.80	1	1.35	1.50

Part numbe	Part numbering system (example : 16V47μF)												
RVS —	16	٧	470	М	F55	U —							
Series code	Rated voltage symbol		Rated capacitance symbol	Capacitance tolerance symbol	Casing symbol		Taping symbol						

ELNA®

Standard Ratings

Rated voltage (V)		6.3			10			16			25			35			50	
Rated Item	Case	ESR	Rated ripple current															
capacitance (μF)	$\phi D \times L(mm)$	(Ω)	(mArms)	$\phi D \times L(mm)$	(Ω)	(mArms)	$\phi D \times L(mm)$	(Ω)	(mArms)	$\phi D \times L(mm)$	(Ω)	(mArms)	$\phi D \times L(mm)$	(Ω)	(mArms)	$\phi D \times L(mm)$	(Ω)	(mArms)
1	_	_	_	_	_	_	_	_	-	_	_	_	-	_	_	4 × 5.3	199	7
2.2	_	_	_	_	_	_	_	_	-	_	_	-	_	_	_	4 × 5.3	91	10
3.3	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	4 × 5.3	60	12
4.7	_	_	_	_	_	_	_	_	_	4 × 5.3	57	12	4 × 5.3	46	14	5 × 5.3	42	17
10	_	_	_	4 × 5.3	43	15	4 × 5.3	36	16	5 × 5.3	27	21	5 × 5.3	22	23	6.3 × 5.3	20	26
22	4 × 5.3	23	21	5 × 5.3	20	25	5 × 5.3	17	28	6.3×5.3	12	36	6.3 × 5.3	10	50	8 × 6.5	9.0	51
33	5 × 5.3	15	30	5 × 5.3	13	31	6.3×5.3	11	40	6.3×5.3	8.0	44	8 × 6.5	6.5	59	6.3 × 7.7	6.0	60
47	5 × 5.3	11	36	6.3 × 5.3	9.2	43	6.3×5.3	7.8	47	8 × 6.5	5.6	66	-	_	_	6.3 × 7.7	4.2	63
100	6.3×5.3	5.0	61	6.3×5.3	4.3	60	6.3×5.3	3.6	60	6.3 × 7.7	2.7	91	6.3 × 7.7	2.2	84	8 × 10	2.0	140
150	_	_	_	_	_	_	6.3 × 7.7	2.4	105	8 × 10	1.8	140	8 × 10	1.4	155	10 × 10	1.3	180
220	8 × 6.5	2.3	102	6.3 × 7.7	2.0	105	6.3 × 7.7	1.7	105	8 × 10	1.2	155	8 × 10	0.98	190	10 × 10.5	0.91	220
330	6.3×7.7	1.5	105	8 × 10	1.3	195	8 × 10	1.1	195	8 × 10	0.80	190	10 × 10.5	0.65	300	1	_	_
470	8 × 10	1.1	210	8 × 10	0.92	210	8 × 10	0.78	230	10 × 10	0.57	300	_	_	_	_	_	_
680	8 × 10	0.73	210	10 × 10	0.63	310	10 × 10	0.54	310	_	_	_	_	_	_	_	_	_
1000	8 × 10	0.50	210	10 × 10	0.43	310	_	_	_	_	_	_	-	_	_	1	_	_
1500	10 × 10	0.33	310	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_

VERTICAL CHIP TYPE ALUMINUM ELECTROLYTIC CAPACITORS RVS

(Note) Rated ripple current : 105°C , 120Hz ; ESR : 20°C , 120Hz

RVL VERTICAL CHIP TYPE ALUMINUM ELECTROLYTIC CAPACITORS



Chip Type 105°C Capacitors (height:6.0mm)





- · Compatible with surface mounting for 6.0mm height capacitors.
- · Supplied with carrier taping.
- Guarantees 2000 hours at 105°C.

Long life **RVL RVS**

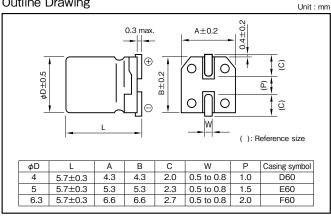


Marking color: Black print

Specifications

Item			F	erformance							
Category temperature range (°C)			_	55 to +105							
Tolerance at rated capacitance (%)				±20				(20℃	,120Hz)		
Leakage current (μΑ) (max.)	0.0	CV or 3 whichever is larg	ger (after 2 min	ites) C : Rated	capacitance (μ	F); V: Rated vo	oltage (V)		(20°C)		
Tangent of loss angle	Rated vo	oltage (V)	6.3	10	16	25	35	50			
tangent or loss angle (tanδ)	tanδ (max.)	0.32	0.28	0.24	0.18	0.15	0.14			
(tario)								(20℃	,120Hz)		
	Rated vo	oltage (V)	6.3	10	16	25	35	50	٦l		
Characteristics at high	Impedance ratio (may)	Z-25°C/Z+20°C	4	3	2	2	2	2	7		
and low temperature	Impedance ratio (max.)	Z-40°C/Z+20°C	8	5	4	3	3	3]		
									(120Hz)		
	Test	time		2000) hours				7 l		
Endurance (105°C)	Leakage	current		The i	nitial specified	value or less			7 I		
(Applied ripple current)	Percentage of cap	pacitance change		Withi	n ±30% of initi	al value			7		
	Tangent of the	ne loss angle		300%	% or less of the	initial specified	value]		
Shelf life (105℃)	Test time : 1000h	Test time: 1000hours; other items are same as the endurance. Voltage application treatment: According to JIS C5101-4 4.1									
Applicable standards		JIS C5101-1, -18 (IEC 60384-1, -18)									

Outline Drawing



Coefficient of Frequency for Rated Ripple Current

Rated vo	Frequency (Hz)	50 · 60	120	1k	10k • 100k
	6.3 to 16	0.80	1	1.15	1.25
	25.35	0.80	1	1.25	1.40
50	1 to 3.3μF	0.50	1	1.35	1.50
30	4.7 to 10μF	0.70	1	1.35	1.50

Part numbering system (example : 16V47µF)											
RVL — 16 V 470 M F60 U — []											

- · Soldering conditions are described on page 15.
- · Land pattern size are described on page 13.
- The taping specifications are described on page 16.

Standard Ratings

	- 0-																	
Rated voltage (V)		6.3			10			16			25			35			50	
Rated Item	Case	ESR	Rated ripple current	Case	ESR	Rated ripple current	Case	ESR	Rated ripple current	Case	ESR	Rated ripple current	Case	ESR	Rated ripple current	Case	ESR	Rated ripple current
	φD×L(mm)	(Ω)	(mArms)	φD×L(mm)	(Ω)	(mArms)	ϕ D×L(mm)	(Ω)	(mArms)	ϕ D×L(mm)	(Ω)	(mArms)	φD×L(mm)	(Ω)	(mArms)	φD×L(mm)	(Ω)	(mArms)
1	_	_	_	_	_	_		_	_		_	_		_	_	4×5.7	232	12
2.2	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	4×5.7	105	19
3.3	_	_		_	_	_	_	_	I -	_	_	_	_	_	_	4×5.7	70	22
4.7	_	_	_	_	_	_	_	_	_	4×5.7	63	21	4×5.7	53	23	5×5.7	49	29
10	_	_		_	_	_	4×5.7	40	27	5×5.7	30	36	5×5.7	25	39	6.3×5.7	23	47
22	_	_	_	_	_	_	5×5.7	18	46	6.3×5.7	14	62	6.3×5.7	11	65	_	_	_
33	_	_	_	_	_	_	6.3×5.7	12	66	6.3×5.7	9.0	76	_	_	_	_	_	_
47	_	_	_	6.3×5.7	9.9	74	6.3×5.7	8.5	78	_	_	_	_	_	_	_	_	_
100	6.3×5.7	5.3	99	_	_	_	_	_	_	_	_	_	-	_	_	_	_	_

(Note) Rated ripple current : 105°C, 120Hz ; ESR : 20°C, 120Hz

RVJ VERTICAL CHIP TYPE ALUMINUM ELECTROLYTIC CAPACITORS



Chip Type, 105°C Use, Large Capacitance Capacitors

· Compatible with surface mounting.

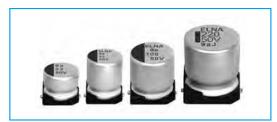
- · Supplied with carrier taping.
- Guarantees 2000 hours at 105℃.

 $(\phi 12.5 \times 13.5 L : 5000 \text{ hours at } 105^{\circ}C)$



High temperature





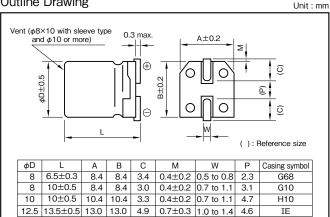
Marking color : Black print
There are also white print on a brown sleeve

(10L or more)

Specifications

Item				Perforn	nance							
Category temperature range (°C)				−55 to	+105							
Tolerance at rated capacitance (%)				±2	20					(20°C,120Hz)		
Leakage current (μA) (max.)	0	.01CV or 3 whichever is	larger (after 2	2 minutes) (C : Rated cap	pacitance (µ	F) ; V : Rated	d voltage (V)		(20℃)		
Tangent of loss angle	Rated vo	oltage (V)	6.3	10	16	25	35	50	63	100		
tanδ)	tanδ	(max.)	0.30	0.24	0.22	0.16	0.13	0.12	0.11	0.10		
(tario)		(20°C,120Hz										
	Rated vo	oltage (V)	6.3	10	16	25	35	50	63	100		
Characteristics at high	Impodonos ratio (may)	Z-25°C/Z+20°C	4	3	2	2	2	2	2	2		
and low temperature	impedance ratio (max.)	mpedance ratio (max.) Z 230/Z+20°C 8 5 4 3 3 3 3 3										
										(120Hz)		
	Test	time			2000	hours (<i>ф</i> 12.	5×13.5L : 50	000 hours)				
Endurance (105°C)	Leakage	current			The in	itial specifie	d value or le	SS				
(Applied ripple current)	Percentage of cap	pacitance change			Within	±20% of in	itial value					
	Tangent of th	Tangent of the loss angle 200% or less of the initial specified value										
Shelf life (105°C)	Test time : 100	00hours; other items are	same as the	endurance.	Voltage app	plication trea	atment : Acco	ording to JIS	C5101-4 4	.1		
Applicable standards			JIS C51	01-1, -18 (IE	EC 60384-1,	-18)						

Outline Drawing



- · Soldering conditions are described on page 15.
- · Land pattern size are described on page 13.
- The taping specifications are described on page 16.

Coefficient of Frequency for Rated Ripple Current

Frequency (Hz) 50 · 60 120 10k · 100k 1k Rated voltage (V) 6.3 to 16 0.80 1.15 1.25 0.80 1.40 25 to 35 0.80 1.35 1.50 50 to 63 0.70 1.35 1.50 100

φ12.5				
Rated Frequency (Hz) capacitance(µF)	120	1k	10k	100k
47	0.50	0.76	0.87	1
100 to 220	0.70	0.85	0.90	1
330 to 1000	0.80	0.93	0.98	1

Part numb	0 ,						
RVJ —	- 25	٧	470	М	G68	U —	
Series code	Rated voltage symbol		Rated capacitance symbol	Capacitance tolerance symbol	Casing symbol		Taping symbol
φ8×10L(exa	mple : 25V1	00	μF)* Howev	er, in the case	of 100V	, should dela	ate "M".
RVJ —	- 25	٧	101	М	G10	Y1U —	
Series code	Rated voltage symbol		Rated capacitance symbol	Capacitance tolerance symbol	Casing symbol		Taping symbol
φ10(example	e : 16V470µԲ	=)					
RVJ —	- 16	٧	471	М	H10	EU —	
Series code	Rated voltage symbol		Rated capacitance symbol	Capacitance tolerance symbol	Casing symbol		Taping symbol
φ12.5(examp	le:10V1000	μF))				
RVJ —	- 10	٧	102	М	ΙE	ET —	R5
Series code	Rated voltage symbol		Rated capacitance symbol	Capacitance tolerance symbol	Casing symbol	-	Taping symbol

^{*}Please inquire sleeve type P/N.

VERTICAL CHIP TYPE ALUMINUM ELECTROLYTIC CAPACITORS RVJ

Standard Ratings

Rated voltage (V)		6.3			10			16			25			35			50			63			100	
Rated capacitance (µF)	Case	Casing symbol	Rated ripple current (mArms)	Case	Casing symbol	Rated ripple current (mArms)	Case	Casing symbol	Rated ripple current (mArms)	Case	Casing symbol	Rated ripple current (mArms)												
10	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	8×10	G10	67
22	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	8×6.5	G68	110	8×10	G10	99	10×10	H10	133
33	_	_	_	_	_	_	_	_	_	-	_	_	8×6.5	G68	110	8×10	G10	178	10×10	H10	160	10×10	H10	133
47	_		_		_				_	8×6.5	G68	110	8×6.5	G68	110	8×10	G10	178	10×10	H10	160	12.5×13.5	ΙE	475*
47										6.0.5	000	110	8×10	G10	178	0.10	GIU	170	10×10	піо	160	12.5^13.5	10	4/5
100	_	_	_	8×6.5	G68	110	8×6.5	G68	110	8×10	G10	178	10×10	H10	324	8×10	G10	178	12.5×13.5	ΙE	577*		_	
100				0.0.0	400	110	8×10	G10	178	0/10	010	170	10/10	1110	024	10×10	H10	324	12.0×10.0	1.2	377			
220	8×10	G10	178	8×10	G10	178	10×10	H10	324	10×10	H10	324	10×10	H10	324	12.5×13.5	IE	655*	-	_	_	_	_	_
330	8×10	G10	178	10×10	H10	324	10×10	H10	324	10×10	H10	324	12.5×13.5	ΙE	747*	_	-	ı	-	-	-	-	-	_
470	10×10	H10	324	10×10	H10	324	10×10	H10	324	12.5×13.5	IE	747*	12.5×13.5	IE	747*	_	-	ı	ı	_	-		_	_
1000	10×10	H10	324	10×10	H10	324	12.5×13.5	IE	747*	-	_	_	_	_	-	_	_	ı	-	_	-	1	_	_
1300	12.5×13.5	IE	747*	12.5×13.5	IE	747*			. "	_	_	_	_	_	_	_	-	_	_	-	_	_	_	_

(Note) Rated ripple current : 105°C, 120Hz (Note*) Rated ripple current : 105°C, 100kHz

105℃



Chip type, 105°C Use, Long Life, High CV Capacitors





- · Compatible with surface mounting.
- Supplied with carrier taping.
- Guarantees 2000 hours 105℃.

High CV **RVR RVL**

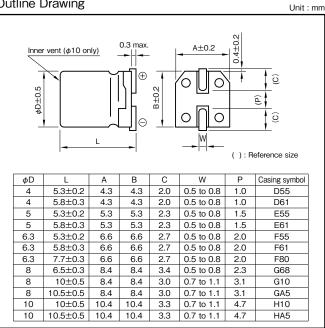


Marking color: Black print

Specifications

Item				Performance	е							
Category temperature range (°C)				-40 to +10	5							
Tolerance at rated capacitance (%)				±20					(20°C	,120Hz)		
Leakage current (μA) (max.)	0.01	CV or 3 whichever is lar	rger (after 2 m	inutes) C: F	Rated capacita	ance (µF), V :	Rated voltag	e (V)		(20°C)		
Tangent of loss angle	Rated vo	oltage (V)	4	6.3	10	16	25	35	50	ı l		
	tanδ ((max.)	0.50	0.30	0.22	0.16	0.14	0.12	0.12	1 1		
(tanδ)		(20°C,120Hz										
	Rated vo	oltage (V)	4	6.3	10	16	25	35	50	7		
Characteristics at high	Impedance ratio (max.)	Z-25°C/Z+20°C	7	4	3	2	2	2	2]		
and low temperature	impedance ratio (max.)	Z-40°C/Z+20°C	15	8	6	4	4	3	3			
									((120Hz)		
	Test	time			2000 hours					ī		
Endurance (105°C)	Leakage	current			The initial sp	ecified value	or less			1		
(Applied ripple current)	Percentage of cap	acitance change			Within ±20%	6 of initial val	ue(φ5 or Sma	aller & 16V or	less:±30%)	1		
	Tangent of lo	Tangent of loss angle 200% or less of the initial specified value										
Shelf life (105°C)	Test time: 1000h	ours ; other items are sar	me as the end	lurance. Vol	tage applicati	on treatment	: According to	o JIS C5101-	4 4.1			
Applicable standards			JIS C5101	-1, -18 (IEC 6	60384-1, -18)						

Outline Drawing



- · Soldering conditions are described on page 15.
- · Land pattern size are described on page 13.
- The taping spesifications are described on page 16.

Coefficient of Frequency for Rated Ripple Current

	-	-	=	
Frequency (Hz) Rated voltage(V)	50 · 60	120	1k	10k • 100k
6.3 to 16	0.80	1	1.15	1.25
25 to 35	0.80	1	1.25	1.40
50	0.50	1	1.35	1.50

Part numbe	Part numbering system (example : 16V100µF)											
RVR — 16 V 101 M F61 U — 🗌												
Series code	Rated voltage symbol		Rated capacitance symbol	Capacitance tolerance symbol	Casing symbol		Taping symbol					

VERTICAL CHIP TYPE ALUMINUM ELECTROLYTIC CAPACITORS RVR

Standard Ratings

Rated voltage(V)		4			6.3			10			16			25	
Rated Item	Case	Casing symbol	Rated ripple current (mArms)	Case φD×L (mm)	Casing symbol	Rated ripple current (mArms)	Case	Casing	Rated ripple current (mArms)	Case	Casing symbol	Rated ripple current (mArms)	Case	Casing symbol	Rated ripple current (mArms)
capacitance(µF)	φυ×L (IIIIII)	-,	(IIIAIIIIS)	φυ×L (IIIIII)	-,	(MAMIS)	φυ×L (IIIIII)	-,	(IIIAIIIIS)	φυ×L (IIIIII)	-,	(IIIAIIIIS)	φυ×L (IIIII)	-,	(IIIAIIIIS)
4.7	-	-	_	-	-	ı	-	-	-	-	-	-	4×5.3	D55	22
6.8	-	-	_	-	-	-	-	-	_	-	-	-	4×5.3	D55	25
10	_	_	_	_	_	_	_	_	_	4×5.3	D55	25	4×5.8	D61	36
10	_	_	_	_	_	_	-	_	_	4×5.8	D61	27	4 ^ 5.6	וסט	30
				4×5.3	D55	26				4×5.8	D61	39			
22	-	_	_	4×5.8	D61	28	4×5.8	D61	33	5×5.3	E55	39	5×5.8	E61	48
				47.0.0	501	20	4×5.8	D61	41	5×5.8	E61	46	5×5.8	E61	59
33	_	_	_	5×5.8	E61	40	5×5.3	E55	43	5×5.8	E61	55	6.3×5.3	F55	65
				0110.0	20.		5×5.8	E61	47	6.3×5.8	F61	66	6.3×5.8	F61	69
				4×5.8	D61	42				5×5.8	E61	66			
47	4×5.8	D61	42	5×5.3	E55	46	6.3×5.8	F61	74	6.3×5.3	F55	70	6.3×5.8	F61	82
				5×5.8	E61	48				6.3×5.8	F61	78			
				5×5.8	E61	70							6.3×7.7	F80	132
100	5×5.8	E61	70	6.3×5.3	F55	71	6.3×5.8	F61	95	6.3×5.8	F61	112	8×6.5	G68	146
				6.3×5.8	F61	99							0.00.0	400	140
150	-	-	_	-	-	ı	6.3×5.8	F61	117	8×6.5	G68	151	-	-	_
220	6.3×5.8	F61	121	6.3×5.8	F61	121	6.3×7.7	F80	156	6.3×7.7	F80	183	8×10	G10	320
220	0.5 ^ 5.6	FOI	121	0.5 \ 5.6	FUI	121	8×6.5	G68	173	8×6.5	G68	157	8×10.5	GA5	320
000	6.3×7.7	F80	163	6.3×7.7	F80	163	8×10	G10	296	0,40	040	004	0)/40.5	045	040
330	8×6.5	G68	181	8×6.5	G68	181	8×10.5	GA5	296	8×10	G10	291	8×10.5	GA5	340
470				8×10	G10	320	8×10	G10	326	8×10	G10	348	4040.5		
470	-	-	-	8×10.5	GA5	320	8×10.5	GA5	326	8×10.5	GA5	348	10×10.5	HA5	490
							10×10	H10	440						
680	_	_	_	8×10.5	GA5	340	10×10.5	HA5	440	10×10	H10	484	-	_	-
820	-	-	-	-	-	-	-	-	-	10×10.5	HA5	484	-	-	-
				8×10.5	GA5	370									
1000	-	-	_	10×10	H10	495	10×10.5	HA5	500	-	-	_	-	-	-
				10×10.5	HA5	495									
1200	-	-	-	-	-	-	10×10.5	HA5	500	-	-	-	-	Ī	-
1500	-	-	-	10×10.5	HA5	550	-	-	-	-	-	-	-	-	-

Rated voltage(V)		35			50	
Item	Case	Casing	Rated ripple current	Case	Casing	Rated ripple current
Rated capacitance(µF)	φD×L (mm)	symbol	(mArms)	φD×L (mm)	symbol	(mArms)
1			_	4×5.3	D55	10
'	-	_	_	4×5.8	D61	12
2.2				4×5.3	D55	16
2.2	-	_	_	4×5.8	D61	19
3.3				4×5.3	D55	16
3.3	-	_	_	4×5.8	D61	22
				4×5.8	D61	26
4.7	4×5.8	D61	23	5×5.3	E55	23
				5×5.8	E61	29
6.8	-	-	-	5×5.3	E55	23
	4×5.8	D61	30	5×5.8	E61	35
10	5×5.3	E55	28	6.3×5.3	F55	35
	5×5.8	E61	39	6.3×5.8	F61	47
22	5×5.8	E61	52	6.3×5.8	F61	61
22	6.3×5.3	F55	55	0.3 ^ 3.6	FOI	01
33	6.3×5.8	F61	74	6.3×7.7	F80	82
33	0.3 ^ 5.6	FOI	/4	8×6.5	G68	91
47	6.3×5.8	F61	89	6.3×7.7	F80	97
47	0.3 × 5.6	FOI	09	8×6.5	G68	108
68	6.3×7.7	F80	117			
00	8×6.5	G68	130	_	_	_
	6.3×7.7	F80	142	8×10.5	GA5	230
100	8×6.5	G68	158	6 ^ 10.5	GAS	230
100	8×10	G10	283	10×10 F	LIAE	200
	8×10.5	GA5	283	10×10.5	HA5	262
150	8×10	G10	293	10 × 10 5	LIAE	200
150	8×10.5	GA5	293	10×10.5	HA5	300
200	8×10.5	GA5	302	10×10 F	LIAE	275
220	10×10	H10	450	10×10.5	HA5	375
330	10×10.5	HA5	450	-	-	-

(Note) Rated ripple current : 105° C, 120Hz

RVC VERTICAL CHIP TYPE ALUMINUM ELECTROLYTIC CAPACITORS



Chip Type, 105°C Use, Long Life Capacitors





- · Compatible with surface mounting.
- · Supplied with carrier taping.
- Guarantees 3000 hours at 105℃. (10L:5000 hours).



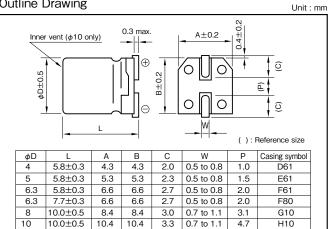


Marking color : Black print

Specifications

Item			Р	erformance					
Category temperature range (°C)			_	40 to +105					
Tolerance at rated capacitance (%)				±20				(20°C,	120Hz)
Leakage current (μA) (max.)	0.01	CV or 3 whichever is lar	ger (after 2 minu	ites) C : Rated	capacitance (µ	F), V : Rated vo	ltage (V)		(20°C)
Tangent of loss angle	Rated vo	<u> </u>	6.3	10	16	25	35	50	
(tanδ)	tanδ (max.)	0.28	0.24	0.20	0.16	0.13	0.12	J
(tario)								(20°C,	120Hz)
	Rated vo	tage (V)	6.3	10	16	25	35	50	ı l
Characteristics at high	Impodance ratio (may)	Impedance ratio (max.) Z-25°C/Z+20°C			2	2	2	2]
and low temperature	impedance ratio (max.)	Z-40°C/Z+20°C	10	7	5	3	3	3]
								(120Hz)
	Test	time		300	00 hours (10L :	5000 hours)			ī
Endurance (105°C)	Leakage	e current		The	e initial specified	d value or less			1
(Applied ripple current)	Percentage of o	capacitance change		Wit	hin ±30% of in	itial value			1 I
, , ,	Tangent of	the loss angle		300	0% or less of ini	tial specified va	alue]
Shelf life (105°C)	Test time: 1000h	ours; other items are san	ne as the endura	ance. Voltage	application trea	tment : Accordin	ng to JIS C510	1-4 4.1	
Applicable standards			JIS C5101-1,	-18 (IEC 6038	4-1, -18)				

Outline Drawing



- · Soldering conditions are described on page 15.
- Land pattern size are described on page 13.
- The taping specifications are described on page 16.

Coefficient of Frequency for Rated Ripple Current

Rated vo	Frequency (Hz)	50.60	120	1k	10k·100k
6.3 to 16		0.80	1	1.15	1.25
	25 to 35	0.80	1	1.25	1.40
50	1 to 3.3μF	0.50	1	1.35	1.50
	4.7 or more	0.70	1	1.35	1.50

Part numbe	Part numbering system (example : 16V47μF)											
RVC —	– 16 V 470 M F61 U — ∷											
Series code	Rated voltage symbol		Rated capacitance symbol	Capacitance tolerance symbol	Casing symbol		Taping symbol					

VERTICAL CHIP TYPE ALUMINUM ELECTROLYTIC CAPACITORS RVC

Standard Ratings

	Rated voltage (V)		6.3			10			16			25			35			50	
Rated	Item	Case	Casing	Rated ripple current															
	ance (µF)	φD×L(mm)	symbol	(mArms)															
	1	_		_	_	_	_	_	_	_	_			_			4×5.8	D61	10
	2.2	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	4×5.8	D61	16
	3.3	_	_	_	_	_	_	_	_	_	_	_		_	_	_	4×5.8	D61	17
	4.7	_	_	_	_	_	_	_	_	_	_	_		4×5.8	D61	16	5×5.8	E61	23
	10		_	_	_	_	_	4×5.8	D61	28	_	_	_	5×5.8	E61	28	6.3×5.8	F61	35
	22	4×5.8	D61	26	_	_	_	5×5.8	E61	39	_	_		6.3×5.8	F61	55	6.3×7.7	F80	58
	33	_	_	_	5×5.8	E61	43	_	_	_	6.3×5.8	F61	60	6.3×7.7	F80	57	8×10	G10	91
	47	5×5.8	E61	46	_	_	_	6.3×5.8	F61	70	6.3×7.7	F80	65	_	_	_	8×10	G10	100
	100	6.3×5.8	F61	71	_	_	_	6.3×7.7	F80	81	8×10	G10	130			_	10×10	H10	160
	220	6.3×7.7	F80	101	8×10	G10	160	_	_	_	_	_	_	10×10	H10	220	_	_	_
	330	8×10	G10	230	_	_	_	_	_	_	10×10	H10	238	_	_	_	_	_	_
	470	_	_	_	_	_	_	10×10	H10	340	_	_	_	_	_	_	_	_	_
1	000	10×10	H10	313	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_

(Note) Rated ripple current : 105°C, 120Hz

ALUMINUN

105℃

RZH, RMH VERTICAL CHIP TYPE ALUMINUM ELECTROLYTIC CAPACITORS



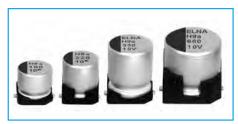
Chip Type 105°C Capacitors





- · Compatible with surface mounting.
- · Supplied with carrier taping.
- Guaranteed 7000 hours at 105°C. $(\phi 6.3X5.8L: 5000 \text{ hours})$



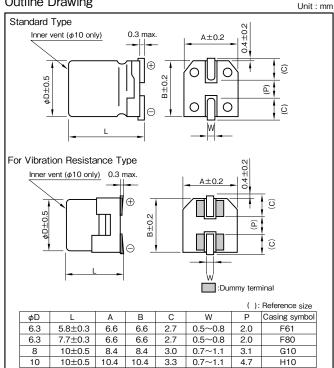


Marking color: Black print

Specifications

Item			Perfo	rmance				
Category temperature range (°C)			−55 t	o +105				
Tolerance at rated capacitance (%)			±	20			(20°	C,120Hz)
Leakage current (μA) (max.)	0.010	CV or 3 whichever is large	er (after 2 minutes)	C : Rated capaci	tance (μF) ; V : Ra	ted voltage (V)		(20°C)
Tongont of loss angle	Rated vol	tage (V)	6.3	10	16	25	35	7
Tangent of loss angle	tanδ (i	max.)	0.32	0.28	0.26	0.16	0.14	
(tanδ)	`						(20°	C,120Hz)
	Rated vol	tage (V)	6.3	10	16	25	35	
Characteristics at high		Z-25°C/Z+20°C	2	2	2	2	2	
•	Impedance ratio (max.)	Z-40°C/Z+20°C	3	3	3	3 3		
and low temperature		Z-55°C/Z+20°C	4	4	4	4	4	
								(120Hz)
	Test tim	ie	700	0 hours (φ6.3×5.8	L:5000hours)			7
Endurance (105°C)	Leakage ci	urrent	The	initial specified va	lue or less			
(Applied ripple current)	Percentage of cap	acitance change	With	nin ±30% of initial	value			
	Tangent of the	loss angle	300	% or less of the ini	tial specified value			
Shelf life (105°C)	Test time: 1000hours; c	ther items are the same a	as those for the en	durance. Voltage a	application treatmen	nt : According to JIS	S C5101-4 4.1	
Applicable standards			JIS C5101-1, -18	3 (IEC 60384-1, -	18)			

Outline Drawing



- · Soldering conditions are described on page 15.
- Land pattern size are described on page 13. • The taping specifications are described on page 16.

Coefficient of Frequency for Rated Ripple Current

Frequency (Hz) Rated voltage (V)	120	1k	10k	100k
6.3 to 35	0.50	0.8	0.95	1

Part numbering system

Standard Type (example : $35V100\mu F$)

RZH —	- 35	V 101	M	F80	U —	
Series code	Rated voltage symbol	Rated capacitance symbol	Capacitance tolerance symbol	Casing symbol		Taping symbol

For Vibration Resistance Type (example : 35V330µF)

RMH	—	35	٧	331	M	H10	U —	
Series code		Rated voltage symbol		Rated capacitance symbol	Capacitance tolerance symbol	Casing symbol		Taping symbol

Standard Ratings

Rated voltag(V)		6.	.3			1	0			1	6			2	5	
Rated Item	Case	Casing	ESR	Rated ripple current	Case	Casing	ESR	Rated ripple current	Case	Casing	ESR	Rated ripple current	Case	Casing	ESR	Rated ripple current
capacitance(µF)	φD×L (mm)	symbol	(Ω max.)	(mArms)	$\phi D \times L (mm)$	symbol	(Ω max.)	(mArms)	$\phi D \times L (mm)$	symbol	(Ω max.)	(mArms)	$\phi D \times L (mm)$	symbol	(Ω max.)	(mArms)
33	-	_	ı	_	-	-	ı	-	-	_	ı	_	6.3×5.8	F61	1.10	140
47	_	_	_	_	_	_	_	_	6.3×5.8	F61	1.10	140	6.3×5.8	F61	1.10	140
100	6.3×5.8	F61	1.10	140	6.3×5.8	F61	1.10	140	6.3×5.8	F61	1.10	140	6.3×7.7	F80	1.00	230
150	6.3×5.8	F61	1.10	140	6.3×5.8	F61	1.10	140	6.3×5.8	F61	1.10	140	8×10	G10	0.22	600
220	6.3×7.7	F80	1.00	230	6.3×7.7	F80	1.00	230	6.3×7.7	F80	1.00	230	8×10	G10	0.22	600
330	6.3×7.7	F80	1.00	230	8×10	G10	0.22	600	8×10	G10	0.22	600	8×10	G10	0.22	600
470	8×10	G10	0.22	600	8×10	G10	0.22	600	8×10	G10	0.22	600	10×10	H10	0.16	850
470	0 × 10	GIU	0.22	600	0 × 10	GIU	0.22	600	10×10	H10	0.16	850	10 × 10	піо	0.16	650
680	10×10	H10	0.16	850	10×10	H10	0.16	850	10×10	H10	0.16	850	_	_	_	_
1000	10×10	H10	0.16	850	_	_	_	-	_	_	_	_	_	_	_	_

Rated voltag(V)		3	5	
Rated Item	Case	Casing	ESR	Rated ripple current
capacitance(µF)	φD×L (mm)	symbol	(Ω max.)	(mArms)
22	6.3×5.8	F61	1.10	140
33	6.3×5.8	F61	1.10	140
33	6.3×7.7	F80	1.00	230
47	6.3×7.7	F80	1.00	230
100	6.3×7.7	F80	1.00	230
150	8×10	G10	0.22	600
220	8×10	G10	0.22	600
330	10×10	H10	0.16	850

(Note) Rated ripple current : 105°C , 100kHz ; ESR : 20°C , 100kHz

≅ 105℃

RVZ VERTICAL CHIP TYPE ALUMINUM ELECTROLYTIC CAPACITORS



100k

Chip Type, 105°C Use, Low Impedance Capacitors





- · Compatible with surface mounting.
- Supplied with carrier taping.
- Guarantees 2000 hours at 105℃. $(\phi 8 \times 6.5 L \text{ or less} : 1000 hours)$: 5000hours) $(\phi 12.5 \times 13.5 L)$

Miniaturized Low impedance Low impedance **RVH** RVJ



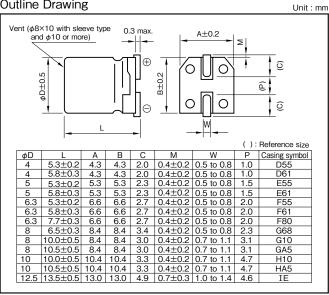
Marking color: Black print

There are also White print on a brown sleeve $(\phi 8 \times 10 L - \phi 12.5 \times 13.5 L)$

Specifications

Item			Perf	ormance				
Category temperature range (°C)			-55	to +105				
Tolerance at rated capacitance (%)				±20			(20℃	C,120Hz)
Leakage current (μA) (max.)	0.01	CV or 3 whichever is large	er (after 2 minutes	s) C : Rated capac	citance (μF) ; V : R	ated voltage (V)		(20°C)
Tangent of loss angle	Rated vo	tage (V)	6.3	10	16	25	35	7 I
tangent of loss angle (tanδ)	tanδ (r	nax.)	0.28	0.24	0.20	0.16	0.14	7
(tario)	0.02 is added to every 100	00μF increase over 1000μ	ıF.				(20℃	C,120Hz)
	Rated vo	tage (V)	6.3	10	16	25	35	7 l
Characteristics at high	Impedance ratio (max.)	Z-25°C/Z+20°C	4	3	2	2	2	
and low temperature	impedance ratio (maxi)	Z-55°C/Z+20°C	8	5	4	3	3	
								(120Hz)
Endurance (105°C)	Test t	time		2000 hours	(φ8×6.5L or less) (φ8×10L to φ10> (φ12.5×13.5L)	(10.5L)		
· ' '	Leakage cu	urrent		The initial sp	ecified value or les	SS		7
(Applied ripple current)	Percentage of cap	acitance change		Within ±25°	% of initial value			
	Tangent of the	loss angle		200% or les	s of initial specified	l value]
Shelf life (105°C)	Test time: 1000h	ours; other items are same	e as the enduranc	ce. Voltage applic	ation treatment : A	ccording to JIS C5	101-4 4.1	
Applicable standards			JIS C5101-1, -1	8 (IEC 60384-1, -1	8)			

Outline Drawing



- · Soldering conditions are described on page 15.
- · Land pattern size are described on page 13. • The taping specifications are described on page 16.

Coefficient of Frequency for Rated Ripple Current

Frequency (Hz)

lated voltage (v)								
6.3 to	35		0.50	0.75	0.9	00		1
Part number				/330μF)				
RVZ —	6	٧	331	М	G68	U	_	
Series code	Rated voltage symbol		Rated capacitance symbol	Capacitance tolerance symbol	Casing symbol			Taping symbo
φ8×10, φ8×	(10.5 (exam	ple	: 10V220μF	=)				
RVZ —	10	٧	221	М	G10	Y1L	J —	
Series code	Rated voltage symbol		Rated capacitance symbol	Capacitance tolerance symbol	Casing symbol		-	Taping symbo
φ10×10, φ1	0×10.5 (ex	am	ple: 16V330)μF)				
RVZ —	16	٧	331	М	H10	EU		
Series code	Rated voltage symbol		Rated capacitance symbol	Capacitance tolerance symbol	Casing symbol		-	Taping symbo
φ12.5×13.5	(example : 2	5٧	680μF)					
RVZ —	25	٧	681	М	ΙE	ET		R5
Series code	Rated voltage symbol		Rated capacitance symbol	Capacitance tolerance symbol	Casing		•	Tapina

- * In the case of "for High Temperature Reflow" type, a series name is "RZA".
- * Please inquire sleeve type P/N.
- $\boldsymbol{\ast}$ If "For Vibration Resistance" type is required, please see the series RTZ of page 92.



Standard Ratings

Standard Hattings Standard Hattings 6.3 10													05				0.5				
(v)				Dated single				Dotod sing!		1	6	Dated sing!			:5	Dated ring!	35				
Rated Item capacitance (µF)	Case pD×L (mm)	Casing symbol	Impedance (Ω max.)	Rated ripple current (mArms)	Case pD×L (mm)	Casing symbol	Impedance (Ω max.)	Rated ripple current (mArms)	Case	Casing symbol	Impedance (Ω max.)	Rated ripple current (mArms)	Case	Casing symbol	Impedance (Ω max.)	Rated ripple current (mArms)	Case	Casing symbol	Impedance (Ω max.)	Rated ripple current (mArms)	
4.7	_	-	_	_	_	-	_	_	-	_	_	_	4×5.3	D55	3.20	65	4×5.3	D55	3.20	65	
					450	5.55		0.5	45.0				4×5.8	D61	1.80	80	5×5.3	E55	1.50	110	
10	_	_	_	_	4×5.3	D55	3.20	65	4×5.3	D55	3.20	65	5×5.3	E55	1.50	110	5×5.8	E61	0.76	150	
15	ı	_	Ī	-	_	-	-	-	4×5.8	D61	1.80	80	5×5.8	E61	0.76	150	5×5.8	E61	0.76	150	
00	4×5.3	D55	3.20	65	4×5.8	D61	1.80	80	5×5.3	E55	1.50	110	5×5.8	E61	0.76	150	5×5.8	E61	0.76	150	
22	4×5.8	D61	1.80	80	5×5.3	E55	1.50	110	5×5.8	E61	0.76	150	6.3×5.3	F55	0.85	170	6.3×5.3	F55	0.85	170	
00	5×5.3	E55	1.50	110	5×5.3	E55	1.50	110	6.3×5.3	F55	0.85	170	6.3×5.3	F55	0.85	170	6.3×5.3	F55	0.85	170	
33	5×5.8	E61	0.76	150	5×5.8	E61	0.76	150	6.3×5.8	F61	0.44	230	6.3×5.8	F61	0.44	230	6.3×5.8	F61	0.44	230	
	5×5.3	E55	1.50	110	6.3×5.3	F55	0.85	170	6.3×5.3	F55	0.85	170	6.3×5.3	F55	0.85	170	6.3×5.8	F61	0.44	230	
47	5×5.8	E61	0.76	150	6.3×5.8	F61	0.44	230	6.3×5.8	F61	0.44	230	6.3×5.8	F61	0.44	230	6.3×7.7 8×6.5	F80 G68	0.34	280 280	
																	6.3×7.7	F80	0.34	280	
68	6.3×5.8	F61	0.44	230	6.3×5.8	F61	0.44	230	6.3×5.8	F61	0.44	230	6.3×5.8	F61	0.44	230	8×6.5	G68	0.34	280	
	6.3×5.3	F55	0.85	170	6.3×5.3	F55	0.85	170	6.3×5.3	F55	0.85	170	6.3×7.7	F80	0.34	280	8×10	G10	0.20	450	
100	6.3×5.8	F61	0.44		6.3×5.8	F61	0.44	230	6.3×5.8	F61	0.44	230	8×6.5	G68	0.34	280	8×10.5	GA5	0.17	450	
	0.0110.0		0.11	200	0.0110.0		0.11	200	8×6.5 6.3×7.7	G68 F80	0.34	280 280	8×10	G10	0.20	450	8×10.5	GA5	0.17	450	
150	6.3×5.8	F61	0.44	230	6.3×5.8	F61	0.44	230	8×6.5	G68	0.34	280	8×10.5	GA5	0.17	450	10×10	H10	0.10	670	
	6.3×5.8	F61	0.44	230	6.3×7.7	F80	0.34	280	6.3×7.7	F80	0.34	280	8×10.5	GA5	0.17	450	8×10.5	GA5	0.17	450	
220	6.3×7.7	F80	0.34	280	8×6.5	G68	0.34	280	8×10	G10	0.20	450	10×10	H10	0.10	670	10×10	H10	0.10	670	
	6.3×7.7	F80	0.34	280	8×10 8×10.5	G10 GA5	0.20	450 450	8×10.5	GA5	0.17	450	8×10.5	GA5	0.17	450					
330	8×6.5	G68	0.34	280	10×10	H10	0.10	670	10×10	H10	0.10	670	10×10	H10	0.10	670	10×10.5	HA5	0.09	670	
	8×10	G10	0.20	450									10×10	ню	0.10	670					
470	8×10.5	GA5	0.17	450	8×10.5	GA5	0.17	450	8×10.5	GA5	0.17	450	10×10.5	HA5	0.09	670	12.5×13.5	ΙE	0.06	1100	
	10×10	H10	0.10	670	10×10	H10	0.10	670	10×10	H10	0.10	670									
680	8×10.5	GA5	0.17	450	10×10.5	HA5	0.09	670	10×10.5	HA5	0.09	670	12.5×13.5	ΙE	0.06	1100	12.5×13.5	ΙE	0.06	1100	
1000	8×10.5	GA5	0.17	450	10710	1165	0.00	670	12.5×13.5	ΙE	0.06	1100	12.5×13.5	IE	0.06	1100					
1000	10×10	H10	0.10	670	10×10.5	HA5	0.09	670	12.0^13.0	10	0.06	1100	12.0^13.0	1E	0.06	1100	_	_	_	_	
1500	10×10.5	HA5	0.09	670	12.5×13.5	IE	0.06	1100	12.5×13.5	IE	0.06	1100	-	-	_	ı	-	_	_	_	
2200	12.5×13.5	ΙE	0.06	1100	12.5×13.5	ΙE	0.06	1100	-	_	_		_	-	_	_	-	_	_	_	
2700	12.5×13.5	IE	0.06	1100	-	-	_	_	-	_	_	-	-	-	-	ı	-	-	_	_	

(Note) Rated ripple current : 105°C, 100kHz ; Impedance : 20°C, 100kHz



Chip Type, 105°C Use, Low Impedance, Long Life Capacitors







- · Compatible with surface mounting.
- · Supplied with carrier taping.
- Guarantees 2000 hours at 105℃. (6.3 to 50V 10.0L,10.5L:5000 hours) $(\phi 12.5x13.5L: 5000 \text{ hours})$



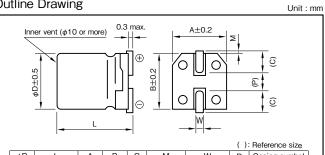


Marking color: Black print

Specifications

Item				Perfori	mance										
Category temperature range (°C)		-55 to +105													
Tolerance at rated capacitance (%)	±20 (20°C,12														
Leakage current (μΑ) (max.)	0.01CV or 3 whichever is larger (after 2 minutes) $ C : Rated capacitance (\mu F)$, $ V : Rated voltage (V)$											(20°C)			
Tangent of loss angle	Rated vol	tage (V)	6.3	10	16	25	35	50	63	80	100	7 l			
tanδ)	tanδ (i	max.)	0.26	0.19	0.16	0.14	0.12	0.10	0.08	0.08	0.07]			
(tario)	0.02 is added to every 100	00μF increase over 100	0μF.								(20℃	,120Hz)			
	Rated vol	Rated voltage (V)			16	25	35	50	63	80	100]			
Characteristics at high		Z-25°C/Z+20°C	2	2	2	2	2	2	2	2	2				
	Impedance ratio (max.)	Z-40°C/Z+20°C	3	3	3	3	3	3	3	3	3				
and low temperature		Z-55°C/Z+20°C	8	4	4	3	3	3	3	3	3	J I			
											((120Hz)			
	Test tim	ne	2000 hours (6.3 to 50V 10.0L,10.5L,φ12.5x13.5L : 5000 hours)												
Endurance (105°C)	Leakage ci	urrent	The initial specified value or less												
(Applied ripple current)	Percentage of cap	acitance change	Within ±	:30% of ir	itial value										
	Tangent of the	loss angle	200% or	less of the	initial spec	cified value	(6.3 to 50\	/ 10.0L,10	.5L,φ12.5x	13.5L : 300)% or less)]			
Shelf life (105℃)	Test time: 1000hours; other items are same as the endurance. Voltage application treatment: According to JIS C5101-4 4.1														
Applicable standards		JIS C5101-1, -18 (IEC 60384-1, -18)													

Outline Drawing



							():	Reference size
φD	L	Α	В	С	М	W	Р	Casing symbol
4	5.8±0.3	4.3	4.3	2.0	0.4 ± 0.2	0.5 to 0.8	1.0	D61
5	5.8±0.3	5.3	5.3	2.3	0.4±0.2	0.5 to 0.8	1.5	E61
6.3	5.8±0.3	6.6	6.6	2.7	0.4 ± 0.2	0.5 to 0.8	2.0	F61
6.3	7.7±0.3	6.6	6.6	2.7	0.4 ± 0.2	0.5 to 0.8	2.0	F80
8	6.5±0.3	8.4	8.4	3.4	0.4±0.2	0.5 to 0.8	2.3	G68
8	10±0.5	8.4	8.4	3.0	0.4±0.2	0.7 to 1.1	3.1	G10
8	10.5±0.5	8.4	8.4	3.0	0.4 ± 0.2	0.7 to 1.1	3.1	GA5
10	10±0.5	10.4	10.4	3.3	0.4±0.2	0.7 to 1.1	4.7	H10
10	10.5±0.5	10.4	10.4	3.3	0.4±0.2	0.7 to 1.1	4.7	HA5
12.5	13.5±0.5	13.0	13.0	4.9	0.7±0.3	1.0 to 1.4	4.6	IE

- · Soldering conditions are described on page 15.
- Land pattern size are described on page 13.
- The taping spesifications are described on page 16.

Coefficient of Frequency for Rated Ripple Current

Frequency (Hz) Rated voltage (V)	50.60	120	1k	10k • 100k
6.3 to 100	0.50	0.50	0.75	1

Part numbering system φ10X10.5L or less (example : 16V100μF)													
RVD — 16 V 101 M F61 U													
Series code		Rated voltage symbol		Rated capacitance symbol	Capacitance tolerance symbol	Casing symbol		Taping symbol					
In the case	of '	for High	Гeп	nperature Re	eflow" type, a	series	name is	"RZB".					
φ12.5X13.5	(exa	mple : 16V	100	0μF)									
RVD	_	16	٧	102	М	ΙE	T —	R5					
Series code		Rated voltage symbol		Rated capacitance symbol	Capacitance tolerance symbol	Casing	•	Taping					

If "For Vibration Resistance" type is required, please see the series RTD of page 94.



Standard Ratings

Rated voltage (V)			6.3				10				16	
Rated capacitance (µF)	Case φD×L (mm)	Casing symbol	Impedance (Ω max.)	Rated ripple current (mArms)	Case φD×L (mm)	Casing symbol	Impedance (Ω max.)	Rated ripple current (mArms)	Case φD×L (mm)	Casing symbol	Impedance (Ω max.)	Rated ripple current (mArms)
10	_	_	_	_	_	_	_	_	4×5.8	D61	1.35	90
	4×5.8	504			4×5.8	504			4×5.8	D61	1.35	90
22	4×5.8	D61	1.35	90	4×5.8	D61	1.35	90	5×5.8	E61	0.70	170
33			_		4×5.8	D61	1.35	90		_		
33	_	_		_	5×5.8	E61	0.70	170	_		_	_
47	4×5.8	D61	1.35	90	_		_	_	5×5.8	E61	0.70	170
47	5×5.8	E61	0.70	170					6.3×5.8	F61	0.36	250
100	5×5.8	E61	0.70	170	_	_	_	_	6.3×5.8	F61	0.36	250
100	6.3×5.8	F61	0.36	250					0.5^5.0	FOI	0.30	250
220	63×58	F61	0.36	250	6.3×7.7	F80	0.30	300	6.3×7.7	F80	0.30	300
220	0.3×3.6	FOI	0.36	250	8×6.5	G68	0.30	300	8×6.5	G68	0.30	300
330	6.3×7.7	F80	0.30	300	8×10	G10	0.16	600	8×10	G10	0.16	600
330	8×6.5	G68	0.30	300	6/10	GIO	0.10	000	6510	GIO	0.10	600
470	8×10	G10	0.16	600	8×10	G10	0.16	600	8×10	G10	0.16	600
680	_	_	_	_	8×10	G10	0.16	600	10×10	H10	0.090	850
000					0/10	410	0.10	000	10×10.5	HA5	0.080	850
1000	8×10	G10	0.16	600	10×10	H10	0.090	850	12.5×13.5	ΙE	0.054	1160
1000	0.110	410	0.10	000	10×10.5	HA5	0.080	850	12.0×10.0		0.004	1100
1500	10×10	H10	0.090	850	125×13.5	ΙE	0.054	1160	125×135	ΙE	0.054	1160
.300	10×10.5	HA5	0.080	850	125 (105)		0.004	1160	12.0410.0		0.004	1100
2200	12.5×13.5	IE	0.054	1160	125×13.5	IE	0.054	1160	_	_	_	_

VERTICAL CHIP TYPE ALUMINUM ELECTROLYTIC CAPACITORS RVD

Rated voltage (V)			25				35				50	
Rated Item	Case	Casing	Impedance	Rated ripple current	Case	Casing	Impedance	Rated ripple current	Case	Casing	Impedance	Rated ripple current
capacitance (µF)	φD×L (mm)	symbol	(Ω max.)	(mArms)	φD×L (mm)	symbol	(Ω max.)	(mArms)	φD×L (mm)	symbol	(Ω max.)	(mArms)
4.7	_	_	_	ı	4×5.8	D61	1.35	90	4×5.8	D61	2.7	60
10	4×5.8	D61	1.35	90	4×5.8	D61	1.35	90	5×5.8	E61	1.5	90
10	4/0.6	DOT	1.33	90	5×5.8	E61	0.70	170	6.3×5.8	F61	0.86	170
22	5×5.8	E61	0.70	170	5×5.8	E61	0.70	170	6.3×5.8	F61	0.86	170
33	5×5.8	E61	0.70	170	6.3×5.8	F61	0.36	250	6.3×7.7	F80	0.66	195
33	6.3×5.8	F61	0.36	250	0.3×3.6	FOI	0.36	250	8×6.5	G68	0.63	200
47	6.3×5.8	F61	0.36	250	6.3×5.8	F61	0.36	250	6.3×7.7	F80	0.66	195
47	0.3×3.6	FOI	0.36	230	0.3×3.6	FOI	0.36	250	8×6.5	G68	0.63	200
100	6.3×7.7	F80	0.30	300	6.3×7.7	F80	0.30	300	8×10	G10	0.34	350
100	8×6.5	G68	0.30	300	8×10	G10	0.16	600	8×10.5	GA5	0.32	350
220	8×10	G10	0.16	600	8×10	G10	0.16	600	10×10	H10	0.20	700
220	6×10	GIU	0.16	600	0×10	GIU	0.16	600	10×10.5	HA5	0.18	700
330	8×10	G10	0.16	600	10×10	H10	0.090	850	12.5×13.5	IE	0.12	900
330	6^10	GIO	0.10	000	10×10.5	HA5	0.080	850	12.0/10.0	1.	0.12	300
470	10×10	H10	0.090	850	125×13.5	IE	0.054	1160	_	_	_	
4/0	10×10.5	HA5	0.080	850	123/133	10	0.034	1100				
680	12.5×13.5	IE	0.054	1160	125×13.5	IE	0.054	1160	_	_	_	_
1000	12.5×13.5	IE	0.054	1160	_	_	_	-	_	_	_	_

Rated voltage (V)			63				80		100				
Rated capacitance (µF)	Case \$\phi D \times L (mm)\$	Casing symbol	Impedance (Ω max.)	Rated ripple current (mArms)	Case φD×L (mm)	Casing symbol	Impedance (Ω max.)	Rated ripple current (mArms)	Case φD×L (mm)	Casing symbol	Impedance (Ω max.)	Rated ripple current (mArms)	
4.7	5×5.8	E61	3.0	50	_	_	_	_	_	_	_	_	
10	6.3×5.8	F61	1.5	80	6.3×7.7	F80	2.4	60	_	_	_	-	
22	6.3×7.7	F80	1.2	120	8×10	G10	0.90	130	8×10	G10	1.30	130	
33	8×10	G10	0.65	250	8×10	G10	0.90	130	10×10	H10	0.70	200	
47	8×10	G10	0.65	250	10×10	H10	0.50	200	_	_	_	_	
68	8×10	G10	0.65	250	_	_	_	_	_	_	_	_	
100	10×10	H10	0.35	400	405,405	IE	0.40	550					
100	125×13.5	IE	0.16	600	12.5×13.5	1E	0.18	550	_	_	_		
220	12.5×13.5	IE	0.16	600	_	_	_	_	_	_	_	_	

(Note) Rated ripple current : 105°C, 100kHz Impedance : 20°C, 100kHz

RVV, RTV VERTICAL CHIP TYPE ALUMINUM ELECTROLYTIC CAPACITORS



Chip Type, 105°C Use,Low Impedance Capacitors

GREEN CAP

SMD



- · Compatible with surface mounting.
- · Supplied with carrier taping.
- Guarantees 2000 hours at 105℃.

Low impedance RVD

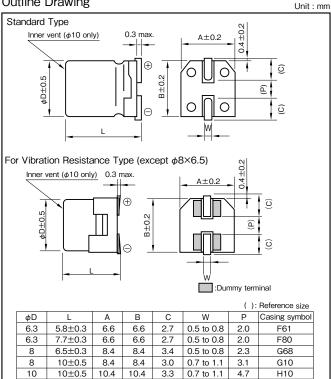


Marking color: Black print

Specifications

Item			P	erformance					
Category temperature range (°C)				-55 to +105					
Tolerance at rated capacitance (%)				±20				(20°C	C,120Hz)
Leakage current (μΑ) (max.)	0.010	CV or 3 whichever is larg	ger (after 2 minu	tes) C : Rated o	capacitance (μF), V : Rated vo	Itage (V)		(20°C)
Tangent of loss angle	Rated vol	tage (V)	6.3	10	16	25	35	50	
tangent of loss angle (tanδ)	tanδ (i	max.)	0.26	0.19	0.16	0.14	0.12	0.10	
(tario)								(20℃	C,120Hz)
	Rated vol	tage (V)	6.3	10	16	25	35	50	
Characteristics at high		Z-25°C/Z+20°C	2	2	2	2	2	2	
ŭ	Impedance ratio (max.)	Z-40°C/Z+20°C	3	3	3	3	3	3	
and low temperature		Z-55°C/Z+20°C	4	4	4	3	3	3	
									(120Hz)
	Test tim	ne	2	2000 hours					7
Endurance (105°C)	Leakage ci	urrent	1	The initial specif	ied value or less	3			
(Applied ripple current)	Percentage of cap	acitance change	\	Vithin ±30% of	initial value				
	Tangent of the	loss angle	2	200% or less of	initial specified	value			
Shelf life (105℃)	Test time: 1000ho	urs; other items are sam	ne as the endura	nce. Voltage a	application treat	ment : Accordin	ng to JIS C5101	-4 4.1	
Applicable standards			JIS C5101-1,	-18 (IEC 6038	4-1, -18)				

Outline Drawing



- · Soldering conditions are described on page 15.
- · Land pattern size are described on page 13.
- The taping spesifications are described on page 16.

Coefficient of Frequency for Rated Ripple Current

Frequency (Hz) Rated voltage (V)	50.60	120	1k	10k · 100k
6.3 to 50	0.50	0.50	0.75	1

Part numbering system

Standard Type (example : $16V100\mu F$)

RVV -	_ 16	V 101	M	F61	U —	
Series code	Rated voltage symbol	Rated capacitance symbol	Capacitance tolerance symbol	Casing symbol		Taping symbol

For Vibration Resistance Type (example : 25V470µF)

RTV	_	25	٧	471	М	H10	U —	
Series code		Rated voltage symbol		Rated capacitance symbol	Capacitance tolerance symbol	Casing symbol		Taping symbol

CHIP ALUMINUM

105℃

Standard Ratings

Rated voltage (V)			6.3				10				16	
Rated Item capacitance	Case	Casing	Impedance	Rated ripple current	Case	Casing	Impedance	Rated ripple current	Case	Casing	Impedance	Rated ripple current
(µF)	$\phi D \times L (mm)$	symbol	(Ω max.)	(mArms)	ϕ D × L (mm)	symbol	(Ω max.)	(mArms)	$\phi D \times L (mm)$	symbol	(Ω max.)	(mArms)
47	-	_	_	-	_	_	_	_	6.3 × 5.8	F61	0.26	300
100	6.3 × 5.8	F61	0.26	300					6.3 × 5.8	F61	0.26	300
100	6.3 × 5.6	FOI	0.26	300	_	_	_	_	6.3 × 7.7	F80	0.16	600
220	6.3 × 5.8	F61	0.26	300	6.3 × 7.7	F80	0.16	600	6.3 × 7.7	F80	0.16	600
220	0.3 × 5.6	FOI	0.26	300	8 × 6.5	G68	0.18	500	8 × 6.5	G68	0.18	500
330	6.3 × 7.7	F80	0.16	600	8 × 10	G10	0.09	850	8 × 10	G10	0.09	850
330	8 × 6.5	G68	0.18	500	8 × 10	GIU	0.09	850	8 × 10	GIU	0.09	850
470	8 × 10	G10	0.09	850	8 × 10	G10	0.09	850	8 × 10	G10	0.09	850
680	_	_	_	_	8 × 10	G10	0.09	850	10 × 10	H10	0.07	1190
1000	8 × 10	G10	0.09	850	10 × 10	H10	0.07	1190	-	_	_	-
1500	10 × 10	H10	0.07	1190	-	-	_	_	_	_	_	_

Rated voltage (V)			25				35				50	
Rated Item capacitance (µF)	Case φD × L (mm)	Casing symbol	Impedance (Ω max.)	Rated ripple current (mArms)	Case φD × L (mm)	Casing symbol	Impedance (Ω max.)	Rated ripple current (mArms)	Case φD × L (mm)	Casing symbol	Impedance (Ω max.)	Rated ripple current (mArms)
33	6.3 × 5.8	F61	0.26	300	6.3 × 5.8	F61	0.26	300	-	-	-	_
47	6.3 × 5.8	F61	0.26	300	6.3 × 5.8	F61	0.26	300	_	_	_	-
400	6.3 × 7.7	F80	0.16	600	6.3 × 7.7	F80	0.16	600	0 × 40	G10	0.40	670
100	8 × 6.5	G68	0.18	500	8 × 10	G10	0.09	850	8 × 10	GIU	0.18	670
220	8 × 10	G10	0.09	850	8 × 10	G10	0.09	850	10 × 10	H10	0.12	900
330	8 × 10	G10	0.09	850	10 × 10	H10	0.07	1190	_	_	_	_
470	10 × 10	H10	0.07	1190	-	_	-	-	-	_	_	-

(Note) Rated ripple current : 105°C , 100kHz Impedance : 20°C , 100kHz

NOTE: Design, Specifications are subject to change without notice.
It is recommended that you shall obtain technical specifications from ELNA to ensure that the component is suitable for your use.

RZD, RMD VERTICAL CHIP TYPE ALUMINUM ELECTROLYTIC CAPACITORS

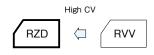
GREEN CAP

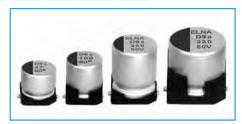
SMD



Chip Type, 105°C Use, Low ESR, High CV Capacitors

- · Compatible with surface mounting. · Supplied with carrier taping.
- Guaranteed 2000 hours at 105°C.



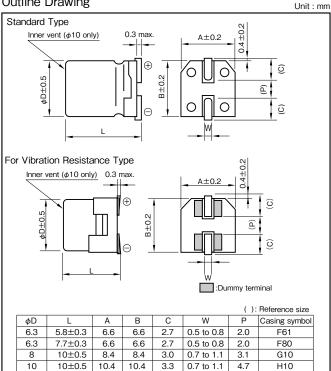


Marking color: Black print

Specifications

Item				Performar	nce						
Category temperature range (°C)				-55 to +	105						
Tolerance at rated capacitance (%)				±20						(20℃	,120Hz)
Leakage current (μA) (max.)	0.010	CV or 3 whichever is larg	ger (after 2 n	ninutes) C :	Rated capa	acitance (µF), V : Rate	d voltage (V)		(20°C)
Tangent of loss angle	Rated vo	<u> </u>	6.3	10	16	25	35	50	63	80	
(tanδ)	tanδ (max.)	0.26	0.19	0.16	0.14	0.12	0.10	0.08	0.08	
(tario)	0.02 is added to every 10	s added to every 1000µF increase over 1000µF. (20°C,120H									,120Hz)
	Rated vo	tage (V)	6.3	10	16	25	35	50	63	80	
Characteristics at high		Z-25°C/Z+20°C	2	2	2	2	2	2	2	2	
•	Impedance ratio (max.)	Z-40°C/Z+20°C	3	3	3	3	3	3	3	3	
and low temperature		Z-55°C/Z+20°C	4	4	4	3	3	3	3	3	
											(120Hz)
	Test tin	ne		2000 ho	urs						7
Endurance (105°C)	Leakage c	urrent		The initia	al specified	value or less	3				1
(Applied ripple current)	Percentage of cap	acitance change		Within ±	:30% of init	ial value					1
	Tangent of the	loss angle		200% or	less of the	initial speci	fied value]
Shelf life (105°C)	Test time: 1000ho	urs; other items are san	ne as the en	durance. V	'oltage appl	ication treat	ment : Acco	ording to JIS	C5101-4	1.1	-
Applicable standards			JIS C510	1-1, -18 (IE	C 60384-1	, -18)					

Outline Drawing



- · Soldering conditions are described on page 15.
- Land pattern size are described on page 13.
- The taping spesifications are described on page 16.

Coefficient of Frequency for Rated Ripple Current

Frequency (Hz) Rated voltage (V)	50.60	120	1k	10k•100k
6.3 to 80	0.50	0.50	0.75	1

Part numbering system

Standard Type (example : $35V150\mu F$)

RZD -	_ 35	V	151	M	F80	U —	
Series code	Rated volta	-	Rated capacitance symbol	Capacitance tolerance symbol	Casing symbol		Taping symbol

For Vibration Resistance Type (example : 25V820µF)

RMD	_	25	٧	821	M	H10	U —	
Series code		Rated voltage symbol		Rated capacitance symbol	Capacitance tolerance symbol	Casing symbol		Taping symbol

VERTICAL CHIP TYPE ALUMINUM ELECTROLYTIC CAPACITORS RZD, RMD

Standard Ratings

Rated voltage (V)		6.3				10				16	
Rated capacitance (µF)	Case φD × L (mm)	Casing symbol	ESR (Ω max.)	Rated ripple current (mArms)	Case $\phi D \times L \text{ (mm)}$	Casing symbol	ESR (Ω max.)	Rated ripple current (mArms)	Case	Casing symbol	ESR (Ω max.)	Rated ripple current (mArms)
	7		(11 1116111)	(7 - ((12 1116111)	(**************************************	, , ,			
150	_		_		_		_	_	6.3 × 5.8	F61	0.26	300
220	_	_	_	_	6.3 × 5.8	F61	0.26	300	6.3 × 5.8	F61	0.26	300
330	6.3 × 5.8	F61	0.26	300	6.3 × 7.7	F80	0.16	600	6.3 × 7.7	F80	0.16	600
470	6.3 × 7.7	F80	0.16	600	6.3 × 7.7	F80	0.16	600	-	_	_	-
680	6.3 × 7.7	F80	0.16	600	-	_	_	-	8 × 10	G10	0.08	850
1000	-	_	_	-	8 × 10	G10	0.08	850	10 × 10	H10	0.06	1190
1500	8 × 10	G10	0.08	850	10 × 10	H10	0.06	1190	_	_	_	_
2200	10 × 10	H10	0.06	1190	-	_	_	-	-	_	_	_

Rated voltage (V)			25				35				50	
Rated capacitance	Case	Casing	ESR	Rated ripple current	Case	Casing	ESR	Rated ripple current	Case	Casing	ESR	Rated ripple current
(μF)	$\phi D \times L (mm)$	symbol	(Ω max.)	(mArms)	ϕ D × L (mm)	symbol	(Ω max.)	(mArms)	$\phi D \times L (mm)$	symbol	(Ω max.)	(mArms)
47	_	_	_	-	-	_	_	-	6.3 × 5.8	F61	0.68	195
100	_	_	_	_	6.3 × 5.8	F61	0.26	300	6.3 × 7.7	F80	0.34	350
150	6.3 × 5.8	F61	0.26	300	6.3 × 7.7	F80	0.16	600	_	_	_	_
220	6.3 × 7.7	F80	0.16	600	-	-	_	-	8 × 10	G10	0.18	670
330	_	_	_	-	8 × 10	G10	0.08	850	10 × 10	H10	0.12	900
470	8 × 10	G10	0.08	850	-	_	_	-	-	_	_	_
560	_	_	_	_	10 × 10	H10	0.06	1190	_	_	_	-
820	10 × 10	H10	0.06	1190	-	_	_	_	-	_	_	_

Rated voltage (V)			63				80	
Rated capacitance (µF)	Case φD × L (mm)	Casing symbol	ESR (Ω max.)	Rated ripple current (mArms)	Case φD × L (mm)	Casing symbol	ESR (Ω max.)	Rated ripple current (mArms)
22	6.3 × 7.7	F80	0.85	85	-	_	-	_
33	6.3 × 7.7	F80	0.85	145	-	_	-	_
47	8 × 10	G10	0.45	300	8 × 10	G10	0.68	150
68	8 × 10	G10	0.45	300	10 × 10	H10	0.45	215
100	8 × 10	G10	0.45	300	-	_	-	_
150	10 × 10	H10	0.30	430	-	_	-	_

(Note) Rated ripple current : 105°C , 100kHz ESR : 20°C , 100kHz



VERTICAL CHIP TYPE ALUMINUM ELECTROLYTIC CAPACITORS



Chip Type, 125°C Use, Low ESR, Long Life Capacitors

- · Compatible with surface mounting.
- Supplied with carrier taping.
- Guarantees 2000 hours at 125℃. $(\phi 4 \text{ to } \phi 8x6.5L : 1000 \text{ hours})$ $(\phi 12.5x13.5L : 5000 \text{ hours})$



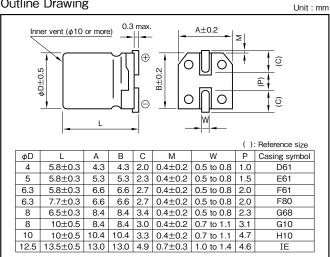


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Specifications

Item				Performa	ance								
Category temperature range (°C)				-40 to -	-125								
Tolerance at rated capacitance (%)				±20						(20°C,	120Hz)		
Leakage current (μA) (max.)	0.0	CV or 3 whichever is lar	ger (after 2	minutes) C	: Rated cap	oacitance (µ	ıF) ; V : Rate	ed voltage (\	V)		(20°C)		
Tangent of loss angle		oltage (V)	10	16	25	35	50	63	80	100			
$(tan\delta)$	tanδ	(max.)	0.24	0.20	0.16	0.14	0.14	0.12	0.12	0.10			
(1015)										(20°C,	120Hz)		
	Rated v	oltage (V)	10	16	25	35	50	63	80	100			
Characteristics at high	Impedance Ratio (max.)	Z-25°C/Z+20°C	3	2	2	2	2	2	2	2			
and low temperature	impedance riatio (max.)	Z-40°C/Z+20°C	4	3	3	3	3	3	3	3			
										(120Hz)		
	Test	time	1 :	2000 hours	(φ4 to φ8×	6.5L : 1000	0 hours, ϕ 12	2.5x13.5L :	5000 hours))	1		
Endurance (125°C)	Leakage	current		The initial s	pecified valu	ue or less					1		
(Applied ripple current)	Capacitan	ce change	,	Within ±30	% of initial v	/alue]		
	Tangent of	loss angle	;	300% or les	s of the init	ial specified	l value]		
Shelf life (125°C)	Test time : 1000h	Test time: 1000hours; other items are same as the endurance. Voltage application treatment: According to JIS C5101-4 4.1											
Applicable standards			JIS C510)1-1, -18 (IE	C 60384-1	, -18)							

Outline Drawing



- Soldering conditions are described on page 15.
- Land pattern size are described on page 13. • The taping spesifications are described on page 16.

Coefficient of Frequency for Rated Ripple Current

Frequency (Hz) Rated voltage(V)	120	1k	10k	100k
10 to 100	0.77	0.88	0.96	1.00

RVT	φ10X10L or less (example : 16V100μF) RVT — 35 V 221 M H10 U —														
		Rated voltage symbol		Rated capacitance symbol	Capacitance tolerance symbol	Casing		Taping							
In the case of "for High Temperature Reflow" type, a series name is "RZC". \$\phi\$ 12.5X13.5 (example : 35V330uF)															
			330	μF)											
			330 V	μF) 331	M	IE	T —	R5							

If "For Vibration Resistance" type is required, please see the series RTT of page 96.



Standard Ratings

Rated voltage(V)		1	0			1	6			2	5	
Item	Case	ESR(Ω	2 max.)	Rated ripple current	Case	ESR(nax.)	Rated ripple current	Case	ESR(0	2 max.)	Rated ripple current
Rated capacitance(µF)	ϕ D×L(mm)	20°C	-40°C	(mArms)	ϕ D×L(mm)	20°C	-40°C	(mArms)	φD×L(mm)	20°C	-40°C	(mArms)
10		_	_	-	4×5.8	3.0	45	50	5×5.8	1.5	23	81
22	4×5.8	3.0	45	50	5×5.8	1.5	23	81	6.3×5.8	1.0	15	114
33	5×5.8	1.5	23	81	6.3×5.8	1.0	15	114	6.3×5.8	1.0	15	114
47					6.3×5.8	4.0	15	114	6.3×7.7	0.60	9.0	165
47	_	_	_	_	6.3×5.8	1.0	15	114	8×6.5	0.60	9.0	180
									6.3×7.7	0.60	9.0	165
100	_	_	_	_	_	_	_	_	8×6.5	0.60	9.0	180
									8×10	0.20	2.0	340
220	6.3×7.7	0.60	9.0	165	8×10	0.20	2.0	340	8×10	0.20	2.0	340
220	8×6.5	0.60	9.0	180	10×10	0.15	1.5	500	10×10	0.15	1.5	500
330	8×10	0.20	2.0	340	4040	0.45		500	10×10	0.15	1.5	500
330	10×10	0.15	1.5	500	10×10	0.15	1.5	500	12.5×13.5	0.086	1.29	750
470	10×10	0.15	1.5	500	12.5×13.5	0.086	1.29	750	12.5×13.5	0.086	1.29	750
680	12.5×13.5	0.086	1.29	750	12.5×13.5	0.086	1.29	750	_	_	_	_
1000	12.5×13.5	0.086	1.29	750	_	_	_	_	_	_	_	_

Rated voltage(V)		3	5			5	0			6	3	
Item	Case	ESR(Ω	max.)	Rated ripple current	Case	ESR(0	nax.)	Rated ripple current	Case	ESR(0	Ω max.)	Rated ripple current
Rated capacitance(µF)	ϕ D×L(mm)	20°C	−40°C	(mArms)	ϕ D×L(mm)	20°C	-40°C	(mArms)	ϕ D×L(mm)	20℃	-40°C	(mArms)
4.7	4×5.8	3.0	45	50	-	-	-	_	-	-	-	_
10	5×5.8	1.5	23	81	6.3×5.8		40		00:77			0.5
10	6.3×5.8	1.0	15	114	6.3×5.8	3.2	48	58	6.3×7.7	1.8	36	95
22	6.3×5.8	1.0	15	114	6.3×7.7	1.2	18	95	8×10	0.70	14	140
33	6.3×7.7	0.60	9.0	165	6.3×7.7	1.2	18	95	8×10	0.70	14	140
33	8×6.5	0.60	9.0	180	8×10	0.50	7.5	180	10×10	0.50	10	200
	6.3×7.7	0.60	9.0	165	8×10	0.50	7.5	180	8×10	0.70	14	140
47	8×6.5	0.60	9.0	180								
	8×10	0.20	2.0	340	10×10	0.30	4.5	280	10×10	0.50	10	200
100	8×10	0.20	2.0	340	10×10	0.30	4.5	280	105:1105	0.05	0.75	400
100	10×10	0.15	1.5	500	12.5×13.5	0.18	2.7	550	12.5×13.5	0.25	3.75	400
220	10×10	0.15	1.5	500	12.5×13.5	0.18	2.7	550	_	_	_	_
330	12.5×13.5	0.086	1.29	750	_	-	_	_	-	_	_	-

Rated voltage(V)		8	0			10	00	
Item	Case	ESR(Ω	max.)	Rated ripple current	Case	ESR(Ω max.)	Rated ripple current
Rated capacitance(µF)	ϕ D×L(mm)	20°C	-40°C	(mArms)	ϕ D×L(mm)	20°C	-40°C	(mArms)
10	8×10 0.75 15		110	8×10	0.75	15	110	
22	8×10	0.75	15	110	8×10	0.75	15	110
22	10×10	0.55	11	150	10×10	0.55	11	150
33	8×10	0.75	15	110	1010	0.55		450
33	10×10 0.55 11		150	10×10	0.55	11	150	
47	47 — — —		_	12.5×13.5	0.32	4.8	300	

(Note) Rated ripple current : 125°C, 100kHz ESR : 100kHz

RZJ, RMJ VERTICAL CHIP TYPE ALUMINUM ELECTROLYTIC CAPACITORS



Chip Type, 125°C Use, Low ESR, Long Life Capacitors



- · Compatible with surface mounting.
- · Supplied with carrier taping.
- Guaranteed 3000 hours at 125°C. $(\phi 6.3 : 2000 \text{ hours})$
- · Specify ESR after endurance test.



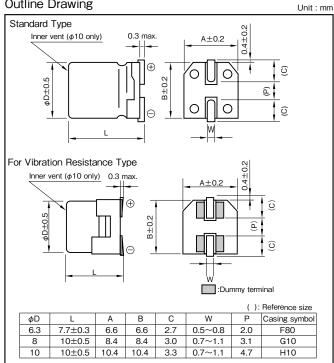


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Specifications

Item			Performano	ce								
Category temperature range (°C)			-40 to +1	25								
Tolerance at rated capacitance (%)			±20			(20	°C,120Hz)					
Leakage current (μΑ) (max.)	0.010	CV or 3 whichever is large	r (after 2 minutes) C:	Rated capacitance (μF); V : Rated voltage (V))	(20°C)					
Tangent of loss angle	Rated vo	tage (V)	10	16	25	35	\neg					
	tanδ (max.)	0.30	0.23	0.18	0.16						
(tanδ)						(20	°C,120Hz)					
	Rated vo	tage (V)	10	16	25	35	\neg					
Characteristics at high	Impedance ratio (max.)	Z-25°C/Z+20°C	3	2	2	2						
and low temperature	impedance ratio (max.)	Z-40°C/Z+20°C	4	3	3	3						
							(120Hz)					
	Test tin	ne	3000 hou	ırs (φ6.3 : 2000 hours)								
Endurance (125°C)	Leakage c	urrent	The initial	I specified value or less								
(Applied ripple current)	Percentage of cap	acitance change	Within ±3	30% of initial value								
	Tangent of the	loss angle	300% or	less of the initial specif	ied value							
Shelf life (125℃)	Test time: 1000h	Test time: 1000hours; other items are same as the endurance. Voltage application treatment: According to JIS C5101-4 4.1										
Applicable standards			JIS C5101-1, -18 (IEC	C 60384-1, -18)								

Outline Drawing



· Soldering conditions are described on page 15.

- · Land pattern size are described on page 13.
- The taping specifications are described on page 16.

Coefficient of Frequency for Rated Ripple Current

Frequency (Hz) Rated voltage (V)	120	1k	10k	100k
10 to 35	0.77	0.88	0.96	1

Part numbering system

Standard Type (example : $35V220\mu F$)

RZJ -	35	٧	221	М	H10 U —	
Series code	Rated voltage symbol		Rated capacitance symbol	Capacitance tolerance symbol	Casing symbol	Taping symbol

For Vibration Resistance Type (example: 35V220µF)

RMJ	_	35	٧	221	М	H10	U —	
Series code		Rated voltage symbol		Rated capacitance symbol	Capacitance tolerance symbol	Casing symbol		Taping symbol



Standard Ratings

Rated voltag (V)			10)					16						25	5		
Rated Item	Case	Initial (Ω r	I ESR nax.)	After endu	urance test 2 max.)	Rated ripple current	Case		IESR nax.)	After endu	rance test max.)	Rated ripple current	Casc	Initial (Ω r	I ESR nax.)	After endu	rance test max.)	Rated ripple current
capacitance (µF)	φυχι (IIIII)	20℃	-40°C	20℃	-40°C	(mArms)	φD×L (mm)	20℃	-40°C	20℃	-40°C	(mArms)	φD×L (mm)	20℃	-40°C	20°C	-40°C	(mArms)
100							6.3×7.7	0.45	5.0	3.5	40	220	8×10	0.15	0.0	0.00	4.5	250
100	_	_	_	_	_	_	8×10	0.15	3.0	0.60	4.5	350	8×10	0.15	3.0	0.60	4.5	350
220	8×10	0.15	3.0	0.60	4.5	350	8×10	0.15	3.0	0.60	4.5	350	10×10	0.12	2.0	0.40	3.5	550
330	8×10	0.15	3.0	0.60	4.5	350	10×10	0.12	2.0	0.40	3.5	550	10×10	0.12	2.0	0.40	3.5	550
330	10×10	0.12	2.0	0.40	3.5	550	10 × 10	0.12	2.0	0.40	ა.5	550	10 × 10	0.12	2.0	0.40	ა.5	550
470	10×10	0.12	2.0	0.40	3.5	550	10×10	0.12	2.0	0.40	3.5	550	_	_	_	_	_	_

VERTICAL CHIP TYPE ALUMINUM ELECTROLYTIC CAPACITORS RZJ, RMJ

Rated voltag (V)			35	5			
Item Rated	Case	(Ω max.)		After endu	rance test max.)	Rated ripple current	
capacitance (µF)	φD×L (mm)	20℃	-40°C	20℃	-40°C	(mArms)	
47	6.3×7.7	0.45	5.0	3.5	40	220	
47	8×10	0.15	3.0	0.60	4.5	350	
100	8×10	0.15	3.0	0.60	4.5	350	
220	10×10	0.12	2.0	0.40	3.5	550	

(Note) After endurance test : 2000 hours
Rated ripple current : 125°C , 100kHz, ESR : 100kHz

RZF, RMF VERTICAL CHIP TYPE ALUMINUM ELECTROLYTIC CAPACITORS



Chip Type, 125°C Use, High CV, Long Life Capacitors





- · Compatible with surface mounting.
- Supplied with carrier taping.
- Guaranteed 4000 hours at 125°C. $(\phi 6.3 : 2000 \text{ hours})$

High CV, Long Life **RVT**

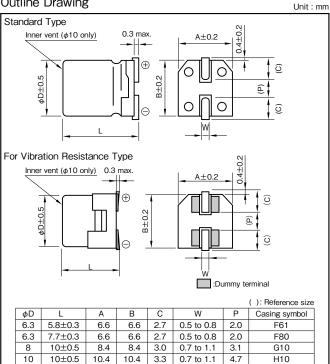


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Specifications

Item				Performance	e								
Category temperature range (°C)		-40 to +125											
Tolerance at rated capacitance (%)		±20 (20°C,120Hz)											
Leakage current (μA) (max.)	0.0	0.01CV or 3 whichever is larger (after 2 minutes) C: Rated capacitance (μF); V: Rated voltage (V)											
Tangent of loss angle	Rated v	oltage (V)	10	16	25	35	50	63	80				
tangent of loss angle (tanδ)	tanδ	(max.)	0.24	0.20	0.16	0.14	0.14	0.12	0.12				
(tailo)		(20°C,120H											
	Rated v	Rated voltage (V)			25	35	50	63	80				
Characteristics at high	Impedance ratio (max.)	Z-25°C/Z+20°C	3	2	2	2	2	2	2				
and low temperature	impedance ratio (max.)	Z-40°C/Z+20°C	6	4	4	3	3	3	3				
										(120Hz)			
	Test	time	40	000 hours (φ6	6.3: 2000 hou	ırs)				7			
Endurance (125°C)	Leakage	current	Th	e initial spec	ified value or	less							
(Applied ripple current)	Percentage of cap	pacitance change	W	ithin ±30% o	of initial value								
	Tangent of the	e loss angle	30	00% or less o	f the initial sp	ecified value				J			
Shelf life (125°C)	Test time: 1000hours; other items are same as the endurance. Voltage application treatment: According to JIS C5101-4 4.1												
Applicable standards			JIS C5101	-1, -18 (IEC 6	50384-1, -18)							

Outline Drawing



- Soldering conditions are described on page 15.
- · Land pattern size are described on page 13.
- The taping spesifications are described on page 16.

Coefficient of Frequency for Rated Ripple Current

Frequency (Hz) Rated voltage(V)	120	1k	10k	100k
10 to 80	0.77	0.88	0.96	1

Part numbering system

Standard Type (example : 35V100uF)

Otalidald	Standard Type (example : 55 v Toopi)									
RZF	_	35	٧	101	М	F80	U —			
Series code		Rated voltage symbol		Rated capacitance symbol	Capacitance tolerance symbol	Casing symbol		Taping symbol		

For Vibration Resistance Type (example : 25V330µF)

RMF	_	25	٧	331	М	H10	U —	
Series code		Rated voltage symbol		Rated capacitance symbol	Capacitance tolerance symbol	Casing symbol		Taping symbol

VERTICAL CHIP TYPE ALUMINUM ELECTROLYTIC CAPACITORS RZF, RMF

Standard Ratings

Rated voltage (V)		1	0			1	6		25			
Rated Item capacitance	Case	ESR (0	nax.)	Rated ripple current	Case	ESR (C	Ω max.)	Rated ripple current	Case	ESR (Ω max.)	Rated ripple current
	$\phi D \times L (mm)$	20℃	-40°C	(mArms)	ϕ D × L (mm)	20℃	-40℃	(mArms)	$\phi D \times L (mm)$	20℃	-40°C	(mArms)
47	-	-	-	-	6.3 × 5.8	1.2	22	110	6.3 × 5.8	1.2	22	110
100	6.3 × 5.8	1.2	22	110	6.3 × 5.8	1.2	22	110	6.3 × 7.7	0.60	12	220
220	6.3 × 7.7	0.60	12	220	6.3 × 7.7	0.60	12	220	8 × 10	0.30	5.5	296
330	8 × 10	0.30	5.5	296	8 × 10	0.30	5.5	296	10 × 10	0.20	3.6	440
470	8 × 10	0.30	5.5	296	10 × 10	0.20	3.6	440	-	-	_	-
680	10 × 10	0.20	3.6	440	10 × 10	0.20	3.6	440	-	-	_	-

Rated voltage (V)		3	5			5	0			6	3	
Rated Item capacitance	Case	ESR (nax.)	Rated ripple current	Case	ESR (nax.)	Rated ripple current	Case	ESR (0	nax.)	Rated ripple current
	$\phi D \times L (mm)$	20℃	-40°C	(mArms)	ϕ D × L (mm)	20℃	-40°C	(mArms)	$\phi D \times L \text{ (mm)}$	20℃	-40°C	(mArms)
22	_	-	_	_	6.3 × 5.8	3.2	48	58	6.3 × 7.7	1.8	36	80
33	_	-	-	-	6.3 × 5.8	3.2	48	58	-	-	-	-
47	6.3 × 5.8	1.2	22	110	6.3 × 7.7	1.2	18	95	8 × 10	0.70	14	140
100	6.3 × 7.7	0.60	12	220	8 × 10	0.50	7.5	180	10 × 10	0.50	10	200
220	8 × 10	0.30	5.5	296	10 × 10	0.30	4.5	280	_	=	=	-
330	10 × 10	0.20	3.6	440	-	_	_	_	_	=	=	-

Rated voltage (V)		8	0		
Rated Item capacitance	Case	ESR (nax.)	Rated ripple current	
(µF)	$\phi D \times L \text{ (mm)}$	20℃	-40°C	(mArms)	
47	8 × 10	0.75	15	110	
68	10 × 10	0.55	11	150	

(Note) Rated ripple current : 125°C , 100kHz ESR : 100kHz

RZE, RME VERTICAL CHIP TYPE ALUMINUM ELECTROLYTIC CAPACITORS



Chip Type, 125°C Use, High CV, Long Life Capacitors

- · Supplied with carrier taping.
- Guaranteed 2000 hours at 125°C.

· Compatible with surface mounting.

High CV, Long Life **RVT**

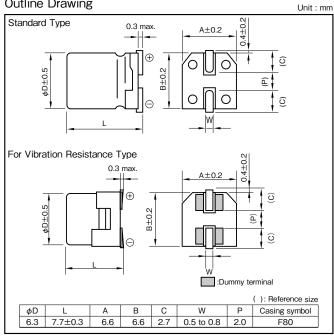


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Specifications

Item			Performance										
Category temperature range (°C)		-40 to +125											
Tolerance at rated capacitance (%)		±20											
Leakage current (μA) (max.)	0.01	0.01CV or 3 whichever is larger (after 2 minutes) C: Rated capacitance (μF); V: Rated voltage (V)											
Tangent of loss angle		oltage (V)	35 0.14										
(tanδ)	tano	tanδ (max.) 0.14											
	Rated v	oltage (V)	35										
Characteristics at high	Impedance Ratio (max.)	Z-25°C/Z+20°C	2										
and low temperature	impedance natio (max.)	Z-40°C/Z+20°C	3										
				(120Hz)									
	Test	time	2000 hours										
Endurance (125°C)	Leakage	current	The initial specified value or less										
(Applied ripple current)	Percentage of cap	acitance change	Within ±30% of initial value										
	Tangent of the	e loss angle	300% or less of the initial specified value										
Shelf life (125°C)	Test time : 1000h	ours ; other items are sam	e as the endurance. Voltage application treatment: According to JIS C5101-	4 4.1									
Applicable standards		JIS C5101-1, -18 (IEC 60384-1, -18)											

Outline Drawing



- · Soldering conditions are described on page 15.
- Land pattern size are described on page 13.
- The taping spesifications are described on page 16.

Coefficient of Frequency for Rated Ripple Current

Frequency (Hz) Rated voltage(V)	120	1k	10k	100k
35	0.77	0.88	0.96	1

Part numbering system Standard Type (example : 35V47µF)										
RZE — 35 V 470 M F80 U — 🗌										
Series code		Rated voltage symbol		Rated capacitance symbol	Capacitance tolerance symbol	Casing symbol		Taping symbol		
For Vibrat	tion F	Resistance T	уре	(example : 35	5V47μF)					
RME — 35 V 470 M F80 U — 🗌										
Series code		Rated voltage symbol		Rated capacitance symbol	Capacitance tolerance symbol	Casing symbol		Taping symbol		

VERTICAL CHIP TYPE ALUMINUM ELECTROLYTIC CAPACITORS RZE, RME

Standard Ratings

ſ	Rated voltage (V)					
F	Rated Item capacitance	Case		ESR (Ω m	ax.)	Rated ripple current
	μF)	ϕ D × L (mm)	20℃	-40°C	After Endurance -40°C	(mArms)
ſ	47	6.3 × 7.7	0.30	3	6	240
ſ	100	6.3 × 7.7	0.30	3	6	240

(Note) Rated ripple current : 125°C , 100kHz ESR : 100kHz

125℃

RVX, RTX VERTICAL CHIP TYPE ALUMINUM ELECTROLYTIC CAPACITORS



Chip Type, 135°C Capacitors

- · Compatible with surface mounting. · Supplied with carrier taping.
- Guarantees 1000 hours 135℃.



High temperature 1

RVT



Marking color : Black print

Specifications

Item			Performance					
Category temperature range (°C)			-40 to +135					
Tolerance at rated capacitance (%)			±20		(20°C,120Hz)			
Leakage current (μA) (max.)	0.01	CV or 3 whichever is larger (larger (after 2 minutes) $$ C : Rated capacitance (μF) ; V : Rated voltage (V)					
Toward of last and	Rated vo	Itage (V)	25	35				
Tangent of loss angle	tanδ (max.)	0.24	0.20				
(tanδ)				·	(20°C,120Hz)			
	Rated vo	Itage (V)	25	35				
Characteristics at high	Impedance Ratio (max.)	Z-25°C/Z+20°C	2	2				
and low temperature	impedance natio (max.)	Z-40°C/Z+20°C	3	3				
					(120Hz)			
	Test t	ime	1000 hours					
Endurance (135°C)	Leakage	current	The initial spec	cified value or less				
(Applied ripple current)	Percentage of Cap	acitance change	Within ±30% o	f initial value				
	Tangent of I	oss angle	300% or less of	of the initial specified value				
Shelf life (135℃)	Test time : 500ho	urs; other items are same as	the endurance. Voltage application t	reatment : According to JIS C5101-4	4.1			
Applicable standards		JIS	C5101-1, -18 (IEC 60384-1, -18)					

Coefficient of Frequency for Rated Ripple Current

	, -	- -		
Frequency (Hz) Rated voltage(V)	120	1k	10k	100k
25 to 35	0.77	0.88	0.96	1

- · Soldering conditions are described on page 15.
- · Land pattern size are described on page 13.
- The taping specifications are described on page 16.

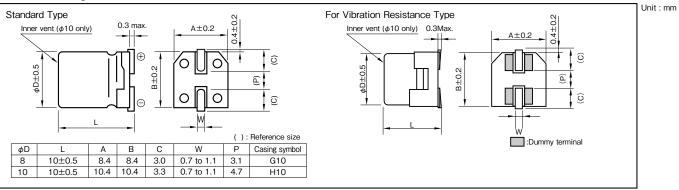
Part numbering system (example : 25V330 μ F)

Standard	Type							
RVX	_	25	٧	331	М	H10	U —	
Series code		Rated voltage symbol		Rated capacitance symbol	Capacitance tolerance symbol	Casing symbol		Taping symbol

For Vibration Resistance Type

RTX	_	25	٧	331	М	H10	U —	
Series code	- -	Rated voltage symbol		Rated capacitance symbol	Capacitance tolerance symbol	Casing symbol		Taping symbol

Outline Drawing



Standard Ratings

Rated voltage (V)		2	5			3	5					
Rated Item	Case	Casing	ESR	Rated ripple current	Case	Casing	ESR	Rated ripple current				
capacitance (µF)	$\phi D \times L (mm)$	symbol	(Ω max.)	(mArms)	ϕ D × L (mm)	symbol	(Ω max.)	(mArms)				
22	_	_	_	_	8 × 10	G10	0.70	115				
33	8 × 10	G10	0.70	115	8 × 10	G10	0.70	115				
33	10 × 10	H10	0.50	155	10 × 10	H10	0.50	155				
47	8 × 10	G10	0.70	115	8 × 10	G10	0.70	115				
47	10 × 10	H10	0.50	155	10 × 10	H10	0.50	155				
100	8 × 10	G10	0.70	115	8 × 10	G10	0.70	115				
100	10 × 10	H10	0.50	155	10 × 10	H10	0.50	155				
220	8 × 10	G10	0.70	115	10 × 10	H10	0.50	155				
220	10 × 10 H10	0.50	155	10 × 10	піо	0.50	155					
330	10 × 10	H10	0.50	155	-	_	_	_				

(Note) Rated ripple current : 135°C , 100kHz ESR : 20°C, 100kHz

VERTICAL CHIP TYPE ALUMINUM ELECTROLYTIC CAPACITORS RV



Chip type 105°C Capacitors(height:4.5mm)

- Compatible with surface mounting for 4.5mm height capacitors.
- · Supplied with carrier taping.
- Guarantees 1000 hours 105°C.

High temperature RV4

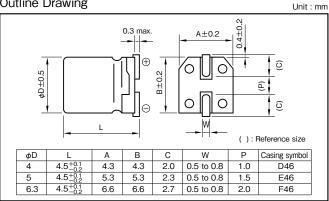


Marking color: Black print

Specifications

Specifications											
Item			Р	erformance							
Category temperature range (°C)				40 to +105							
Tolerance at rated capacitance (%)				±20				(20°C	,120Hz)		
Leakage current (μΑ) (max.)	0.01	CV or 3 whichever is larg	ger (after 2 minu	tes) C : Rated	capacitance (µ	F), V : Rated vo	oltage (V)		(20°C)		
Tangent of loss angle	Rated vol	tage (V)	6.3	10	16	25	35	50			
	tanδ (i	nax.)	0.38	0.32	0.20	0.16	0.14	0.14			
(tanδ)								(20℃	,120Hz)		
	Rated vol	tage (V)	6.3	10	16	25	35	50			
Characteristics at high	Impedance ratio (max.)	Z-25°C/Z+20°C	4	3	2	2	2	2			
and low temperature	impedance ratio (max.)	Z-40°C/Z+20°C	10	8	6	4	3	3			
									(120Hz)		
	Test	time			1000	hours					
Endurance (105°C)	Leakage	current		Т	he initial specif	ied value or les	S		7 I		
(Applied ripple current)	Percentage of ca	pacitance change		Within ±20	0% of initial valu	ue (16WV or les	ss:±25%)				
	Tangent of	loss angle		300%	or less of the i	nitial specified	value				
Shelf life (105°C)	Test time : 500ho	Test time: 500hours; other items are same as the endurance. Voltage application treatment: According to JIS C5101-4 4.1									
Applicable standards		JIS	C5101-1, -18	IEC 60384-1, -	18)						

Outline Drawing



Coefficient of Frequency for Rated Ripple Current

Rated vo	Frequency (Hz)	50 · 60	120	1k	10k•100k
	6.3 to 16	0.80	1	1.15	1.25
	25 to 35	0.80	1	1.25	1.40
50 1 to 3.3μF		0.50	1	1.35	1.50
30	4.7 or more	0.70	1	1.35	1.50

Part numbering system (example : 16V10µF)											
RVE -	RVE — 16 V 100 M D46 U — 🖂										
Series code		Rated voltage symbol		Rated capacitance symbol	Capacitance tolerance symbol	Casing		Taping symbol			

- Soldering conditions are described on page 15.
- · Land pattern size are described on page 13.
- The taping specifications are described on page 16.

Standard Ratings

Otaliaala He	oranical a richingo																	
Rated voltage (V)		6.3			10			16			25		35			50		
Rated Item	Case	Casing	Rated ripple current	Case	Casing	Rated ripple current	Case	Casing	Rated ripple current	Case	Casing	Rated ripple current	Case	Casing	Rated ripple current	Case	Casing	Rated ripple current
capacitance (µF)	φD(mm)	symbol	(mArms)	ϕ D(mm)	symbol	(mArms)	ϕ D(mm)	symbol	(mArms)	ϕ D(mm)	symbol	(mArms)	φD(mm)	symbol	(mArms)	ϕ D(mm)	symbol	(mArms)
1	_	_	-	-	-	_	_	-	_	_	-	_	_	_	-	4	D46	5.4
2.2	-	_	-	_	I -	_	_	_	_	_	_	_	_	_	-	4	D46	9.6
3.3	_	_	-	-	_	_	_	_	_	_	_	_	_	_	1	4	D46	12
4.7	_	_	_	_	-	_	_	_	_	4	D46	11	4	D46	13	5	E46	16
10	_	_	_	_	-	_	4	D46	16	5	E46	20	5	E46	22	6.3	F46	26
22	4	D46	19	5	E46	24	5	E46	26	6.3	F46	33	6.3	F46	36	-	_	-
33	5	E46	26	5	E46	30	6.3	F46	35	6.3	F46	42	_	_	1	-	-	-
47	5	E46	32	6.3	F46	40	6.3	F46	44	_	_	_	-	_	_	_	_	_
100	6.3	F46	52	_	_	_	_			_		_	_	_		_	_	_

(Note) Rated ripple current : 105°C, 120Hz



Chip Type 105°C Use, Long Life Bipolar Capacitors

- · Compatible with surface mounting.
- · Supplied with carrier taping.
- Guarantees 2000 hours 105℃.



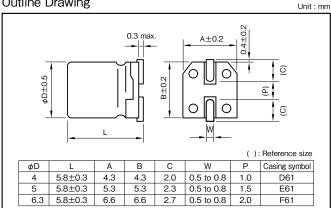


Marking color: Black print

Specifications

Item				Performance					
Category temperature range (°C)			_	-40 to +105					
Tolerance at rated capacitance (%)				±20				(20°C	C,120Hz)
Leakage current (μΑ) (max.)	0.01	CV or 3 whichever is lar	arger (after 2 minutes) C : Rated capacitance (μF) , V : Rated voltage (V)						
	Rated vo	oltage (V)	6.3	10	16	25	35	50	7
Tangent of loss angle	tanδ (max.)	0.30	0.22	0.16	0.14	0.12	0.12	
(tanδ)								(20℃	C,120Hz)
	Rated vo	Rated voltage (V)			16	25	35	50	\neg
Characteristics at high	Impedance ratio (max.)	Z-25°C/Z+20°C	4	3	2	2	2	2	
and low temperature	impedance ratio (max.)	Z-40°C/Z+20°C	8	6	4	4	3	3	
									(120Hz)
	Test	time		2000) hours (with the	e polarity inverte	ed every 250 ho	ours)	٦
Endurance (105°C)	Leakage	current		The i	nitial specified	value or less			
(Applied ripple current)	Percentage of car	pacitance change		Withi	n ±20% of initi	al value			
	Tangent of Id	oss angle		200%	6 or less of the	initial specified	value		
Shelf life (105℃)	Test time: 1000h	nours ; other items are sar	me as the endu	ance. Voltage	application trea	tment : Accordi	ng to JIS C510	1-4 4.1	
Applicable standards			JIS C5101-1	-18 (IEC 6038	4-1, -18)				

Outline Drawing



Coefficient of Frequency for Rated Ripple Current

Rated v	Frequency (Hz)	50 · 60	120	1k	10k • 100k
	6.3 to 16	0.80	1	1.15	1.25
	25 to 35	0.80	1	1.25	1.40
50	1 to 3.3μF	0.50	1	1.35	1.50
50	4.7 <i>µ</i> F	0.70	1	1.35	1.50

Part numbering system (example : 6.3V47μF)											
RVI	_	6	٧	470	М	F61	U —				
Series code		Rated voltage symbol		Rated capacitance symbol	Capacitance tolerance symbol	Casing symbol		Taping symbol			

- Soldering conditions are described on page 15.
- Land pattern size are described on page 13.
- The taping specifications are described on page 16.

Standard Ratings

Rated voltage (V)	6	.3	1	0	1	6	2	25	3	5	5	50
Rated Item	Case	Rated ripple current	Case	Rated ripple current	Case	Rated ripple current	Case	Rated ripple current	Case	Rated ripple current	Case	Rated ripple current
capacitance (µF)	φD×L (mm)	(mArms)	φD×L (mm)	(mArms)	ϕ D×L (mm)	(mArms)	φD×L (mm)	(mArms)	φD×L (mm)	(mArms)	φD×L (mm)	(mArms)
1	_	_	_	_	_	_	_	_	_	_	4×5.8	10
2.2	_	_	_	_	_	_	_	_	4×5.8	10	_	_
3.3	_	_		_	_	_	4×5.8	12		_	5×5.8	17
3.3	_	_			_	_	4/5.6	12			6.3×5.8	20
4.7	_	_	_	_	_	_	4×5.8	12	_	_	6.3×5.8	23
10	_	_	4×5.8	20	5×5.8	25	6.3×5.8	28	_	_	_	_
22	-	_	_	_	_	_	6.3×5.8	55		_	_	_
33	_	_	6.3×5.8	41	_	_	_	_	ı	_	_	_
47	6.3×5.8	45	_	_	_	_	_	_	_	_	_	_

(Note) Rated ripple current : 105°C, 120Hz

For Vibration Resistance, Chip Type Aluminum Electrolytic Capacitors

ELNA®



Series RTZ	30G	105°C, Low Impedance	···Page 92
Series RTD	30G	105°C, Low Impedance, Long Life	···Page 94
Series RTT	30G	125°C, Low ESR, Long Life	···Page 96
Series RTQ	30G	150°C. Low ESB. Long Life	Page 98



RTZ VERTICAL CHIP TYPE ALUMINUM ELECTROLYTIC CAPACITORS



Chip Type 105°C Use, Low Z, For Vibration Capacitors

- · Compatible with surface mounting.
- For Vibration resistance. (30G guaranteed)
- · Supplied with carrier taping.
- Guaranteed 5000 hours at 105℃.

 $(\phi 6.3 : 1000 \text{ hours}, \ \phi 8, \ \phi 10 : 2000 \text{ hours})$

Vibration resistance

RTZ RVZ

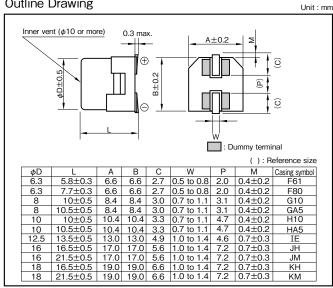


Marking color: Black print

Specifications

Item	Performance -55 to +105												
Category temperature range (°C)			-55	to +105									
Tolerance at rated capacitance (%)				±20			(20°C	C,120Hz)					
Leakage current (μΑ) (max.)	0.01	CV or 3 whichever is larg	ger (after 2 minute	s) C : Rated capac	itance (μF) , V : R	ated voltage (V)		(20°C)					
Tangent of loss angle	Rated vo	Itage (V)	6.3	10	16	25	35						
"	tanδ (i	max.)	0.28	0.24	0.20	0.16	0.14						
(tanδ)	0.02 is added to every 10	00μF increase over 1000	μF				(20°C	C,120Hz)					
	Rated vo	Itage (V)	6.3	10	16	25	35						
Characteristics at high	Impedance ratio (max.)	Z-25°C/Z+20°C	4	3	2	2	2						
and low temperature	impedance ratio (max.)	Z-55°C/Z+20°C	8	5	4	3	3						
								(120Hz)					
Endurance (105°C)	Test	time		1000 hours 2000 hours 5000 hours									
Endurance (105°C)	Leakage	current		The initial s	pecified value or l	ess		7					
(Applied ripple current)	Percentage of cap	acitance change	Within ±25% of initial value										
	Tangent of lo	ss angle	200% or less of the initial specified value										
Shelf life (105°C)	Test time : 1000h	ours ; other items are sam	ne as the enduran	ce. Voltage applic	ation treatment : A	ccording to JIS C51	01-4 4.1						
Applicable standards	JIS C5101-1, -18 (IEC 60384-1, -18)												

Outline Drawing



- · Soldering conditions are described on page 15.
- · Land pattern size are described on page 13.
- The taping specifications are described on page 16.

Coefficient of Frequency for Rated Ripple Current

·				
Frequency (Hz) Rated voltage (V)	120	1k	10k	100k
6.3 to 35	0.50	0.75	0.90	1

Part nur \$\phi\$6.3 (exam				n				
RTZ	_	6	٧	221	М	F61	U —	
Series code		Rated voltage symbol		Rated capacitance symbol	Capacitance tolerance symbol	Casing symbol		Taping symbol
φ8, φ10 (ε	exam	ole : 6.3V15	500μ	F)				
RTZ	_	_ <u>6</u>		152	М	HA5	SU —	
Series code		Rated voltage symbol		Rated capacitance symbol	Capacitance tolerance symbol	Casing symbol		Taping symbol
φ12.5 or m	ore (example : 6.	3V2	200μF)				
RTZ	_	6	٧	222	М	ΙE	T —	
		Rated voltage		Rated	Capacitance	Casing	-	Taping

If "Standard (terminal)" type is required, please see the series RVZ of page 72.

VERTICAL CHIP TYPE ALUMINUM ELECTROLYTIC CAPACITORS RTZ

Standard Ratings

	6.3 10								16					25				1 05			
Rated voltage (V)		6.		la		1				1		B		2	5			3			
Rated Item	Case	Casing	ESR	Rated ripple current	Case	Casing	ESR	Rated ripple current	Case	Casing	ESR	Rated ripple current	Case	Casing	ESR	Rated ripple current	Case	Casing	ESR	Rated ripple current	
capacitance (µF)	φD×L (mm)	symbol	(Ω max.)	(mArms)	φD×L (mm)	symbol	(Ω max.)	(mArms)	φD×L (mm)	symbol	(Ω max.)	(mArms)	φD×L (mm)	symbol	(Ω max.)	(mArms)	φD×L (mm)	symbol	(Ω max.)	(mArms)	
33	_	_	_	_	_	_	_	_	6.3×5.8	F61	0.44	230	6.3×5.8	F61	0.44	230	6.3×5.8	F61	0.44	230	
47	_	_	_	_	6.3×5.8	F61	0.44	230	6.3×5.8	F61	0.44	230	6.3×5.8	F61	0.44	230	6.3×5.8	F61	0.44	230	
47	_				0.5×5.6	101	0.44	230	0.5/5.0	101	0.44	250	0.575.6	101	0.44	250	6.3×7.7	F80	0.34	280	
68	6.3×5.8	F61	0.44	230	6.3×5.8	F61	0.44	230	6.3×5.8	F61	0.44	230	6.3×5.8	F61	0.44	230	6.3×7.7	F80	0.34	280	
400	0.045.0	F04	0.44	000	0.07.5.0	E04	0.44	000	0.07.5.0	F04	0.44	000	0.0077	F00	0.04	000	8×10	G10	0.20	450	
100	6.3×5.8	F61	0.44	230	6.3×5.8	F61	0.44	230	6.3×5.8	F61	0.44	230	6.3×7.7	F80	0.34	280	8×10.5	GA5	0.17	450	
450	0.0				0.00.5.0				0.0				8×10	G10	0.20	450	8×10.5	GA5	0.17	450	
150	6.3×5.8	F61	0.44	230	6.3×5.8	F61	0.44	230	6.3×7.7	F80	0.34	280	8×10.5	GA5	0.17	450	10×10	H10	0.10	670	
	6.3×5.8	F61	0.44	230	6.3×7.7	F80	0.34	280	6.3×7.7	F80	0.34	280	8×10.5	GA5	0.17	450	8×10.5	GA5	0.17	450	
220	6.3×7.7	F80	0.34	280	8×10	G10	0.20	450	8×10	G10	0.20	450	10×10	H10	0.10	670	10×10	H10	0.10	670	
	6.3×7.7	F80	0.34	280	8×10.5	GA5	0.17	450	8×10.5	GA5	0.17	450	8×10.5	GA5	0.17	450					
330	8×10	G10	0.20	450	10×10	H10	0.10	670	10×10	H10	0.10	670	10×10	H10	0.10	670	10×10.5	HA5	0.090	670	
	8×10.5	GA5	0.17	450	8×10.5	GA5	0.17	450	8×10.5	GA5	0.17	450					12.5×13.5	ΙE	0.060	1100	
470	10×10	H10	0.10	670	10×10	H10	0.10	670	10×10	H10	0.10	670	10×10.5	HA5	0.090	670	16×16.5	JH	0.046	1540	
																	12.5×13.5	ΙE	0.060	1100	
680	8×10.5	GA5	0.17	450	10×10.5	HA5	0.090	670	10×10.5	HA5	0.090	670	12.5×13.5	ΙE	0.060	1100	16×16.5	JH	0.046	1540	
	8×10.5	GA5	0.17	450					12.5×13.5	ΙE	0.060	1100	12.5×13.5	ΙE	0.060	1100	16×16.5	JH	0.046	1540	
1000	10×10	H10	0.10	670	10×10.5	HA5	0.090	670	16×16.5	JH	0.046	1540	16×16.5	JH	0.046	1540	18×16.5	КН	0.042	1760	
					12.5×13.5	ΙE	0.060	1100	12.5×13.5	ΙE	0.060	1100	16×21.5	JM	0.040	1840					
1500	10×10.5	HA5	0.090	670	16×16.5	JH	0.046	1540	16×16.5	JH	0.046	1540	18×16.5	КН	0.042	1760	_	-	_	_	
					12.5×13.5	ΙE	0.060	1100	16×16.5	JH	0.046	1540	16×21.5	JM	0.040	1840					
2200	12.5×13.5	ΙE	0.060	1100	16×16.5	JH	0.046	1540	18×16.5	КН	0.042	1760	18×16.5	КН	0.042	1760	18×21.5	KM	0.038	1960	
					16×16.5	JH	0.046	1540	16×21.5	JM	0.040	1840									
3300	16×16.5	JH	0.046	1540	18×16.5	КН	0.042	1760	18×16.5	KH	0.042	1760	18×21.5	KM	0.038	1960	_	-	-	-	
	16×21.5	JM	0.040	1840	16×21.5	JM	0.040	1840	.5 .10.0												
4700	18×16.5	KH	0.042	1760	18×21.5	KM	0.038	1960	18×21.5	KM	0.038	1960	_	_	-	_	_	-	_	-	
6800	18×21.5	KM	0.038	1960	_	_	_	_	_	_	_			_	_	_	_	_		_	
8200	18×21.5	KM	0.038	1960			_											_		_	
6200 (N) D	10^21.5		0.036				_	_													

(Note) Rated ripple current : 105°C , 100kHz

ESR : 20℃ , 100kHz

VERTICAL CHIP TYPE ALUMINUM ELECTROLYTIC CAPACITORS



Chip Type 105°C Use, Low Z, Long Life, For Vibration Capacitors



- · Compatible with surface mounting.
- For Vibration resistance. (30G guaranteed)
- Supplied with carrier taping.

• Guarantees 2000 hours at 105°C. (6.3 to 50V 10.0L: 5000 hours) $(\phi 12.5x13.5L \text{ or more} : 5000 \text{ hours})$

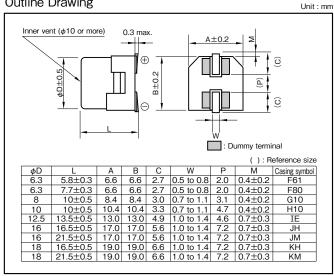
Vibration resistance RTD RVD



Marking color: Black print

Specifications		Marking color : Black print											
Item				Perfor	mance								
Category temperature range (°C)				−55 to	+105								
Tolerance at rated capacitance (%)				±	20						(20°C,	120Hz)	
Leakage current (μΑ) (max.)	0.01	CV or 3 whichever is la	rger (after 2	2 minutes)	C : Rated	l capacitan	ice (μF) , \	/ : Rated v	oltage (V)			(20°C)	
	Rated vo	Itage (V)	6.3	10	16	25	35	50	63	80	100]	
Tangent of loss angle	tanδ (i	max.)	0.26	0.19	0.16	0.14	0.12	0.1	0.08	0.08	0.07	1	
(tanδ)	0.02 is added to every 10	0.02 is added to every 1000μF increase over 1000μF									(20°C,	120Hz)	
	Rated vo	6.3	10	16	25	35	50	63	80	100]		
Characteristics at high		Z-25°C/Z+20°C	2	2	2	2	2	2	2	2	2	1	
Characteristics at high	Impedance ratio (max.)	Z-40°C/Z+20°C	3	3	3	3	3	3	3	3	3	1	
and low temperature		Z-55°C/Z+20°C	8	4	4	3	3	3	3	3	3]	
											(120Hz)	
	Test	time	2000 ho	urs (6.3 to	50V 10.0L	_, φ12.5x13	3.5L or mo	re : 5000	hours)]	
Endurance (105°C)	Leakage current The initial specified value or less												
(Applied ripple current)	Percentage of cap	acitance change	Within ±30% of initial value										
	Tangent of lo	ss angle	200% or I	ess of the i	nitial speci	fied value (6.3 to 50V	10.0L, φ12	2.5x13.5L o	r more : 30	0% or less)		
Shelf life (105°C)	Test time: 1000ho	ours ; other items are sa	me as the e	endurance.	Voltage	application	n treatmen	t: Accord	ling to JIS	C5101-4	4.1		
Applicable standards	·	Test time: 1000hours; other items are same as the endurance. Voltage application treatment: According to JIS C5101-4 4.1 JIS C5101-1, -18 (IEC 60384-1, -18)											

Outline Drawing



- · Soldering conditions are described on page 15.
- · Land pattern size are described on page 13.
- The taping specifications are described on page 16.

Coefficient of Frequency for Rated Ripple Current

Frequency (Hz) Rated voltage (V)	50.60	120	1k	10k • 100k
6.3 to 100	0.50	0.50	0.75	1

Part num \$\phi 6.3 (example)				า						
RTD	_	6	٧	221	М	F61	U —			
Series code		Rated voltage symbol	•	Rated capacitance symbol	Capacitance tolerance symbol	Casing symbol	-	Taping symbol		
φ8, φ10 (example : 6.3V1500μF)										
RTD — 6 V 152 M H10 SU —										
Series code		Rated voltage symbol		Rated capacitance symbol	Capacitance tolerance symbol	Casing symbol		Taping symbol		
φ 12.5 or mo	ore (e	example : 6.	3V2	200μF)						
DTD			` /	000	N.4	TF		f1		
HID .	_	6	٧	222	M	1⊏	. ' —	<u> </u>		

If "Standard (terminal)" type is required, please see the series RVD of page 74.



Standard Ratings

Rated voltage (V)		6.3 10						1	6		25					3	5			
Rated Item		Casing	ESR	Rated ripple current	Case	Casing	ESR	Rated ripple current	Case	Casing	ESR	Rated ripple current	Case	Casing	ESR	Rated ripple current	Case	Casing	ESR	Rated ripple current
capacitance (µF)	φD×L (mm)	symbol	(Ω max.)	(mArms)	φD×L (mm)	symbol	(Ω max.)	(mArms)	φD×L (mm)	symbol	(Ω max.)	(mArms)	φD×L (mm)	symbol	(Ω max.)	(mArms)	φD×L (mm)	symbol	(Ω max.)	(mArms)
33	-	-	-	-	-	-	-	-	-	-	-	-	6.3×5.8	F61	0.36	250	6.3×5.8	F61	0.36	250
47	-	-	-	-	-	_	-	-	6.3×5.8	F61	0.36	250	6.3×5.8	F61	0.36	250	6.3×5.8	F61	0.36	250
400								_	0.045.0	F61	0.36	250	0.0477	F80	0.30	300	6.3×7.7	F80	0.30	300
100	_	_	_	_	_	_	_	_	6.3×5.8	F61	0.36	250	6.3×7.7	F80	0.30	300	8×10	G10	0.16	600
220	6.3×5.8	F61	0.36	250	6.3×7.7	F80	0.30	300	6.3×7.7	F80	0.30	300	8×10	G10	0.16	600	8×10	G10	0.16	600
330	6.3×7.7	F80	0.30	300	8×10	G10	0.16	600	8×10	G10	0.16	600	8×10	G10	0.16	600	10×10	H10	0.090	850
470	8×10	G10	0.16	600	8×10	G10	0.16	600	8×10	G10	0.16	600	10×10	H10	0.090	850	12.5×13.5	ΙE	0.054	1160
680	8×10	G10	0.16	600	10×10	H10	0.090	850	10×10	H10	0.090	850	12.5×13.5	ΙE	0.054	1160	12.5×13.5	ΙE	0.054	1160
1000	8×10	G10	0.16	600	10×10	H10	0.090	850	12.5×13.5	ΙE	0.054	1160	12.5×13.5	ΙE	0.054	1160	16×16.5	JH	0.044	1620
1500	10×10	H10	0.090	850	12.5×13.5	ΙE	0.054	1160	12.5×13.5	ΙE	0.054	1160	16×16.5	JH	0.044	1620	18×16.5	кн	0.040	1840
2200	12.5×13.5	TF	0.054	4400	12.5×13.5	TF	0.054	4400	16×16.5	JH	0.044	1620	16×21.5	JM	0.038	1920	18×21.5	1/14	0.036	2080
2200	12.5×13.5	1E	0.054	1160	12.5×13.5	1E	0.054	1160	18×16.5	KH	0.040	1840	18×16.5	KH	0.040	1840	18X21.5	KM	0.036	2080
0000	40,40.5		0.044	4000	10,40 5		0.044	4000	16×21.5	JM	0.038	1920	40,404.5	1014	0.000	0000	-	-	-	-
3300	16×16.5	JH	0.044	1620	16×16.5	JH	0.044	1620	18×16.5	KH	0.040	1840	18×21.5	KM	0.036	2080	-	-	-	-
4700	18×16.5	КН	0.040	1840	18×21.5	KM	0.036	2080	18×21.5	KM	0.036	2080	_	_	-	-	-	-	-	-
6800	18×16.5	КН	0.040	1840	-	-	-	-	-	-	-	-	_	-	-	-	-	-	-	-
8200	18×21.5	KM	0.036	2080	-	-	-	-	-	-	-	-	_	_	-	-	-	-	-	-

Rated voltage (V)		50)			63	3			80)			10	0	
Rated Item capacitance (µF)	Case	Casing	ESR	Rated ripple current	Case	Casing	ESR	Rated ripple current	Case	Casing	ESR	Rated ripple current	Case	Casing	ESR	Rated ripple current
(µF)	$\phi D \times L (mm)$	symbol	(Ω max.)	(mArms)	$\phi D \times L (mm)$	symbol	(Ω max.)	(mArms)	φD×L (mm)	symbol	(Ω max.)	(mArms)	$\phi D \times L (mm)$	symbol	(Ω max.)	(mArms)
10	6.3×5.8	F61	0.86	170	-	1	-	-	-	-	-	1	-	-	-	_
22	6.3×5.8	F61	0.86	170	-	-	-	-	8×10	G10	0.90	130	8×10	G10	1.30	130
33	6.3×7.7	F80	0.66	195	8×10	G10	0.65	250	8×10	G10	0.90	130	10×10	H10	0.70	200
47	6.3×7.7	F80	0.66	195	8×10	G10	0.65	250	10×10	H10	0.50	200	1	-	-	-
68	_	-	-	-	8×10	G10	0.65	250	-	-	-	-	_	-	-	-
100	8×10	G10	0.32	350	10×10	H10	0.35	400	12.5×13.5	ΙF	0.18	550	16×16.5	JH	0.17	700
100	8×10	GIU	0.32	350	12.5×13.5	ΙE	0.16	600	12.5×13.5	15	0.16	550	10×10.5	JII	0.17	700
220	10×10	H10	0.18	700	12.5×13.5	IE	0.16	600	16×16.5	JH	0.16	720	18×16.5	КН	0.15	800
330	12.5×13.5	ΙE	0.12	900	16×16.5	JH	0.14	800	18×16.5	КН	0.13	830	18×21.5	KM	0.13	940
470	16×16.5	JH	0.080	1000	18×16.5	KH	0.12	900	18×21.5	KM	0.11	1000	-	-	-	-
680	16×16.5	JH	0.080	1000	18×21.5	KM	0.10	1050	-	-	-	-	-	-	-	-
1000	18×16.5	KH	0.076	1100	_	-	-	-	_	-	-	-	-	-	-	_

(Note) Rated ripple current : 105°C , 100kHz

 $\mathsf{ESR}: 20^\circ\!\mathsf{C} \ , \ 100 \mathsf{kHz}$

VERTICAL CHIP TYPE ALUMINUM ELECTROLYTIC CAPACITORS



Chip Type 125°C Use, Low ESR, For Vibration Capacitors



- · Compatible with surface mounting.
- For Vibration resistance. (30G guaranteed)
- · Supplied with carrier taping.
- Guaranteed 5000 hours at 125℃.

 $(\phi 6.3 : 1000 \text{ hours}, \phi 8, \phi 10 : 2000 \text{ hours})$

Vibration resistance **RVT**

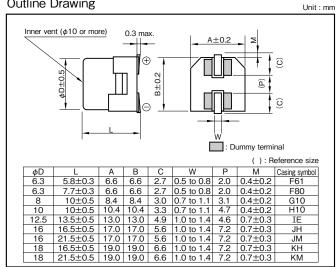


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Specifications

Item	Performance -40 to +125												
Category temperature range (°C)				-40 to ∃	-125								
Tolerance at rated capacitance (%)				±20)					(20℃	120Hz)		
Leakage current (μA) (max.)	0.01	CV or 3 whichever is lar	rger (after 2	minutes) C	: Rated cap	acitance (µ	F), V:Rate	ed voltage (\	V)		(20°C)		
Tangent of loss angle	Rated vo	Itage (V)	10	16	25	35	50	63	80	100			
	Tangent of	loss angle	0.24	0.20	0.16	0.14	0.14	0.12	0.12 0.10				
(tanδ)	0.02 is added to every 10	0.02 is added to every 1000μF increase over 1000μF (20°C,120Hz											
	Rated vo	Itage (V)	10	16	25	35	50	63	80	100			
Characteristics at high	Impedance ratio (max.)	Z-25°C/Z+20°C	3	2	2	2	2	2	2	2			
and low temperature	impedance ratio (max.)	Z-40°C/Z+20°C	4	3	3	3	3	3	3	3			
										(120Hz)		
Endurance (125°C)	Test	time			2000 ho	urs (φ6.3) urs (φ8, φ urs (φ12.5							
(Applied ripple current)	Leakage	current	The initial specified value or less										
, , , ,	Percentage of cap	acitance change	Within ±30% of initial value										
	Tangent of lo	ss angle	300% or less of the initial specified value]		
Shelf life (125°C)	Test time: 1000hours; other items are same as the endurance. Voltage application treatment: According to JIS C5101-4 4.1												
Applicable standards			JIS C510	1-1, -18 (IE	C 60384-1	, -18)							

Outline Drawing



- Soldering conditions are described on page 15.
- · Land pattern size are described on page 13.
- The taping specifications are described on page 16.

Coefficient of Frequency for Rated Ripple Current

Frequency (Hz) Rated voltage (V)	120	1k	10k	100k
10 to 100	0.77	0.88	0.96	1

Part nur \$\phi 6.3 (10\)2			ten	า				
RTT	_	10	٧	221	М	F80	U —	
Series code		Rated voltage symbol		Rated capacitance symbol	Capacitance tolerance symbol	Casing symbol	•	Taping symbol
φ8, φ10 (ε	exam	ole : 35V10	0μF)					
RTT	_	35	٧	101	M	H10	$\mathop{\rm SU}\nolimits -$	
Series code		Rated voltage symbol		Rated capacitance symbol	Capacitance tolerance symbol	Casing symbol		Taping symbol
φ 12.5 or m	ore (example : 3	5V10)00μF)				
						1 (1 4		C
RTT	—	35	٧	102	М	KM	I —	[]

If "Standard (terminal)" type is required, please see the series RVT of page 80.



VERTICAL CHIP TYPE ALUMINUM ELECTROLYTIC CAPACITORS

Standard Ratings

Rated voltage (V)		10)			16	;			25	5			35	5			50)	
Rated Item	Case	ESR (Ω max.)	Rated ripple current	Case	ESR (Ω max.)	Rated ripple current	Case	ESR (Ω max.)	Rated ripple current	Case	ESR (Ω max.)	Rated ripple current	Case	ESR (Ω max.)	Rated ripple current
capacitance (µF)	φD×L (mm)	20℃	– 40°C	(mArms)	φD×L (mm)	20℃	– 40°C	(mArms)	$\phi D \times L$ (mm)	20°C	– 40°C	(mArms)	φD × L (mm)	20°C	– 40°C	(mArms)	φD×L (mm)	20℃	- 40°C	(mArms)
10	_	-	-	_	-	-	-	-	-	-	_	-	6.3×5.8	1.0	15	114	6.3×5.8	3.2	48	58
22	_	-	-	_	-	_	-	-	6.3×5.8	1.0	15	114	6.3×5.8	1.0	15	114	6.3×7.7	1.2	18	95
33		_	_	_	6.3×5.8	1.0	15	114	6.3×5.8	1.0	15	114	6.3×7.7	0.60	9.0	165	6.3×7.7	1.2	18	95
33	_	_	_	_	6.3×5.6	1.0	15	114	0.3×5.6	1.0	15	114	0.3×1.1	0.60	9.0	105	8×10	0.50	7.5	180
47			_	_	6.3×5.8	1.0	15	114	6.3×7.7	0.60	9.0	165	6.3×7.7	0.60	9.0	165	8×10	0.50	7.5	180
47					0.3/5.6	1.0	15	114	0.5~7.7	0.00	9.0	103	8×10	0.20	2.0	340	10×10	0.30	4.5	280
100	_	_	_	_	_	_	_	_	6.3×7.7	0.60	9.0	165	8×10	0.20	2.0	340	10×10	0.30	4.5	280
100									8×10	0.20	2.0	340	10×10	0.15	1.5	500	12.5×13.5	0.18	2.7	550
220	6.3×7.7	0.60	9.0	165	8×10	0.20	2.0	340	8×10	0.20	2.0	340	8×10	0.20	2.0	340	12.5×13.5	0.18	2.7	550
220	0.3^7.7	0.00	9.0	105	10×10	0.15	1.5	500	10×10	0.15	1.5	500	10×10	0.15	1.5	500	12.5^15.5	0.16	2.1	550
330	8×10	0.20	2.0	340	10×10	0.15	1.5	500	10×10	0.15	1.5	500	12.5×13.5	0.086	1.29	750	16×16.5	0.12	1.8	850
330	10×10	0.15	1.5	500	10×10	0.15	1.5	500	12.5×13.5	0.086	1.29	750	16×16.5	0.060	0.90	1000	10×10.5	0.12	1.0	850
470	10×10	0.15	1.5	500	12.5×13.5	0.086	1.29	750	12.5×13.5	0.086	1.29	750	16×16.5	0.060	0.90	1000	18×16.5	0.10	1.5	920
470	10×10	0.15	1.5	500	12.5×13.5	0.066	1.29	750	16×16.5	0.060	0.90	1000	16×16.5	0.060	0.90	1000	16×10.5	0.10	1.5	920
680	12.5×13.5	0.086	1.29	750	12.5×13.5	0.086	1.29	750	16×16.5	0.060	0.90	1000	18×16.5	0.050	0.75	1200	_	_		_
080	12.5×13.5	0.000	1.29	750	16×16.5	0.060	0.90	1000	18×16.5	0.050	0.75	1200	16/10.5	0.050	0.75	1200	-			
1000	12.5×13.5	0.086	1.29	750	18×16.5	0.050	0.75	1200	18×21.5	0.042	0.63	1550	18×21.5	0.042	0.63	1550	-	-	-	-
2200	16×16.5	0.060	0.90	1000	18×16.5	0.050	0.75	1200	-	-	_	_	_	-	-	-	-	_	-	-
3300	18×16.5	0.050	0.75	1200	18×21.5	0.042	0.63	1550	-	-	-	_	_	-	-	-	-	_	-	-
4700	18×21.5	0.042	0.63	1550	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Rated voltage (V		63	3			80)			10	0	
Rated Item		ESR (Ω max.)	Rated ripple current	Case	ESR (Ω max.)	Rated ripple current	Case	ESR (Ω max.)	Rated ripple current
capacitance (µF)	φD×L(mm)	20°C	- 40°C	(mArms)	φD×L (mm)	20°C	- 40°C	(mArms)	φD×L(mm)	20℃	- 40°C	(mArms)
10	-	-	-	-	8×10	0.75	15	110	8×10	0.75	15	110
22	8×10	0.70	14	140	8×10	0.75	15	110	8×10	0.75	15	110
22	0×10	0.70	14	140	10×10	0.55	11	150	10×10	0.55	11	150
33	8×10	0.70	14	140	8×10	0.75	15	110	10×10	0.55	11	150
33	10×10	0.50	10	200	10×10	0.55	11	150	10×10	0.55	''	150
47	8×10	0.70	14	140					12.5×13.5	0.32	4.8	300
47	10×10	0.50	10	200	_	_	_	_	12.5×13.5	0.32	4.0	300
100	12.5×13.5	0.25	3.75	400	16×16.5	0.24	3.6	480	16×16.5	0.24	3.6	480
220	16×16.5	0.22	3.3	500	16×21.5	0.18	2.7	600	18×21.5	0.16	2.4	700
330	16×16.5	0.22	3.3	500	18×21.5	0.12	1.8	1000	-	-	-	-
470	16×21.5	0.16	2.4	650	-	-	-	-	-	-	-	-

(Note) Rated ripple current : 125°C , 100kHz ESR : 100kHz

RTQ VERTICAL CHIP TYPE ALUMINUM ELECTROLYTIC CAPACITORS



Chip Type 150°C Use, Low ESR, For Vibration Capacitors

- · Compatible with surface mounting.
- For Vibration resistance. (30G guaranteed)
- · Supplied with carrier taping.
- Guaranteed 1000 hours at 150°C.



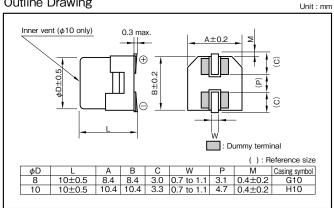


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Specifications

Item			Performan	nce			
Category temperature range (°C)			-40 to +1	150			
Tolerance at rated capacitance (%)			±20			(20	°C,120Hz)
Leakage current (μΑ) (max.)	Less than	0.02CV or 3 whichever is	s larger (after 2 minutes)) C : Rated capacitan	nce (μF) , V : Rated volta	age (V)	(20°C)
	Rated vo	Itage (V)	10	16	25	35	
Tangent of loss angle	tanδ (i	max.)	0.26	0.20	0.16	0.14	
(tanδ)	0.02 is added to every 10	00μF increase over 1000	μF			(20	°C,120Hz)
	Rated vo	tage (V)	10	16	25	35	
Characteristics at high	Impedance ratio (max.)	Z-25°C/Z+20°C	3	2	2	2	
and low temperature	impedance ratio (max.)	Z-40°C/Z+20°C	7	5	3	3	
							(120Hz)
	Test	time		1000 hours			一 「
Endurance (150°C)	Leakage	current		The initial specified	value or less		
(Applied ripple current)	Percentage of cap	acitance change		Within ±30% of initi	ial value		
	Tangent of lo	ss angle		300% or less of the	initial specified value		
Shelf life (150℃)	Test time: 1000h	ours; other items are sam	e as the endurance. V	oltage application trea	atment : According to JI	S C5101-4 4.1	
Applicable standards			JIS C5101-1, -18 (IEC	60384-1, -18)			

Outline Drawing



Coefficient of Frequency for Rated Ripple Current

Frequency (Hz) Rated voltage (V)	120	1k	10k	100k
10 to 35	0.77	0.88	0.96	1

	Part numbering system φ10X10L (example : 35V100μF)								
RTQ —	35	٧	101	М	H10	U	Q	_	
Series code	Rated voltage symbol		Rated capacitance symbol	Capacitance tolerance symbol	Casing symbol		Additional symbol		Taping symbol

- · Soldering conditions are described on page 15.
- · Land pattern size are described on page 13.
- The taping specifications are described on page 16.

Standard Ratings

Rated voltage (V)		1	0	1		1	6		25			
Item	Case	Casing	ESR	Rated ripple current	Case	Casing	ESR	Rated ripple current	Case	Casing	ESR	Rated ripple current
Rated capacitance (µF)	φD×L (mm)	symbol	(Ω max.)	(mArms)	φD×L (mm)	symbol	(Ω max.)	(mArms)	φD×L (mm)	symbol	(Ω max.)	(mArms)
47	_	_	_	_	8 × 10	G10	0.70	120	8 × 10	G10	0.70	120
68	_	_	_	_	8 × 10	G10	0.70	120	8 × 10	G10	0.70	120
100	8 × 10	G10	0.70	120	8 × 10	G10	0.70	120	8 × 10	G10	0.70	120
150	_	_	_	_	10 × 10	H10	0.40	160	10 × 10	H10	0.40	160
220	8 × 10	G10	0.70	120	10 × 10	H10	0.40	160	10 × 10	H10	0.40	160
330	10 × 10	H10	0.40	160	10 × 10	H10	0.40	160	_	_	_	_
470	10 × 10	H10	0.40	160		_	_	_	_		_	

Rated voltage (V)		3	5	
Item	Case	Casing	ESR	Rated ripple current
Rated capacitance (µF)	φD×L (mm)	symbol	(Ω max.)	(mArms)
33	8×10	G10	0.70	120
47	8 × 10	G10	0.70	120
68	8 × 10	G10	0.70	120
100	10 × 10	H10	0.40	160
150	10 × 10	H10	0.40	160

(Note) Rated ripple current : 150°C , 100kHz ; ESR : 20°C , 100kHz

-UMINUM

Conductive Polymer Hybrid Aluminum Electrolytic Capacitors

Aluminum Electrolytic Capacitors With Conductive Polymer Solid Electrolyte

Chip Type Aluminum Electrolytic Capacitors

Aluminum Electrolytic Capacitors

Miniature Type Aluminum Electrolytic Capacitors

Large Capacitance Aluminum Electrolytic Capacitors

Aluminum Electrolytic Capacitors for Audio

R R

CHIP

LUMINUM

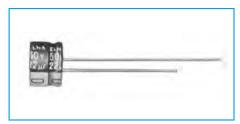
LARGE ALUMINUN

FOR AUDIO

5mm L, Standard Capacitors

• Diameters from $\phi 4$ to $\phi 8$ mm and a height of 5mm.





Marking color : White print on a blue sleeve

Specifications

Item				Perform	nance					
Category temperature range (°C)				-40 to	+85					
Tolerance at rated capacitance (%)				±2	0					(20°C,120Hz)
Leakage current (µA) (max.)	0.010	V or 3 whichever is larg	er (after 2 mi	nutes) C : Ra	ated capacita	ance (μF); V	: Rated volta	age (V)		(20°C)
Tangent of loss angle	Rated vo	oltage (V)	4	6.3	10	16	25	35	50]
(tanδ)	tanδ (max.)	φ4 to φ6.3	0.35	0.24	0.20	0.16	0.14	0.12	0.10]
(tario)	tario (max.)	φ8	0.39	0.28	0.24	0.16	0.14	0.12	0.10	(20°C,120Hz)
Characteristics at high	Rated vo	oltage (V)	4	6.3	10	16	25	35	50]
and low temperature	II	Z-25°C/Z+20°C	6	4	3	2	2	2	2	1
and low temperature	Impedance ratio (max.)	Z-40°C/Z+20°C	16	10	8	6	4	4	4	(120Hz)
	Test	time]						
Endurance (85°C)	Leakage	current			The initial sp	pecified valu	e or less			1
(Applied ripple current)	Percentage of cap	acitance change			Within ±20°	% of initial v	alue			1
	Tangent of th	Tangent of the loss angle			200% or les	s of the initia	al specified v	/alue]
Shelf life (85°C)	Test time: 100	Ohours ; other items are	same as the	endurance.	Voltage app	olication trea	tment : Acco	ording to JIS	C5101-4 4.	1
Applicable standards			JIS C51	01-1, -4 (IE	C 60384-1, ·	-4)				

Outline Drawing

Coefficient of Frequency for Rated Ripple Current

Frequency (Hz) Rated voltage (V)	50 · 60	120	1k	10k • 100k
4 to 16	8.0	1	1.1	1.2
25 to 35	0.8	1	1.5	1.7
50	0.8	1	1.6	1.9

Part numbering system (example : 6.3V100μF)											
RC3	_	6	٧	101	М	F0	# —				
Series code		Rated voltage symbol		Rated capacitance symbol	Capacitance tolerance symbol	Casing symbol	_	Taping (Forming symbol			

						Offit . Hilli
φD+0.5/0		Sleeve nax.	15m	<u> </u>	F±0.5	plated steel wire (tinned)
	φD	4	5	6.3	8	
	F	1.5	2.0	2.5	2.5	
	φd	0.45	0.45	0.45	0.45	
	а	1.0	1.0	1.0	1.0	
	Casing symbol	D0	E0	F0	G0]

Standard Ratings

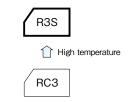
Stariuaru nat	.ii igs													
Rated voltage (V)			6	.3	1	0	1	6	2		3		5	0
Rated Item capacitance (µF)	Case	Rated ripple current (mArms)	Case φD×L (mm)	Rated ripple current (mArms)	Case φD×L (mm)	Rated ripple current (mArms)	Case	Rated ripple current (mArms)	Case φD×L (mm)	Rated ripple current (mArms)	Case φD×L (mm)	Rated ripple current (mArms)	Case φD×L (mm)	Rated ripple current (mArms)
1	_	_	_	_	_	_	_	_	_	_	_	_	4×5	10
2.2	_	_	_	_	_	_	_	_	_	_	4×5	14	4×5	15
3.3	_	_	_	_	_	_	_	_	4×5	15	4×5	17	4×5	18
4.7	_	_	_	_	_	_	4×5	17	4×5	18	4×5	20	5×5	25
10	_	_	4×5	20	4×5	22	4×5	25	5×5	30	5×5	30	6.3×5	40
22	4×5	25	4×5	30	5×5	35	5×5	40	6.3×5	50	6.3×5	55	8×5	75
33	4×5	30	5×5	40	5×5	45	6.3×5	60	6.3×5	65	8×5	80	8×5	90
47	4×5	35	5×5	50	6.3×5	65	6.3×5	70	8×5	95	8×5	100	_	_
100	5×5	60	6.3×5	85	6.3×5	95	8×5	125	8×5	135	_	_	_	_
220	6.3×5	105	8×5	145	8×5	155	_	_	_	_	_	_	_	_
330	8×5	150	8×5	175	_	_	_	_	_	_	_	_	_	_
470	8×5	180	_	_	_	_	_	_	_	_	_	_	_	_

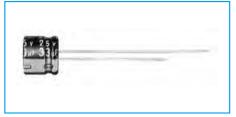
(Note) Rated ripple current : 85°C, 120Hz.

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS R35

5mm L, 105°C Use Capacitors

- Diameters from $\phi 4$ to $\phi 6.3$ mm and a height of 5mm.
- Guarantees 1000 hours at 105℃.



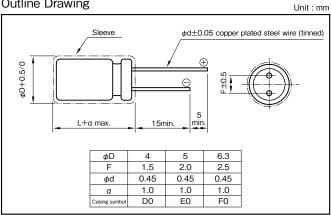


Marking color: White print on a black sleeve

Specifications

Item			F	Performance								
Category temperature range (°C)			_	-55 to +105								
Tolerance at rated capacitance (%)		±20 (20°C,120H										
Leakage current (μA) (max.)	0.0	0.01CV or 3 whichever is larger (after 2 minutes) C : Rated capacitance (µF); V : Rated voltage (V) (20°C)										
Toward of loss and	Rated v	oltage (V)	6.3	10	16	25	35	50	7			
Tangent of loss angle	tanδ	(max.)	0.28	0.24	0.20	0.14	0.12	0.10	7			
(tanδ)		(20										
	Rated v	oltage (V)	6.3	10	16	25	35	50				
Characteristics at high	Impedance ratio (max.)	Z-25°C/Z+20°C	3	3	2	2	2	2				
and low temperature	impedance ratio (max.)	Z-40°C/Z+20°C	8	5	4	3	3	3				
									(120Hz)			
	Test	time		100	0 hours							
Endurance (105°C)	Leakage	current		The	initial specified	value or less			٦			
(Applied ripple current)	Percentage of ca	pacitance change		With	nin ±20% of ini	tial value						
	Tangent of the	Tangent of the loss angle 200% or less of the initial specified value										
Shelf life (105°C)	Test time: 1000h	nours; other items are sa	me as the endur	ance. Voltage	application trea	itment : Accordi	ing to JIS C510)1-4 4.1				
Applicable standards	JIS C5101-1, -4 (IEC 60384-1, -4)											

Outline Drawing



Coefficient of Frequency for Rated Ripple Current

Frequency (Hz) Rated voltage (V)	50.60	120	1k	10k • 100k
6.3 to 16	0.64	0.80	0.92	1
25 to 35	0.57	0.71	0.89	1
50	0.53	0.67	0.90	1

Part number	Part numbering system (example : 16V47μF)									
R3S —	16	V	470	М	F0	# —				
Series code	Rated voltage symbol		Rated capacitance symbol	Capacitance tolerance symbol	Casing symbol		Taping(Forming) symbol			

Standard Ratings

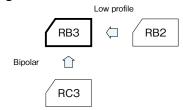
Rated voltage (V)	6	3.3	1	10		16		25	35		50	
Rated Item	Case	Rated ripple current										
capacitance (µF)	φD×L (mm)	(mArms)										
1	_	_	_	_	_	_	_	_	_	_	4×5	11
2.2		_	_	_	1	_	_	_		_	4×5	17
3.3	-	_	_	_	_	_	_	_	4×5	17	4×5	20
4.7	_	_	_	_	4×5	15	4×5	18	4×5	20	5×5	27
10	-	_	4×5	20	4×5	23	5×5	31	5×5	34	6.3×5	45
22	4×5	26	5×5	34	5×5	38	6.3×5	53	6.3×5	57		_
33	5×5	33	5×5	43	6.3×5	56	6.3×5	66		_		_
47	5×5	45	6.3×5	58	6.3×5	65	_		_	_	_	_
100	6.3×5	78	_	_	_	_	_	_	_	_	_	_

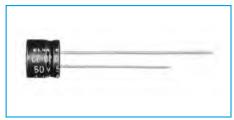
(Note) Rated ripple current : 105°C, 100kHz.



5mm L, Bipolar Capacitors

• Diameters from $\phi 4$ to $\phi 6.3$ mm and a height of 5mm.





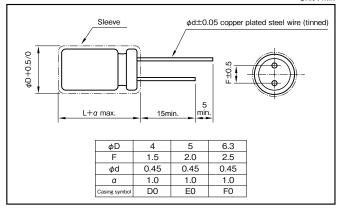
Marking color: White print on a blue sleeve

Specifications

Item				Performance							
Category temperature range (°C)				-40 to +85							
Tolerance at rated capacitance (%)		±20 (20°C,120H									
Leakage current (μA) (max.)		$0.03CV + 3$ (after 5 minutes) C : Rated capacitance (μ F); V : Rated voltage (V) (20%)									
	Rated	voltage (V)	6.3	10	16	25	35	50	7 l		
Tangent of loss angle	tanδ (max.)	φ4	0.35	0.30	0.25	0.20	0.20	0.20	1 1		
(tanδ)	tario (max.)	φ5, 6.3	0.30	0.25	0.20	0.15	0.15	0.15]		
								(20°C,	120Hz)		
	Tes	t time		1000 h	nours (with the p	olarity inverted	every 250 hours	s)]		
Endurance (QE°C)	Leaka	ge current		The init	tial specified va	lue or less			1 1		
Endurance (85°C)	Percentage of	capacitance change Within±20% of initial value							1 1		
	Tangent o	gent of the loss angle 200% or less of the initial specified value									
Applicable standards		JIS C5101-1, -4 (IEC 60384-1, -4)									

Outline Drawing

Unit : mm



Coefficient of Frequency for Rated Ripple Current

Frequency (Hz) Rated voltage (V)	50 · 60	120	1k	10k · 100k
6.3 to 16	0.8	1	1.1	1.2
25 to 35	0.8	1	1.5	1.7
50	0.8	1	1.6	1.9

Part numbering system (example : 10V47μF)										
RB3 —	10	٧	470	М	F0	# —				
Series code	Rated voltage symbol		Rated capacitance symbol	Capacitance tolerance symbol	Casing symbol	_	Taping(Forming) symbol			

Standard Ratings

Rated voltage (V)	6	i.3	1	0	1	6	2	25	3	35	Ę	50
Rated Item	Case	Rated ripple current	Case	Rated ripple current								
capacitance (µF)	φD×L (mm)	(mArms)	ϕ D×L (mm)	(mArms)								
0.33	_	_	_	_	_	_	_	_	_	_	4×5	4
0.47	_	_	_	_	_	_	_	_	_	_	4×5	5
1		_		_	_	_	_	_		_	4×5	7
2.2		_		_	_	_	_	_	4×5	11	5×5	14
3.3	_	_	_	_	_	_	4×5	13	5×5	17	6.3×5	20
4.7		_	_	_	4×5	14	5×5	21	6.3×5	24	6.3×5	24
10			4×5	18	5×5	26	6.3×5	35	6.3×5	35	_	
22	5×5	31	6.3×5	40	6.3×5	45	_	_	_	_	_	_
33	6.3×5	45	6.3×5	49	_	_	_	_	_	_	_	_
47	6.3×5	54	6.3×5	59	_	_	_	_	_	_	_	_

(Note) Rated ripple current : 85°C, 120Hz.

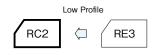


MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS RC2

7mm L, Standard Capacitors



- Diameters from $\phi 4$ to $\phi 8$ mm and a height of 7mm.
- Guarantees 1000 hours at 85℃.



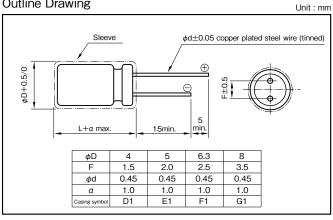


Marking color: White print on a blue sleeve

Specifications

Item				Perfor	mance							
Category temperature range (°C)				-40 t	o +85							
Tolerance at rated capacitance (%)				±	20						(20°C,	,120Hz)
Leakage current (μA) (max.)	0.0	0.01CV or 3 whichever is larger (after 2 minutes) C: Rated capacitance (µF); V: Rated voltage (V) (20°										(20°C)
Tangent of loss angle	Rated vo	Itage (V)	4	6.3	10	16	25	35	50	63	100	
(tanδ)	tanδ	tanδ (max.)				0.16	0.14	0.12	0.10	0.08	0.08	1
(tario)											(20°C,	,120Hz)
	Rated vo	Itage (V)	4	6.3	10	16	25	35	50	63	100	1
Characteristics at high	Impedance ratio (max.)	Z-25°C/Z+20°C	6	4	3	2	2	2	2	2	2	
and low temperature	impedance ratio (max.)	Z-40°C/Z+20°C	16	10	8	6	4	4	4	4	4	
											((120Hz)
	Test	time			10	00 hours						1
Endurance (85°C)	Leakage	current			Th	e initial sp	ecified val	ue or less				1
(Applied ripple current)	Percentage of cap	acitance change			Wi	thin ±20%	of initial	value				1
	Tangent of the loss angle 200% or less of the initial specified value]					
Shelf life (85°C)	Test time: 1000hours; other items are same as the endurance. Voltage application treatment: According to JIS C5101-4 4.1											
Applicable standards	JIS C5101-1, -4 (IEC 60384-1, -4)											

Outline Drawing



Coefficient of Frequency for Rated Ripple Current

Frequency (Hz) Rated voltage (V)	50.60	120	1k	10k • 100k
4 to 16	0.8	1	1.1	1.2
25 to 35	0.8	1	1.5	1.7
50 to 100	0.8	1	1.6	1.9

Part num	Part numbering system (example : 10V220µF)													
RC2 -	_ 10	٧	221	М	G1	#		_						
Series code	Rated voltage symbol	F	Rated capacitance symbol	Capacitance tolerance symbol	Casing symbol		Optional symbol		Taping(Forming) symbol					

Standard Ratings

_																		
Rated voltage (V)	4	ļ	6.	.3	1	0	1	6	2	5	3	5	5	0	6	3	1 1	00
Rated Item	Case	Rated ripple current																
capacitance (µF)	φD×L (mm)	(mArms)																
1	_	_	_	_	_	_	_	_	_	_	_	_	4×7	10	4×7	10	4×7	12
2.2	_	_	_	_	_	_	_	_	_	_	_	_	4×7	15	4×7	15	5×7	20
3.3	_	_	_	1	_	_	_	_	4×7	15	4×7	15	4×7	20	4×7	23	6.3×7	30
4.7	_	_	_	_	_	_	_	_	4×7	20	4×7	20	4×7	24	5×7	30	6.3×7	35
10	_	_	_	-	_	_	4×7	25	4×7	30	4×7	30	5×7	40	6.3×7	50	_	_
22	_	_	4×7	35	4×7	35	4×7	40	5×7	50	5×7	55	6.3×7	70	_	_	_	_
33	4×7	35	4×7	40	4×7	45	5×7	55	6.3×7	70	6.3×7	75	8×7	100	_	_	_	_
47	4×7	40	4×7	50	5×7	60	5×7	70	6.3×7	85	8×7	110	_	_	_	_	_	_
100	5×7	70	5×7	80	6.3×7	105	6.3×7	120	8×7	145	_	_	_	_	_	_	_	_
220	6.3×7	120	6.3×7	140	8×7	185	8×7	205	_	_	_	_	_	_	_	_	_	_
330	8×7	170	8×7	205	_	_	_	_	_	_	_	_	_	_	_	_	_	_

(Note) Rated ripple current : 85°C, 120Hz.



R2S MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS



7mm L, 105°C Use Capacitors



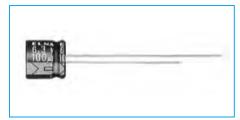


- Diameters from $\phi 4$ to $\phi 6.3$ mm and a height of 7mm.
- Guarantees 1000 hours at 105℃.

R2S

High temperature

RC2

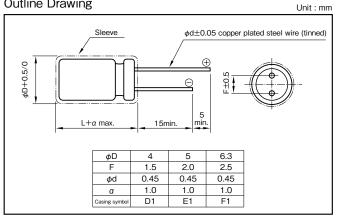


Marking color: White print on a black sleeve

Specifications

Item			F	Performance									
Category temperature range (°C)			_	55 to +105					\neg				
Tolerance at rated capacitance (%)				±20				(20°C,	,120Hz)				
Leakage current (μA) (max.)	0.01	CV or 3 whichever is lar	ger (after 2 min	utes) C : Rated	d capacitance (µ	ıF); V : Rated vo	oltage (V)		(20℃)				
Tangent of loss angle	Rated vo	oltage (V)	6.3	10	16	25	35	50	7 J				
	tanδ ((max.)	0.22	0.19	0.16	0.14	0.12	0.10	7 !				
(tanδ)								(20°C,	,120Hz)				
	Rated vo	oltage (V)	6.3	10	16	25	35	50	۱ ۲				
Characteristics at high	Impedance ratio (max.)	Z-25°C/Z+20°C	3	3	2	2	2	2] !				
and low temperature	impedance ratio (max.)	Z-40°C/Z+20°C	8	5	4	3	3	3] !				
								((120Hz)				
	Test	time		100	00 hours				7 7				
Endurance (105°C)	Leakage	current		The	initial specified	value or less			7 !				
(Applied ripple current)	Percentage of cap	acitance change		With	hin ±20% of ini	tial value] !				
	Tangent of the	e loss angle		200	0% or less of the	initial specified	d value]				
Shelf life (105°C)	Test time: 1000h	Test time: 1000hours; other items are same as the endurance. Voltage application treatment: According to JIS C5101-4 4.1											
Applicable standards			JIS C5101-1	, -4 (IEC 6038-	4-1, -4)								

Outline Drawing



Coefficient of Frequency for Rated Ripple Current

Frequency (Hz) Rated voltage (V)	50.60	120	1k	10k • 100k
6.3 to 16	0.68	0.72	0.92	1
25 to 35	0.48	0.63	0.80	1
50	0.45	0.50	0.70	1

Part numbering system (example : 25V33μF)													
R2S	_	25	٧	330	М	F1	# —						
Series code		Rated voltage symbol		Rated capacitance symbol	Capacitance tolerance symbol	Casing symbol		Taping(Forming) symbol					

Standard Ratings

0 10												
Rated voltage (V)	6	5.3	1	0	-	16	2	25	3	35	į	50
Rated Item	Case	Rated ripple current	Case	Rated ripple current	Case	Rated ripple current	Case	Rated ripple current	Case	Rated ripple current	Case	Rated ripple current
	ϕ D×L (mm)	(mArms)	ϕ D×L (mm)	(mArms)	φD×L (mm)	(mArms)						
1	_	_	_	_	_	_	_	_	_	_	4×7	16
2.2	_	_	_	_	_	_	_	_	_	_	4×7	25
3.3	_	_	_	_	_	_	4×7	21	4×7	23	4×7	28
4.7	_	_	_	_	_	_	4×7	25	4×7	25	5×7	48
10	_	_	_	_	4×7	39	5×7	47	5×7	48	6.3×7	75
22	4×7	42	4×7	49	5×7	54	6.3×7	87	6.3×7	90	_	_
33	5×7	53	5×7	60	6.3×7	83	6.3×7	90	_	_	_	_
47	5×7	64	6.3×7	95	6.3×7	95	_	_	_	_	_	_
100	6.3×7	96		_	_	_	_	_	_	_	_	_

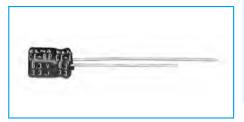
(Note) Rated ripple current : 105°C, 100kHz.

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS RB2

7mm L, Bipolar Capacitors

• Diameters from $\phi 4$ to ϕ 6.3mm and a height of 7mm.



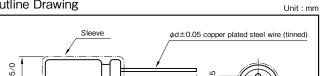


Marking color: White print on a blue sleeve

Specifications

Item		P	erformance					
Category temperature range (°C)		-	-40 to +85					
Tolerance at rated capacitance (%)			±20				(20°C,	,120Hz)
Leakage current (μA) (max.)	0.03CV + 3 (after	er 5 minutes) C : R	ated capacitano	ce (µF) ; V : Rate	ed voltage (V)			(20°C)
Tangent of loss angle	Rated voltage (V)	6.3	10	16	25	35	50	7
tanδ)	tanδ (max.)	0.30	0.25	0.20	0.15	0.15	0.15	1
(tario)							(20°C,	,120Hz)
	Test time		1000 h	ours (with the p	olarity inverted	every 250 hours	s)	
Endurance (85°C)	Leakage current		The init	tial specified val	ue or less			
Endurance (65 C)	Percentage of capacitance change		Within	±20% of initial	value			1
	Tangent of the loss angle		200% (or less of the ini	tial specified va	llue]
Applicable standards		JIS C5101-	1, -4 (IEC 6038	84-1, -4)				

Outline Drawing



→ L+	α max.	15m	nin. mir	<u>).</u>
	φD	4	5	6.3
	F	1.5	2.0	2.5
	φd	0.45	0.45	0.45
	α	1.0	1.0	1.0
	Casing symbol	D1	E1	F1

Coefficient of Frequency for Rated Ripple Current

Frequency (Hz) Rated voltage (V)	50.60	120	1k	10k • 100k
6.3 to 16	0.8	1	1.1	1.2
25 to 35	0.8	1	1.5	1.7
50	0.8	1	1.6	1.9

Part nun	Part numbering system (example: 16V47μF)													
RB2	_	16	٧	470	М	F1	# —							
Series code		Rated voltage symbol		Rated capacitance symbol	Capacitance tolerance symbol	Casing symbol		Taping(Forming) symbol						

Standard Ratings

Rated voltage (V)	6	5.3	1	0	1	16	2	25	3	35	Ę	50
Item	Case	Rated ripple current	Case	Rated ripple current	Case	Rated ripple current						
Rated capacitance (µF)	φD×L (mm)	(mArms)	ϕ D×L (mm)	(mArms)	φD×L (mm)	(mArms)						
0.33	_	_	_	_	_	_	_	_	_	_	4×7	5
0.47	_	_	_	_	_	_	_	_		_	4×7	6
1	_	_	_	_	_	_	_	_		_	4×7	9
2.2	_	_	_	_	_	_	_	_	4×7	14	5×7	16
3.3	_	_	_	_	_	_	4×7	17	5×7	19	5×7	19
4.7	_	_	_	_	4×7	17	5×7	23	5×7	23	6.3×7	27
10	_	_	4×7	23	5×7	29	6.3×7	39	6.3×7	39	_	_
22	5×7	35	5×7	39	6.3×7	50	6.3×7	58	_	_	_	_
33	5×7	43	6.3×7	55	6.3×7	61	6.3×7	71		_	_	_
47	6.3×7	60	6.3×7	66	6.3×7	73	_	_	_	_	_	_

(Note) Rated ripple current : 85°C, 120Hz.

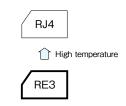
RE3 MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

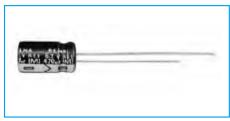


Standard Capacitors



• Guarantees 2000 hours at 85℃.



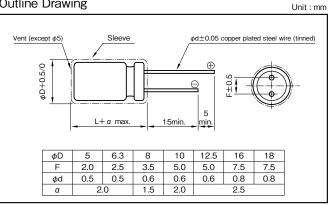


Marking color: White print on a blue sleeve

Specifications

Item							De	rforman									
Category temperature range (°C)							-2	10 to +8	85								
Tolerance at rated capacitance (%)								±20								(20°C,120Hz)
	Rate	ed voltage (V)				6.3 to	100						160) to 450)		
Leakage current (μΑ)	Leaka	age current (µA) (max.)			r 4 which r 3 which				,				: 0.1C\ : 0.04C	,		inute) minute)	
	C : Rated c	apacitance (μF) V:	Rated v	oltage (V)												(20°C)
Tangent of loss angle	Rate	ed voltage (V)	6.3	10	16	25	35	50	63	100	160	200	250	315	350	400	450
(tanδ)	ta	anδ (max.)	0.28	0.24	0.20	0.16	0.14	0.12	0.10	0.08	0.20	0.20	0.20	0.24	0.24	0.24	0.24
	0.02 is add	led to every 1000μF	increas	se over	1000µF											(20°C,120Hz)
	Rate	ed voltage (V)	6.3	10	16	25	35	50	63	100	160	200	250	315	350	400	450
Characteristics at high	Impedance ratio	Z-25°C/Z+20°C	5	4	3	2	2	2	2	2	4	4	4	4	4	4	4
and low temperature	(max.)	Z-40°C/Z+20°C	12	10	8	5	4	3	3	3	15	15	15	10	10	10	10
																	(120Hz)
		Test time							2000	hours							
Endurance (85°C)		Leakage curr	ent						The in	nitial spe	ecified v	alue or	less				
(Applied ripple current)		Percentage of capac	itance	change					Within	±20%	of initia	al value					
		Tangent of the loss angle 200% or less of the initial specified value															
Shelf life (85°C)	Te	Test time: 1000hours; other items are same as the endurance. Voltage application treatment: According to JIS C5101-4 4.1															
Applicable standards						JIS C5	101-1,	-4 (IEC	60384-	1, -4)							

Outline Drawing



Coefficient of Frequency for Rated Ripple Current

Rated voltage (V)	Frequency (Hz)	50.60	120	1k	10k	100k
6.3 to 16	All CV value	8.0	1	1.1	1.2	1.2
25 to 35	≦1000	0.8	1	1.5	1.7	1.7
25 10 35	1000<	0.8	1	1.2	1.3	1.3
50 to 100	≦1000	0.8	1	1.6	1.9	1.9
30 10 100	1000<	0.8	1	1.2	1.3	1.3
160 to 450	All CV value	0.8	1	1.3	1.5	1.6

Part nur	nbe	ering sys	ste	m (exam	ple : 16	V10	00)μF)		
RE3	_	16	٧	102	М	H4	#		_	
Series code	- •	Rated voltage symbol	•	Rated capacitance symbol	Capacitance tolerance symbol	Casing symbol		Optional symbol		Taping(Forming) symbol

Casing symbol

0 0.00	,,		
Size	Casing	Size	Casing
ϕ D×L (mm)	Symbol	ϕ D×L (mm)	Symbol
5×11	E3	12.5×25	I6
6.3×11	F3	16×25	J6
8×11.5	G3	16×31.5	J7
10×12.5	Н3	16×35.5	J8
10×16	H4	18×31.5	K7
10×20	H5	18×35.5	K8
12.5×20	T5	18×40	К9

Standard Ratings

Rated voltage (V)		6.3			10			16			25			35			50			63			100	
Rated Item	Case	ESR	Rated ripple current	Case	ESR	Rated ripple current	Case	ESR	Rated ripple current															
capacitance (µF)	φD×L (mm)	(Ω)	(mArms)	φD×L (mm)	(Ω)	(mArms)	φD×L (mm)	(Ω)	(mArms)															
1	_	_	_	_	_	_	_	_	_	_	_	-	_	_	_	5×11	199	21	_	_	_	5×11	133	21
2.2	_	_	-	_	_	_	_	_	_	_	_	-	_	_	-	5×11	90.5	31	_	_	_	5×11	60.3	30
3.3	-	_	_	-	_	_	-	_	_	_	_	-	_	_	-	5×11	60.3	38	_	_	_	5×11	40.2	40
4.7	_	_	_	-	_	_	_	_	_	5×11	56.5	38	5×11	49.4	40	5×11	42.3	45	5×11	35.3	45	5×11	28.2	45
10	-	_	_	-	_	_	5×11	33.2	50	5×11	26.5	55	5×11	23.2	59	5×11	19.9	66	5×11	16.6	66	6.3×11	13.3	75
22	_	_	-	_	_	_	5×11	15.1	75	5×11	12.1	82	5×11	10.6	87	5×11	9.1	98	5×11	7.5	100	6.3×11	6.0	130
33	_	_	_	-	_	_	5×11	10.1	92	5×11	8.0	100	5×11	7.0	107	5×11	6.0	126	6.3×11	5.0	140	8×11.5	4.0	180
47	_	_	_	5×11	8.5	99	5×11	7.1	110	5×11	5.7	118	5×11	4.9	130	6.3×11	4.2	155	6.3×11	3.5	170	10×12.5	2.8	230
100	_	_	-	5×11	3.8	146	5×11	3.3	160	6.3×11	2.7	199	6.3×11	2.3	214	8×11.5	2.0	260	8×11.5	1.7	298	10×20	1.3	370
220	5×11	2.1	200	6.3×11	1.8	240	6.3×11	1.5	264	8×11.5	1.2	349	10×12.5	1.1	443	10×12.5	0.91	443	10×16	0.75	470	12.5×20	0.60	620
330	6.3×11	1.4	270	6.3×11	1.2	290	8×11.5	1.0	383	10×12.5	0.81	510	10×12.5	0.70	542	10×16	0.60	595	10×20	0.50	710	12.5×25	0.40	760
470	6.3×11	0.99	322	8×11.5	0.85	417	8×11.5	0.71	457	10×12.5	0.57	545	10×16	0.49	664	12.5×20	0.42	887	12.5×20	0.35	900	16×25	0.28	1000
1000	8×11.5	0.47	546	10×12.5	0.40	650	10×16	0.33	791	10×20	0.27	996	12.5×20	0.23	1210	12.5×25	0.20	1400	16×25	0.17	1300	18×40	0.13	1380
2200	10×20	0.23	1010	10×20	0.20	1080	12.5×20	0.17	1350	12.5×25	0.14	1660	16×25	0.12	1950	16×35.5	0.11	2340	_	_	-	_	_	_
3300	10×20	0.16	1230	12.5×20	0.14	1430	12.5×25	0.12	1690	16×25	0.10	2030	16×35.5	0.090	2510	18×35.5	0.080	2810	_	_	_	_	_	_
4700	12.5×20	0.12	1710	12.5×25	0.11	1780	16×25	0.092	2100	16×31.5	0.078	2650	18×35.5	0.071	2990	-	_	_	_	_	_	_	_	_
6800	12.5×25	0.093	1930	16×25	0.083	2200	16×35.5	0.073	2580	18×35.5	0.063	3290	-	_	-	-	_	_	-	_	-	-	-	-
10000	16×25	0.076	2450	16×35.5	0.070	2700	18×35.5	0.063	3130	_	_	-	_	_	-	-	_	_	_	_	-	-	_	-
15000	16×35.5	0.062	2860	18×35.5	0.058	3100	-	_	-	_	-	-	-	_	-	-	-	_	_	_	-	-	-	-
22000	18×40	0.053	3340	-	-	_	-	_	_	ı	-	_	-	ı	-	-	_	_	ı	_	_	-	_	_

Rated voltage (V)		160			200			250			315			350			400			450	
Rated capacitance	φD×L	ESR (Ω)	Rated ripple current	Case _{pD×L}	ESR (Ω)	Rated ripple current (mArms)	Case φD×L	ESR (Ω)	Rated ripple current (mArms)	Case _{pD×L}	ESR (Ω)	Rated ripple current	Case ϕ D×L	ESR (Ω)	Rated ripple current (mArms)	Case _{pD×L}	ESR (Ω)	Rated ripple current	Case ϕ D×L	ESR (Ω)	Rated ripple current
(μF)	(mm)	(52)	(mArms)	(mm)	(52)	(IIIAIIIIS)	(mm)	(22)	(MAMIS)	(mm)	(52)	(mArms)	(mm)	(52)	(MAMIS)	(mm)	(52)	(mArms)	(mm)	(52)	(mArms)
0.47	6.3×11	706	15	6.3×11	706	15	6.3×11	706	15	6.3×11	847	15	6.3×11	847	15	6.3×11	847	15	8×11.5	847	18
1	6.3×11	332	22	6.3×11	332	22	6.3×11	332	22	6.3×11	398	22	6.3×11	398	22	6.3×11	398	22	8×11.5	398	25
2.2	6.3×11	151	32	6.3×11	151	32	6.3×11	151	32	8×11.5	181	38	8×11.5	181	38	8×11.5	181	38	10×12.5	181	43
3.3	6.3×11	101	40	6.3×11	101	40	8×11.5	101	48	10×12.5	121	53	10×12.5	121	53	10×12.5	121	54	10×16	121	59
4.7	6.3×11	70.6	48	8×11.5	70.6	56	8×11.5	70.6	56	10×12.5	84.7	65	10×12.5	84.7	65	10×16	84.7	71	10×20	84.7	76
10	8×11.5	33.2	81	10×12.5	33.2	94	10×16	33.2	101	10×20	39.8	115	10×20	39.8	115	12.5×20	39.8	123	12.5×20	39.8	123
22	10×16	15.1	151	10×20	15.1	170	12.5×20	15.1	182	12.5×20	18.1	182	12.5×25	18.1	197	12.5×25	18.1	197	16×25	18.1	226
33	10×20	10.1	202	12.5×20	10.1	223	12.5×25	10.1	243	16×25	12.1	277	16×25	12.1	277	16×25	12.1	277	16×31.5	12.1	304
47	12.5×20	7.06	266	12.5×20	7.06	265	12.5×25	7.06	295	16×25	8.47	330	16×25	8.47	330	16×31.5	8.47	361	16×35.5	8.47	380
100	12.5×25	3.32	422	16×25	3.32	483	16×31.5	3.32	528	18×31.5	3.98	567	18×31.5	3.98	507	-	_	-	-	_	_
220	16×31.5	1.51	783	18×35.5	1.51	882	-	_	_	_	_	_	-	_	_	-	_	-	-	_	_
330	18×35.5	1.01	1080	_	_	_	-	_	_	-	-	_	_	-	_	_	_	-	_	_	_

(Note) Rated ripple current : 85°C, 120Hz ; ESR. : 20°C, 120Hz

R2B MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS



Standard Bipolar Capacitors

• Guarantees 2000 hours at 85°C.



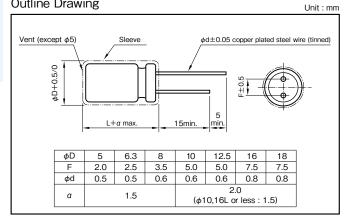


Marking color : White print on a blue sleeve

Specifications

Item				Perfo	rmance								
Category temperature range (°C)				-40	to +85								
Tolerance at rated capacitance (%)				±	±20					(20°C,120Hz)			
Leakage current (µA) (max.)		0.03CV + 3 (a	after 5 minute	s) C : Rated	capacitance	e (μF) ; V : R	ated voltage	(V)		(20°C)			
Tangent of loss angle	Rated v	roltage (V)	6.3	10	16	25	35	50	63	100			
tanδ)	tan δ	(max.)	0.24	0.24	0.20	0.20	0.16	0.14	0.12	0.10			
(tario)	0.02 is added to every 10	000μF increase over 1000	DμF							(20°C,120Hz)			
	Rated v	Rated voltage (V) 6.3 10 16 25 35 50 63 100											
Characteristics at high	Impedance ratio	npedance ratio Z-25°C/Z+20°C 4 3 2 2 2 2 2											
and low temperature	(max.)	Z-40°C/Z+20°C	10	8	6	4	3	3	3	3			
	0.5 for -25°C, 1 for -40	0°C are added to every 10	00μF increas	e over 1000)μF					(120Hz)			
	Tes	t time			2000 hours	(with the po	larity inverted	d every 250 I	hours)				
Endurance (85°C)	Leakag	Leakage current The initial specified value or less											
(Applied ripple current)	Percentage of	Percentage of capacitance change Within ±20% of initial value											
	Tangent of	Tangent of the loss angle 150% or less of the initial specified value											
Shelf life (85°C)	Test time : 1	000hours; other items ar	e same as th	e endurance	. Voltage a	pplication tre	eatment : Ac	cording to JIS	S C5101-4	4.1			
Applicable standards		JIS C5101-1, -4 (IEC 60384-1, -4)											

Outline Drawing



Coefficient of Frequency for Rated Ripple Current

Frequency (Hz) Rated voltage (V)	50.60	120	1k	10k • 100k
6.3 to 16	0.8	1	1.1	1.2
25 to 35	0.8	1	1.5	1.7
50 to 100	0.8	1	1.6	1.9

F	Part nun	nbe	ring sy	ste	m (exampl	le : 10V1	J00h	ιF)	
	R2B	_	10	٧	102	М	I5	# —	
5	Series code		Rated voltage symbol	9	Rated capacitance symbol	Capacitance tolerance symbol	Casing symbol		Taping(Forming) symbol

Casing symbol

Case	Casing	Case	Casing	Case	Casing	Case	Casing
φD×L (mm)	Symbol						
5×11	E3	10×12.5	H3	12.5×20	I5	16×31.5	J 7
6.3×11	F3	10×16	H4	12.5×25	I6	18×35.5	K8
8×11.5	G3	10×20	H5	16×25	J6		

Standard Ratings

•			<u> </u>															
	Rated vo	ltage (V)	6	.3	1	0	1	6	2	:5	3	35	5	0	6	3	10	00
Rated		Item	Case	Rated ripple current														
capacita	nce (µF)		φD×L (mm)	(mArms)														
	1		_	_	_	_	_	_	_	_	_	_	5×11	14	_		5×11	16
	2.2		_		_		_	_	_	_	_	_	5×11	21	5×11	23	5×11	24
	3.3		_	_	_	_	_	_	_	_	_	_	5×11	26	5×11	28	6.3×11	34
	4.7		_	_	_	_	_	_	5×11	28	5×11	28	5×11	31	5×11	34	6.3×11	41
	10		_		_		5×11	39	5×11	40	5×11	42	5×11	45	6.3×11	57	8×11.5	70
	22		-		5×11	52	5×11	58	5×11	60	6.3×11	71	6.3×11	77	8×11.5	89	10×16	136
	33		5×11	58	5×11	63	5×11	71	6.3×11	84	6.3×11	87	8×11.5	111	10×12.5	144	10×20	181
	47		5×11	69	5×11	75	6.3×11	97	6.3×11	100	8×11.5	122	10×12.5	157	10×16	188	12.5×20	248
	100		6.3×11	115	6.3×11	126	8×11.5	167	10×12.5	204	10×12.5	212	10×20	273	12.5×20	343	16×25	458
	220		8×11.5	202	8×11.5	221	10×12.5	294	10×16	332	10×20	375	12.5×25	506	16×25	645	18×35.5	837
	330		8×11.5	247	10×12.5	322	10×16	394	10×20	444	12.5×20	526	12.5×25	620	_	_	_	_
	470		10×12.5	350	10×16	420	10×20	513	12.5×20	607	12.5×25	685	16×25	861	_	_	_	
	1000		10×20	611	12.5×20	767	12.5×25	935	16×25	1120	16×31.5	1270	_	1	_	_	_	_
	2200		12.5×25	1090	16×25	1380	16×31.5	1660	_	_	_	_	_	_	_	_	_	_
	3300		16×25	1490	16×31.5	1760	_	_	_	_	_	_	_	_	_	_	_	_
	4700		16×31.5	1880	18×35.5	2280	_	_	_	_	_	_	_	_	_	_	_	_

(Note) Rated ripple current : 85°C, 120Hz

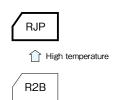


MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS RJP



105°C Bipolar Capacitors

• Guarantees 2000 hours at 105℃.



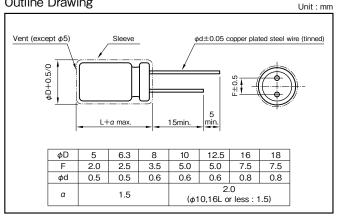


Marking color : White print on a black sleeve

Specifications

•												
Item				Performance								
Category temperature range (°C)				-40 to +10)5							
Tolerance at rated capacitance (%)				±20				(20°C,120Hz)				
Leakage current (μA) (max.)		0.03CV + 3 (a	after 5 minutes) (C : Rated capaci	tance (μF) ; V : I	Rated voltage (V	')	(20°C)				
Tangent of loss angle	Rated v	oltage (V)	6.3	10	16	25	35	50				
tanδ)	tan δ	(max.)	0.4	0.3	0.2	0.2	0.16	0.14				
(tailo)	0.02 is added to every 10	000μF increase over 1000)μF					(20°C,120Hz)				
	Rated v	Rated voltage (V) 6.3 10 16 25 35 50										
Characteristics at high	Impedance ratio	npedance ratio Z-25°C/Z+20°C 5 4 3 2 2 2										
and low temperature	(max.)	Z-40°C/Z+20°C	10	8	6	4	3	3				
	0.5 for −25°C, 1 for −40	°C are added to every 10	00μF increase o	over 1000μF				(120Hz)				
	Tes	time		2000 hours (φ	5 to φ8:1000	hours) with the p	oolarity inverted e	very 250 hours				
Endurance (105°C)	Leakage current The initial specified value or less											
(Applied ripple current)	Percentage of	capacitance change		Within ±20% o	f initial value							
	Tangent of	the loss angle		200% or less of	the initial speci	fied value						
Shelf life (105°C)	Test time: 1	000hours; other items ar	e same as the e	ndurance. Volta	age application t	reatment : Accor	rding to JIS C510)1-4 4.1				
Applicable standards		JIS C5101-1, -4 (IEC 60384-1, -4)										

Outline Drawing



Coefficient of Frequency for Rated Ripple Current

Frequency (Hz) Rated voltage (V)	50 · 60	120	1k	10k • 100k
6.3 to 16	0.8	1	1.1	1.2
25 to 35	0.8	1	1.5	1.7
50	0.8	1	1.6	1.9

Part num	Part numbering system (example : 10V1000µF)											
RJP	_	10	٧	102	М	I5	# —					
Series code		Rated voltage symbol	9	Rated capacitance symbol	Capacitance tolerance symbol	Casing symbol		Taping(Forming) symbol				

Casing symbol

Case	Casing	Case	Casing	Case	Casing	Case	Casing
φD×L (mm)	Symbol						
5×11	E3	10×12.5	H3	12.5×20	I5	16×31.5	J7
6.3×11.5	F3	10×16	H4	12.5×25	J6	18×35.5	K8
8×11.5	G3	10×20	H5	16×25			

Standard Ratings

Rated voltage (V) 6.	.3	1	0	1	6	2	5	3	5	5	
Rated Item	Case	Rated ripple current										
capacitance (µF)	$\phi D \times L(mm)$	(mArms)										
1	_	_	_	_	_	_	_	_	_	_	5 × 11	12
2.2	_	_	_	_	_	_	_	_	_	_	5 × 11	18
3.3	_	_	_	_	_	_	_	_	_	_	5 × 11	22
4.7	_	_	_	_	_	_	_	_	5 × 11	25	5 × 11	22
10	_	_	_	_	5 × 11	30	5 × 11	34	5 × 11	30	6.3 × 11.5	37
22	_	_	5 × 11	42	5 × 11	40	6.3 × 11.5	55	6.3 × 11.5	51	8 × 11.5	63
33	5 × 11	46	5 × 11	45	5 × 11	49	6.3 × 11.5	56	8 × 11.5	72	8 × 11.5	77
47	5 × 11	54	5 × 11	54	6.3 × 11.5	67	6.3 × 11.5	67	8 × 11.5	86	10 × 12.5	105
100	6.3 × 11.5	90	6.3 × 11.5	96	8 × 11.5	110	8 × 11.5	110	10 × 16	160	10 × 20	190
220	8 × 11.5	150	8 × 11.5	150	10 × 12.5	195	10 × 16	215	12.5 × 20	290	12.5 × 25	340
330	8 × 11.5	185	10 × 16	240	10 × 16	265	12.5 × 20	320	12.5 × 20	350	16 × 25	460
470	10 × 12.5	260	10 × 16	290	10 × 20	345	12.5 × 20	380	12.5 × 25	465	16 × 31.5	590
1000	10 × 20	460	12.5 × 20	510	12.5 × 25	605	16 × 25	670	16 × 31.5	805	_	_
2200	12.5 × 25	820	16 × 25	910	16 × 31.5	1070	18 × 35.5	1140	_	_	_	_
3300	16 × 25	1110	16 × 31.5	1200	18 × 35.5	1400	_	_	_	_	_	_
4700	16 × 31.5	1430	18 × 35.5	1520	_	_	_	_	_	_	_	_
6800	18 × 35.5	1830	_	_	_	_	_	_	_	_	_	_

(Note) Rated ripple current : 105°C , 120Hz

105℃

Low Leakage Current Capacitors

•Low leakage current (after 1 minute): 0.006CV or 0.5 (μA).



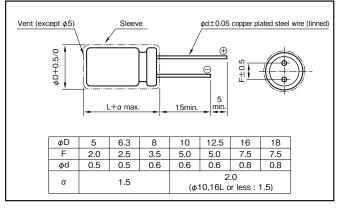
Marking color: White print on a blue sleeve

Specifications

Item			P	erformance						
Category temperature range (°C)			-	-40 to +85						
Tolerance at rated capacitance (%)				±20				(20°	C,120Hz)	
Leakage current (µA)	0.006CV or	r 0.5 whichever is larger	(after 1 minute)							
(max.)	0.002CV or	r 0.3 whichever is larger	(after 2 minutes), C : Rated cap	acitance (µF) ;	V : Rated voltag	ge (V)		(20℃)	
	Rated vol	tage (V)	6.3	10	16	25	35	50	¬	
Tangent of loss angle	. 5()	More than 1µF	0.20	0.17	0.13	0.10	0.10	0.08	–	
(tanδ)	tanδ (max.)	1μF	0.06	0.06	0.06	0.06	0.06	0.06		
								(20°	C,120Hz)	
	Rated vol	tage (V)	6.3	10	16	25	35	50	$\neg \neg$	
Characteristics at high	Innered and a set in (and a)	Z-25°C/Z+20°C	4	3	2	2	2	2	7 1	
and low temperature	Impedance ratio (max.)	Z-40°C/Z+20°C	8	6	4	4	3	3		
									(120Hz)	
	Test tim	ne		1000 h	ours					
Endurance (85°C)	Leakage ci	urrent		The init	ial specified val	ue or less				
(Applied ripple current)	Percentage of cap	Percentage of capacitance change Within ±20% of initial value								
	Tangent of the	loss angle		150% c	or less of the init	ial specified val	ue			
Shelf life (85°C)	Test time: 1000h	ours; other items are sar	me as the endur	ance. Voltage	application trea	tment : Accordi	ng to JIS C510	1-4 4.1		
Applicable standards			JIS C5101-1	, -4 (IEC 60384	l-1, -4)					

Outline Drawing

Unit: mm



Coefficient of Frequency for Rated Ripple Current

Rated voltage (V)	Frequency (Hz)	50.60	120	1k	10k · 100k
6.3 to 10	All CV value	0.8	1	1.1	1.2
16 to 25	≦1000	0.8	1	1.5	1.7
16 (0 25	1000<	0.8	1	1.2	1.3
35 to 50	All CV value	0.8	1	1.6	1.9

Part nu	ımb	ering sys	ster	n (exam	ple : 10V	1000	μF)	
RLB	_	10	٧	102	М	16	# —	
Series code		Rated voltage symbol		Rated capacitance symbol	Capacitance tolerance symbol	Casing symbol		Taping(Forming) symbol

Casing symbol

Case	Casing	Case	Casing	Case	Casing	Case	Casing
φD×L (mm)	symbol						
5×11	E3	10×12.5	H3	12.5×20	I5	16×31.5	J7
6.3×11	F3	10×16	H4	12.5×25	I6	16×35.5	J8
8×11.5	G3	10×20	H5	16×25	J6	18×35.5	K8

Standard Ratings

Rated voltage (V)	6	5.3	1	0	1	6	2	25	3	35		50
Item	Case	Rated ripple current										
Rated capacitance (µF)	φD×L (mm)	(mArms)										
1	_	_	_	_	_	_	_	_	_	_	5×11	20
2.2	_	_	_	_	_	_	_	_	_	_	5×11	26
3.3	_	_	_	_	_	_	_	_	_	_	5×11	32
4.7	_	_	_	_	_	_	5×11	34	5×11	34	6.3×11	43
10	_	_	_	_	5×11	43	6.3×11	57	6.3×11	57	8×11.5	75
22	_	_	5×11	56	6.3×11	74	8×11.5	99	8×11.5	99	10×12.5	131
33	_	_	6.3×11	79	6.3×11	90	8×11.5	121	10×12.5	144	10×16	176
47	_	_	6.3×11	94	8×11.5	127	10×12.5	172	10×12.5	172	10×16	210
100	_	_	8×11.5	160	10×12.5	220	10×16	270	10×20	300	12.5×20	380
220	10×12.5	260	10×16	350	10×20	390	12.5×20	510	12.5×25	550	16×25	720
330	10×16	350	10×20	420	12.5×20	550	12.5×25	680	16×25	790	16×31.5	970
470	10×20	460	12.5×20	570	12.5×20	650	16×25	940	16×25	940	16×35.5	1210
1000	12.5×25	840	12.5×25	910	16×25	1210	16×35.5	1580	18×35.5	1690	_	_
2200	16×25	1440	16×31.5	1710	18×35.5	2200	_	_	_	_	_	_

(Note) Rated ripple current : 85°C, 120Hz



RJ5 MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS



105°C Miniature Capacitors





· Case size is one rank smaller than Series RJ4.



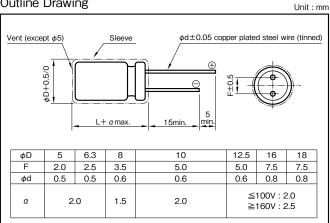


Marking color : White print on a black sleeve

Specifications

Item							Perform	ance									
Category temperature range (°C)		-55~	+105								-	-40~+	105				
Rated voltage (V)		6.3~	100									160~4	50				
Tolerance at rated capacitance (%)							±2	0							(20)	C, 120	Hz)
Leakage current (μA) (max.)	0.03CV or 4 wh 0.01CV or 3 wh				,) (after 1 00 (afte				
(mess)				(: Rated	l capacit	ance (µf	F);V:F	Rated vol	tage (V)						(20	O°C)
Tangent of loss angle	Rated voltage (V)	6.3	10	16	25	35	50	63	100	160	200	250	315	350	400	450	1
tanδ)	tan δ (max.)	0.34	0.26	0.20	0.16	0.14	0.12	0.10	0.08	0.20	0.20	0.20	0.24	0.24	0.24	0.24	
	0.02 is added to every 1000p	02 is added to every 1000μF increase over 1000μF. (20°C, 120Hz										Hz)					
	Rated voltage (V)	6.3	10	16	25	35	50	63	100		160 to	250		315	5 to 450		
Characteristics at high	Impedance Z-25°C/Z+20°C	5	4	3	2	2	2	2	2	4				4			
and low temperature	ratio (max.) Z-40°C/Z+20°C	10	8	6	4	3	3	3	3		15				10		
				•		•		•		•			•			(120	Hz)
	Test time						:	2000 ho	urs (φ5	to φ8,	100V or	less : 10	000 hour	rs)			
Endurance (105°C)	Leakage curre	ent						The initia	al specifi	ed value	or less						
(Applied ripple current)	Percentage of capac	tance c	hange				1	Within ±	20% of	initial va	lue						
	Tangent of the lo	Tangent of the loss angle 200% or less of the initial specified value															
Shelf life (105°C)	Test time: 1000)hours ;	other ite	ms are	same as	the end	urance.	Voltage	applica	tion treat	ment : A	ccordin	g to JIS (C5101-4	4 4.1		_
Applicable standards		Test time: 1000hours; other items are same as the endurance. Voltage application treatment: According to JIS C5101-4 4.1 JIS C5101-1, -4 (IEC 60384-1, -4)															

Outline Drawing



Casing symbol

Size	Casing	Size	Casing	Size	Casing	Size	Casing
ϕ D×L (mm)	Symbol	φD×L (mm)	Symbol	ϕ D×L (mm)	Symbol	φD×L (mm)	Symbol
5×11	E3	10×12.5	НЗ	16×20	J5	18×20	K5
6.3×11	F3	10×16	H4	16×25	J6	18×25	K6
8×11.5	G3	10×20	H5	16×31.5	J7	18×31.5	K7
_	_	12.5×20	I5	16×35.5	J8	18×35.5	K8
_	_	12.5×25	16	_	_	18×40	K9

Coefficient of Frequency for Rated Ripple Current

Rated voltage (V)	Rated capacitance (µF)	50 · 60	120	1k	10k	100k
	1 to 47	0.8	1	1.5	1.7	2.0
6.3 to 100	100 to 220	0.8	1	1.2	1.3	1.4
0.3 10 100	330 to 1000	0.8	1	1.2	1.2	1.3
	2200 to 22000	0.8	1	1.1	1.1	1.1
160 to 450	1 to 470	0.8	1	1.3	1.4	1.6

Part nur	Part numbering system (example : 10V1000μF)											
RJ5	_	10	V	102	М	НЗ	#		_			
Series code		Rated voltage symbol	ge	Rated capacitance symbol	Capacitance tolerance symbol	Casing symbol	-	Optional symbol	-	Taping(Forming) symbol		

In the case of 160V or beyond, should put in optional symbol "B".



Standard Ratings

N.	Rated voltage	(V)	6.3	1	0	1	6	2	5	3	5	5	0	6	3	10	00
	It	em Case	Rated ripple current	Case	Rated ripple current	Case	Rated ripple current	Case	Rated ripple current	Case	Rated ripple current	Case	Rated ripple current	Case	Rated ripple current	Case	Rated ripple current
Rated capacita	ance (µF)	φD×L (m	n) (mArms)	φD×L (mm)	(mArms)	φD×L (mm)	(mArms)	φD×L (mm)	(mArms)	φD×L (mm)	(mArms)	φD×L (mm)	(mArms)	φD×L (mm)	(mArms)	φD×L (mm)	(mArms)
	1	_	_	_	_	_	_	_	-	_	_	5×11	15	_	_	5×11	15
	2.2		_	_	_	_	_	_	_	_	_	5×11	22	_	_	5×11	21
	3.3		_	_	_	_	_	_	_	_	_	5×11	27	_	_	5×11	29
	4.7	_	_	_	_	_	_	_	_	_	_	5×11	32	_	_	5×11	32
	10		_	_	_	_	_	_	-	_	_	5×11	47	_	_	5×11	50
	22		_	_	_	_	_	_	_	_	_	5×11	70	5×11	71	6.3×11	93
	33	_	_	_	_	_	_	_	_	_	_	5×11	90	6.3×11	100	8×11.5	130
	47	_	_	_	_	_	_	_	_	5×11	93	6.3×11	115	6.3×11	120	8×11.5	140
	68		_	_	_	_	_	_	-	6.3×11	110	6.3×11	150	8×11.5	155	10×12.5	190
	100		_	_	_	_	_	5×11	125	6.3×11	151	8×11.5	190	8×11.5	200	10×16	240
	220	_	_	5×11	155	6.3×11	190	6.3×11	200	8×11.5	270	10×12.5	314	10×16	335	12.5×20	390
	330	_	_	6.3×11	210	6.3×11	225	8×11.5	310	10×12.5	384	10×16	421	10×20	510	_	-
	470		_	6.3×11	250	8×11.5	323	10×12.5	429	10×16	470	10×20	540	12.5×20	640	16×25	715
1	1000	8×11	5 398	10×12.5	460	10×12.5	500	10×16	610	12.5×20	857	12.5×25	1000	16×25	930	18×35.5	960
2	2200	10×16	635	10×16	705	10×20	710	12.5×25	1180	16×25	1380	16×31.5	1410	18×35.5	1650	_	_
3	3300	10×20	882	12.5×20	1010	12.5×25	1200	16×25	1440	16×31.5	1500	18×35.5	1990	_	_	_	_
4	4700	12.5×20	1120	12.5×25	1260	16×25	1500	16×25	1570	16×35.5	1780	_	_	_	_	_	_
(6800	12.5×25	1380	16×25	1570	16×25	1600	16×35.5	1850	18×40	2000	_	_	_	_	_	_
10	0000	16×25	1750	16×31.5	1820	16×35.5	1930	18×40	2000	_	_	_	_	_	_	_	_
15	5000	16×31	5 1820	16×35.5	2050	18×40	2210	_	_	_	_	_	_	_	_	_	_
22	2000	18×35	5 2280	18×40	2420	_	_	_	1	_	_	_		_	_	_	_

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS RJ5

Rated voltage (V)	10	-	20	00	25		3	15	35		40	00	45	50
Item	Case	Rated ripple current												
Rated capacitance (µF)	φD×L (mm)	(mArms)												
1	-	_	_	_	_	_	_	_	_	-	-	_	6.3×11	12
2.2	_	_	_	_	_	_	6.3×11	21	6.3×11	21	_	_	8×11.5	20
3.3	_	_	_	_	6.3×11	35	6.3×11	26	6.3×11	26	_	_	10×12.5	41
4.7	_	ı	6.3×11	42	6.3×11	42	8×11.5	35	8×11.5	35	8×11.5	35	10×12.5	49
10	6.3×11	61	8×11.5	72	8×11.5	72	10×16	74	10×16	67	10×16	67	10×20	86
22	10×12.5	125	10×16	135	10×16	135	12.5×20	135	12.5×20	140	12.5×20	140	12.5×25	170
22	10 × 12.5	125	10×10	133	10×20	150	12.5^20	133	12.5^20	140	12.5^20	140	12.5^25	170
33	10×16	170	10×20	185	12.5×20	210	12.5×25	195	12.5×25	195	12.5×25	195	16×20	225
- 33	10×10	170	10 / 20	103	12.5 \ 20	210	12.5 \ 25	195	12.5 \ 25	195	16×20	240	10 / 20	223
47	10×20	220	_	_	12.5×20	250	_	_		_	16×25	350	16×25	296
47	10×20	220	_		12.5^20	250		_	_		18×20	286	10×25	290
68	12.5×25	330	12.5×20	305	16×20	355	18×20	350	16×31.5	390	16×31.5	460	16×31.5	390
- 00	12.5 \ 25	330	12.5 \ 20	303	10/20	333	10/20	330	18×20	350	18×25	380	18×25	380
100	16×20	430	12.5×25	400	16×25	465	16×35.5	500	16×35.5	500	18×31.5	505	18×35.5	540
100	10 / 20	430	16×20	430	18×20	465	18×25	460	18×25	460	10/31.3	303	10 × 33.3	340
120	16×25	510	16×25	510	16×31.5	560	18×31.5	560	18×31.5	560	18×35.5	588	18×40	615
120	18×20	510	18×20	510	10/31.3	300	10/31.3	300	10/31.3	300	10 × 33.3	300	10/40	013
150	16×25	570	16×31.5	625	16×35.5	655	18×35.5	648	18×35.5	648	18×40	688	_	_
100	18×20	570	18×25	615	18×25	615	10,700.0	040	18×40	688	10/40			
180	18×25	675	16×31.5	685	18×31.5	735	18×40	750	_	_	_	_		_
100	10 ^ 25	073	18×25	675	10/31.3	733	10/40	730						
220	18×25	745	16×35.5	790	18×35.5	855	_	_	_	_	_	_	_	_
220	10 ^ 25	743	18×31.5	810	10 × 33.3	000								
330	_	_	18×40	1090	_		_	_	_		_	_	_	_
470	18×40	1300	_		_	_		-		_	_	_	_	_

(Note) Rated ripple current : 105° C, 120Hz ; ESR. : 20° C, 120Hz

RJ4 MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

105°C Miniature Capacitors





· Case size is one rank smaller than Series RJ3.

•Guarantees 2000 hours at 105℃. $(\phi 5 \text{ to } \phi 8 : 1000 \text{ hours})$

Miniaturized RJ4 RJ3



Marking color: White print on a black sleeve

High temperature

RE3

Specifications

Specifications																		
Item							F	erform	ance									
Category temperature range (°C)			−55 t	o +105								-	-40 to -	+105				
Rated voltage (V)			6.3 t	o 100									160 to 4	450				
Tolerance at rated capacitance (%)								±20								(20	°C,120	⊣z)
Leakage current (μA)		0.03CV or 4 wh 0.01CV or 3 wh		_	•) (after 1 100 (afte				
(max.)	C : Rated capacitance (μF) ; V : Rated voltage (V) Rated voltage (V) 6.3 10 16 25 35 50 63 100 160 200 250 315 350 400										(20	°C)						
Tangent of loss angle	Rate	d voltage (V)	6.3	10	16	25	35	50	63	100	160	200	250	315	350	400	450	
(tanδ)	tan δ (max.) 0.28 0.24 0.20 0.16 0.14 0.12 0.10 0.08 0.20 0.20 0.20 0.24								0.24	0.24	0.24							
0.02 is added to every 1000μF increase over 1000μF.											(20	°C,120	Hz)					
	Rate	ed voltage (V)	6.3	10	16	25	35	50	63	100		160 to 2	250		315	5 to 450]
Characteristics at high	Impedance ratio	Z-25°C/Z+20°C	5	4	3	2	2	2	2	2		4				4		
and low temperature	(max.)	Z-40°C/Z+20°C	10	8	6	4	3	3	3	3		15				10		
																	(120	طz)
		Test tim	e						2000 h	nours (φ	5 to φ8 :	1000 h	ours)]
Endurance (105℃)		Leakage cu	urrent						The ini	tial spec	ified valu	e or less	3					
(Applied ripple current) Percentage of capacitance change Within ±20% of initial value												1						
	Tangent of the loss angle 200% or less of the initial specified value																	
Shelf life (105℃)		Test time : 1000	hours ; d	other iter	ns are s	same as t	he endu	rance.	Voltage	applicati	on treatr	nent : Ad	ccording	to JIS C	5101-4	4.1		
Applicable standards						JIS	C5101-	I, -4 (IE	C 60384	l-1, -4)								

Outline Drawing

Vent (except φ5) φd±0.05 copper plated steel wire (tinned) L+α max. 15min 6.3 10 12.5 16 18 F 2.0 2.5 3.5 5.0 5.0 7.5 7.5 0.5 φd 0.5 0.6 0.6 0.6 8.0 8.0

1.5

2.0

2.5

Coefficient of Frequency for Rated Ripple Current

	· · · · · ·					
Rated voltage (V)	Rated capacitance (µF)	50.60	120	1k	10k	100k
	1 to 47	0.8	1	1.5	1.7	2.0
6.3 to 100	100 to 220	8.0	1	1.2	1.3	1.4
0.3 10 100	330 to 1000	0.8	1	1.2	1.2	1.3
	2200 to 22000	0.8	1	1.1	1.1	1.1
160 to 450	1 to 330	8.0	1	1.3	1.4	1.6

Part num	be	ring sys	ste	m (exam	ple : 16	V22	00)μF)		
RJ4	_	16	٧	222	М	I5	#		_	
Series code		Rated voltage symbol		Rated capacitance symbol	Capacitance tolerance symbol	Casing symbol		Optional symbol		Taping(Forming) symbol

Casing symbol

	,,		
Size	Casing	Size	Casing
φD×L (mm)	Symbol	φD×L (mm)	Symbol
5×11	E3	12.5×25	I6
6.3×11	F3	16×25	J6
8×11.5	G3	16×31.5	J7
10×12.5	H3	16×35.5	J8
10×16	H4	18×31.5	K7
10×20	H5	18×35.5	K8
12.5×20	I5	18×40	К9

2.0

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS RJ4

Standard Ratings

Rated voltage (V)		6.3			10			16			25			35			50			63			100	
Rated Item	Case	ESR	Rated ripple current																					
capacitance (µF)	φD×L (mm)	(Ω)	(mArms)																					
1	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	5×11	199	15	_	_	_	5×11	133	15
2.2	_	_	_	_	_	_	_	_	_	_	_	-	_	_	_	5×11	90.5	22	_	_	_	5×11	60.3	21
3.3	_	_	_	_	_	_	_	_	_	-	_	_	_	_	_	5×11	60.3	27	_	_	_	5×11	40.2	29
4.7	_	_	_	_	_	_	_	_	_	5×11	56.5	27	5×11	49.4	30	5×11	42.4	32	_	_	_	5×11	28.2	32
10	_	_	_	_	_	_	5×11	33.2	37	5×11	26.5	39	5×11	23.2	43	5×11	19.9	47	5×11	16.6	46	6.3×11	13.3	54
22	_	_	_	_	_	_	5×11	15.1	54	5×11	12.1	58	5×11	10.6	64	5×11	9.05	70	5×11	7.54	71	6.3×11	6.03	93
33	_	_	_	_	_	_	5×11	10.1	67	5×11	8.04	71	5×11	7.04	78	5×11	6.03	90	6.3×11	5.03	100	8×11.5	4.02	130
47	_	_	_	5×11	8.47	72	5×11	7.06	79	5×11	5.65	84	5×11	4.94	90	6.3×11	4.24	115	6.3×11	3.53	120	10×12.5	2.82	165
100	_	_	_	5×11	3.98	105	5×11	3.32	115	6.3×11	2.65	141	6.3×11	2.32	151	8×11.5	1.99	190	10×12.5	1.66	215	10×20	1.33	265
220	5×11	2.11	140	6.3×11	1.81	166	6.3×11	1.51	190	8×11.5	1.21	247	10×12.5	1.06	314	10×12.5	0.91	314	10×16	0.75	335	12.5×25	0.60	440
330	6.3×11	1.41	195	6.3×11	1.21	210	8×11.5	1.01	271	10×12.5	0.81	360	10×12.5	0.70	384	10×16	0.60	421	10×20	0.50	510	12.5×25	0.40	540
470	6.3×11	0.99	232	8×11.5	0.85	325	8×11.5	0.71	323	10×12.5	0.57	429	10×16	0.50	470	12.5×20	0.42	628	12.5×20	0.35	640	16×25	0.28	715
1000	8×11.5	0.47	398	10×12.5	0.40	457	10×16	0.33	560	10×20	0.27	705	12.5×20	0.23	857	12.5×25	0.20	1000	16×25	0.17	930	18×40	0.13	985
2200	10×20	0.23	720	10×20	0.20	761	12.5×20	0.17	961	12.5×25	0.14	1180	16×25	0.12	1380	16×35.5	0.11	1660	_	_	_	_	_	_
3300	10×20	0.16	882	12.5×20	0.14	1010	12.5×25	0.12	1200	16×25	0.10	1440	16×35.5	0.09	1780	18×35.5	0.08	1990	_	_	-	_	_	
4700	12.5×20	0.12	1120	12.5×25	0.11	1250	16×25	0.09	1490	16×31.5	0.08	1880	18×35.5	0.07	2120	_	_	_	_	_	_	_	_	_
6800	12.5×25	0.09	1380	16×25	0.08	1570	16×35.5	0.07	1830	18×35.5	0.06	2330	_	_	_	_	_	_	_	_	_	_	_	
10000	16×25	0.08	1750	16×35.5	0.07	1910	18×35.5	0.06	2220	_	_	_	_	_	_	_	_	_	_	_	_	_	_	
15000	16×35.5	0.06	2040	18×35.5	0.06	2190	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	-
22000	18×40	0.05	2390	-	_	_	-	_	_	l	ı	_	ı	_	_	_	_	_	-		_	_	_	_

Rated voltage (V)		160			200			250			315			350			400			450	
Rated Item	Case	ESR	Rated ripple current																		
capacitance (µF)	φD×L (mm)	(Ω)	(mArms)																		
1	6.3×11	332	16	6.3×11	332	16	6.3×11	332	16	6.3×11	398	16	6.3×11	398	16	6.3×11	398	16	8×11.5	398	18
2.2	6.3×11	151	23	6.3×11	151	23	6.3×11	151	23	8×11.5	181	27	8×11.5	181	27	8×11.5	181	27	10×12.5	181	31
3.3	6.3×11	101	28	6.3×11	101	28	8×11.5	101	34	10×12.5	121	38	10×12.5	121	38	10×12.5	121	38	10×16	121	42
4.7	6.3×11	70.6	34	8×11.5	70.6	40	8×11.5	70.6	40	10×12.5	84.7	45	10×12.5	84.7	45	10×16	84.7	50	10×20	84.7	54
10	8×11.5	33.2	58	10×12.5	33.2	66	10×16	33.2	74	10×20	39.8	79	10×20	39.8	79	12.5×20	39.8	87	12.5×20	39.8	87
22	10×16	15.1	107	10×20	15.1	120	12.5×20	15.1	130	12.5×20	18.1	129	12.5×25	18.1	140	12.5×25	18.1	140	16×25	18.1	160
33	10×20	10.1	143	12.5×20	10.1	160	12.5×25	10.1	172	16×25	12.1	196	16×25	12.1	196	16×25	12.1	196	16×31.5	12.1	215
47	12.5×20	7.06	188	12.5×20	7.06	188	12.5×25	7.06	205	16×25	8.47	234	16×25	8.47	234	16×31.5	8.47	256	16×35.5	8.47	269
100	12.5×25	3.32	299	16×25	3.32	342	16×31.5	3.32	374	18×31.5	3.98	401	18×31.5	3.98	401	_	_	_	_	_	-
220	16×31.5	1.51	554	18×35.5	1.51	624	_	_	_	_	_	-	_	_	_	_	_	_	_	_	-
330	18×35.5	1.01	764	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_

(Note) Rated ripple current : 105°C, 120Hz ; ESR. : 20°C, 120Hz

MINIATURE ALUMINUM

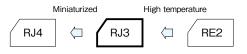
105℃

RJ3 MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS



105°C Use, Standard Capacitors

• Guarantees 2000 hours at 105° C (ϕ 5 to ϕ 8 : 1000 hours).



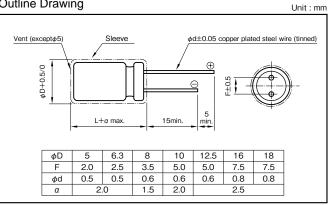


Marking color: White print on a black sleeve

Specifications

Item							Per	formano	e								
Category temperature range (°C)		-5	55 to +1	105								-40	to +10	5			
Rated voltage (V)		6	.3 to 10	0								160	to 400				
Tolerance at rated capacitance (%)								±20								(20°C,	120Hz)
Leakage current (μA) (max.)		03CV or 4 whiche 01CV or 3 whiche				,								ter 1 mir (after 1	,		
(max.)					C :	Rated ca	apacitan	ce (µF)	; V : Rate	ed voltag	ge (V)						(20°C)
Tangent of loss angle	Rate	d voltage (V)	6.3	10	16	25	35	50	63	100	160	200	250	315	350	400	
(tanδ)	ta	ınδ (max.)	0.22	0.19	0.16	0.14	0.12	0.10	0.09	0.08	0.15	0.15	0.15	0.20	0.20	0.20	
	0.02 is add	0.02 is added to every 1000μF increase over 1000μF. (20°C,120H										120Hz)					
	Rate	ed voltage (V)	6.3	10	16	25	35	50	63	100	1	60 to 25	50	3	15 to 40	00]
Characteristics at high	Impedance	Z-25°C/Z+20°C	4	3	2	2	2	2	2	2		3			3		1
and low temperature	ratio	Z-40°C/Z+20°C	_	_	_	_	_	_	_	_		8			6		1
	(max.)	Z-55°C/Z+20°C	8	6	4	3	3	3	3	3		_			_		
						•				•	•			•		(120Hz)
		Test time	<u> </u>						2000 h	nours (φξ	5 to ø8 :	1000 h	ours)]
Endurance (105°C)		Leakage cur								tial spec							
(Applied ripple current)																	
	Tangent of the loss angle 200% or less of the initial specified value										-						
Shelf life (105°C)	Т,	est time : 1000hou	urs ; othe	er items	are sam	e as the	enduran	ce. Vo	Itage apr	olication	treatme	nt : Acco	ording to	JIS C51	01-4 4.	1	
Applicable standards									60384-								

Outline Drawing



Coefficient of Frequency for Rated Ripple Current

Rated voltage (V)	Rated capacitance (µF)	50.60	120	1k	10k	100k
	1 to 4.7	_	0.4	0.7	0.8	1
	10 to 47	_	0.5	0.8	0.9	1
6.3 to 100	100 to 220	_	0.7	0.9	0.9	1
	330 to 1000	_	0.8	0.9	1.0	1
	2200 to 15000	_	0.9	1.0	1.0	1
160 to 400	1 to 220	0.8	1	1.3	1.4	1.6

Part nun	nbe	ering sys	ste	m (exam	ple : 63	V10	00)μF)		
RJ3	_	63	٧	102	М	J7	#		_	
Series code		Rated voltage symbol		Rated capacitance symbol	Capacitance tolerance symbol	Casing symbol		Optional symbol		Taping(Forming) symbol

Casing symbol

Size	Casing	Size	Casing
ϕ D×L (mm)	Symbol	ϕ D×L (mm)	Symbol
5×11	E3	12.5×25	I6
6.3×11	F3	16×25	J6
8×11.5	G3	16×31.5	J7
10×12.5	Н3	16×35.5	J8
10×16	H4	18×35.5	K8
10×20	H5	18×40	K9
12.5×20	I5		



Standard Ratings

Rated v	oltage (V)		6	.3				10			1	6			2	25	
	Item	Case	ESR	Impedance	Rated ripple current	Case	ESR	Impedance	Rated ripple current	Case	ESR	Impedance	Rated ripple current	Case	ESR	Impedance	Rated ripple current
Rated Capacitance	(μF)	φD×L (mm)	(Ω)	(Ω max.)	(mArms)	φD×L (mm)	(Ω)	(Ω max.)	(mArms)	φD×L (mm)	(Ω)	(Ω max.)	(mArms)	φD×L (mm)	(Ω)	(Ω max.)	(mArms)
4	1.7	_	_	_	_	_	_	_	_	_	_	_	_	5×11	49.4	3.0	85
10)	_	_	_	_	_	_	_	_	5×11	26.5	2.5	92	5×11	23.2	2.5	92
22	2	_	_	_	_	5×11	14.3	2.5	92	5×11	12.1	1.9	105	5×11	10.6	1.9	105
33	3	5×11	11.1	2.5	105	5×11	9.55	1.9	105	5×11	8.04	1.5	120	5×11	7.04	1.5	120
47	7	5×11	7.77	1.5	120	5×11	6.71	1.5	120	5×11	5.65	1.2	130	5×11	4.94	1.2	130
100)	5×11	3.65	1.2	130	5×11	3.15	1.2	130	6.3×11	2.65	0.58	220	6.3×11	2.32	0.58	220
220)	6.3×11	1.66	0.87	180	6.3×11	1.43	0.58	220	8×11.5	1.21	0.47	290	8×11.5	1.06	0.39	315
330)	6.3×11	1.11	0.58	220	8×11.5	0.96	0.47	265	8×11.5	0.81	0.39	315	10×12.5	0.70	0.23	500
470)	8×11.5	0.78	0.39	315	8×11.5	0.67	0.39	315	10×12.5	0.57	0.23	500	10×16	0.50	0.18	615
1000	0	10×12.5	0.37	0.23	500	10×16	0.32	0.18	615	10×20	0.27	0.12	825	12.5×20	0.23	0.090	1050
2200	0	12.5×20	0.18	0.095	1000	12.5×20	0.16	0.090	1050	12.5×25	0.14	0.068	1300	16×25	0.12	0.056	1740
3300	0	12.5×20	0.13	0.090	1050	12.5×25	0.12	0.068	1300	16×25	0.10	0.056	1740	16×31.5	0.09	0.045	2110
4700	0	16×25	0.10	0.061	1670	16×25	0.09	0.056	1740	16×31.5	0.08	0.045	2110	18×35.5	0.07	0.036	2580
6800	0	16×25	0.08	0.056	1740	16×31.5	0.07	0.045	2110	18×35.5	0.06	0.036	2580	_	_	_	_
1000	0	16×31.5	0.06	0.045	2110	18×35.5	0.06	0.036	2580	_	_	_	_	_	_	_	_
1500	0	18×35.5	0.05	0.036	2580	_	_	_	_	_	_	_	_	_	_	_	_

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS RJ3

Rated voltage (V)		3	35			į	50			6	:3			1	00	
Item	Case	ESR	Impedance	Rated ripple current	Case	ESR	Impedance	Rated ripple current	Case	ESR	Impedance	Rated ripple current	Case	ESR	Impedance	Rated ripple current
Rated Capacitance (µF)	φD×L (mm)	(Ω)	(Ω max.)	(mArms)	φD×L (mm)	(Ω)	(Ω max.)	(mArms)	φD×L (mm)	(Ω)	(Ω max.)	(mArms)	φD×L (mm)	(Ω)	(Ω max.)	(mArms)
1	_	_	_	_	5×11	166	4.9	35	_	_	_	_	5×11	133	11	45
2.2	_	_	_	_	5×11	75.4	4.2	53	_	_	_	_	5×11	60.3	9.2	60
3.3	_	_	_	_	5×11	50.3	3.9	65	_	_	_	_	5×11	40.2	7.2	67
4.7	5×11	42.4	2.5	92	5×11	35.3	3.6	82	5×11	31.8	5.8	74	5×11	28.2	6.3	75
10	5×11	19.9	1.9	105	5×11	16.6	2.7	100	5×11	14.9	3.6	95	6.3×11	13.3	3.3	110
22	5×11	9.05	1.5	120	5×11	7.54	1.9	125	6.3×11	6.79	2.1	130	8×11.5	6.03	1.4	165
33	5×11	6.03	1.2	130	6.3×11	5.03	1.1	195	6.3×11	4.52	1.7	160	10×12.5	4.02	0.94	305
47	6.3×11	4.24	0.58	220	6.3×11	3.53	0.90	245	8×11.5	3.18	1.2	305	10×16	2.82	0.68	320
100	8×11.5	1.99	0.39	315	8×11.5	1.66	0.50	385	10×12.5	1.49	0.65	395	12.5×20	1.33	0.28	585
220	10×12.5	0.91	0.23	500	10×16	0.75	0.27	505	10×20	0.68	0.32	505	16×25	0.60	0.16	1120
330	10×16	0.60	0.18	615	10×20	0.50	0.18	675	12.5×20	0.45	0.22	660	16×25	0.40	0.13	1290
470	10×20	0.42	0.12	825	12.5×20	0.35	0.12	895	12.5×25	0.32	0.16	850	16×31.5	0.28	0.11	1350
1000	12.5×25	0.20	0.068	1300	16×25	0.17	0.076	1495	16×31.5	0.15	0.098	1430	_	_	_	_
2200	16×31.5	0.11	0.045	2110	18×35.5	0.09	0.050	2190	_	_	_	_	_	_	_	_
3300	18×35.5	0.08	0.036	2580	_	_	_	_	_	_	_	_	_	_	_	_

(Note) Rated ripple current : 105°C, 100kHz ; ESR. : 20°C, 120Hz ; Impedance : 20°C, 100kHz

Rated voltage (V)		160			200			250			315			350			400	
Item	Case	ESR	Rated ripple current															
Rated Capacitance (µF)	φD×L (mm)	(Ω)	(mArms)															
1	6.3×11	248	18	6.3×11	248	18	6.3×11	248	18	6.3×11	331	16	6.3×11	331	18	8×11.5	331	18
2.2	6.3×11	113	26	6.3×11	113	26	8×11.5	113	30	8×11.5	150	27	8×11.5	150	30	10×12.5	150	30
3.3	8×11.5	75.4	37	8×11.5	75.4	37	10×12.5	75.4	43	10×12.5	100	36	10×12.5	100	36	10×16	100	40
4.7	8×11.5	52.9	44	10×12.5	52.9	50	10×12.5	52.9	50	10×16	70.6	47	10×16	70.6	47	10×20	70.6	52
10	10×12.5	24.9	75	10×16	24.9	80	10×20	24.9	90	10×20	33.2	75	12.5×20	33.2	79	12.5×20	33.2	79
22	10×20	11.3	135	10×20	11.3	135	12.5×25	11.3	155	12.5×25	15.1	130	12.5×25	15.1	130	16×25	15.1	130
33	12.5×20	7.54	175	12.5×25	7.54	190	12.5×25	7.54	190	16×25	10.1	160	16×25	10.1	160	16×31.5	10.1	175
47	12.5×25	5.29	230	12.5×25	5.29	230	16×25	5.29	225	16×31.5	7.06	210	16×31.5	7.06	210	18×35.5	7.06	220
100	16×25	2.49	330	16×31.5	2.49	360	18×35.5	2.49	340	18×40	3.32	335	18×40	3.32	335		ı	_
220	18×35.5	1.13	500	18×40	1.13	525	_	_	_	_	_	_	_	_	_	_	_	_

(Note) Rated ripple current : 105°C, 120Hz ; ESR. : 20°C, 120Hz

RJB MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS



105°C Use, Miniature, High-Reliability, Low Impedance Capacitors

- Smaller and higher ripple current than RJH Series.
- Guarantees 5000 hours at 105°C.

 $(\phi \ 5 \ \text{to} \ 6.3 : 2000 \ \text{hours})$

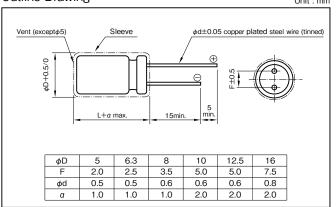
Miniaturized RJB RJH

Marking color: White print on a black sleeve

Specifications

Item				Performan	ice						
Category temperature range (°C)				-55 to +1	05						
Tolerance at rated capacitance (%)				±20						(20°C,120	Hz)
Leakage current (μA) (max.)		0.01CV + 1 (after 2	2 minutes) (C : Rated cap	pacitance (μΕ	F) ; V : Rated	d voltage (V)			(20)°C)
Tangent of loss angle	Rated volt	tage (V)	6.3	10	16	25	35	50	63 0.09 63 3	100	
tanδ)	tanδ (i	max.)	0.22	0.19	0.16	0.14	0.12	0.10	0.09	0.08	
	0.02 is added to every 100	00μF increase over 1000	μF.					•	•	(20°C,120	Hz)
Characteristics at high	Rated volt	tage (V)	6.3	10	16	25	35	50	63	100	
and low temperature	Impedance ratio (max.)	Z-55°C/Z+20°C	3	3	3	3	3	3	3	3	
									0.09	(120	Hz)
Characteristics at high)										
` ,	Leakage	current			The initial sp	pecified valu	e or less				
(друпов прріс світент)	Percentage of capa	acitance change			Within ±20°	% of initial v	alue				
	Tangent of the	e loss angle			200% or les	s of the initia	al specified	value			
	Test t	ime			1000 hours						
	Leakage				The initial sp	pecified valu	e or less				
Shelf life (105°C)	Percentage of capa	acitance change			Within ±15						
	Tangent of the	e loss angle			150% or les	s of the initia	al specified	value			
	Voltage application treatme	ent : According to JIS C5	5101-4 4.1						50 63 0.10 0.09 (2		
Applicable standards			JIS C5	101-1, -4 (IE	C 60384-1,	-4)					

Outline Drawing



Rated Frequency (Hz) capacitance (μF)	120	1k	10k	100k
3.3 to 180	0.40	0.75	0.90	1
220 to 390	0.50	0.85	0.95	1
470 to 1800	0.60	0.88	0.96	1
2200 to 3900	0.75	0.90	0.98	1
4700 to 10000	0.85	0.95	1.00	1

Part num	be	ring sys	te	m (exampl	e:10V10	000μ	F)	
RJB -	_	10	٧	102	М	H4	# —	
Series code		Rated voltage symbol		Rated capacitance symbol	Capacitance tolerance symbol	Casing symbol		Taping(Forming) symbol



Standard Ratings

Rated voltage (V)			6.3					10				(mm) symbol 20°C -10°C			
Item	Case	Casing	Impedano	e (Ω max.)	Rated ripple current	Case	Casing	Impedanc	e (Ω max.)	Rated ripple current	Case	Casing	Impedanc	e (Ω max.)	Rated ripple current
Rated capacitance (µF)	φD×L (mm)	symbol	20°C	-10℃	(mArms)	φD×L (mm)	symbol	20°C	-10°C	(mArms)	φD×L (mm)	symbol	20°C	-10°C	(mArms)
100		_	_	_	_	5×11.5	E3	0.65	1.3	181	_	_	_	_	_
220		_	_	_	_	6.3×11.5	F3	0.32	0.64	290	_	_	_	_	_
330	6.3×11.5	F3	0.32	0.64	290	8×12	G3	0.17	0.34	555	8×12	G3	0.17	0.34	555
470	8×12	G3	0.17	0.34	555	8×12	G3	0.17	0.34	555	10×12.5	Н3	0.12	0.24	760
680	8×12	G3	0.17	0.34	555	10×12.5	НЗ	0.12	0.24	760	10×16	H4	0.080	0.16	1050
1000	10×12.5	НЗ	0.12	0.24	760	10×16	H4	0.080	0.16	1050	10×20	H5	0.062	0.124	1220
2200	10×25	H6	0.052	0.104	1440	12.5×20	15	0.042	0.084	1690	12.5×25	16	0.034	0.068	1950
3300	12.5×20	15	0.042	0.084	1690	12.5×25	16	0.034	0.068	1950	16×25	J6	0.028	0.056	2560
4700	12.5×30	17	0.030	0.060	2310	16×25	J6	0.028	0.056	2560	16×31.5	J7	0.025	0.050	3010
6800	16×25	J6	0.028	0.056	2560	16×31.5	J7	0.025	0.050	3010		_	_	_	_
10000	16×31.5	J7	0.025	0.050	3010	_	_	_	_	_	_	_	_	_	_

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS RJB

Rated voltage (V)			25					35					50		
Item	Case	Casing	Impedano	e (Ω max.)	Rated ripple current	Case	Casing	Impedanc	e (Ω max.)	Rated ripple current	Case	Casing	Impedano	e (Ω max.)	Rated ripple current
Rated capacitance (µF)	φD×L (mm)	symbol	20°C	-10°C	(mArms)	φD×L (mm)	symbol	20°C	-10°C	(mArms)	φD×L (mm)	symbol	20℃	-10°C	(mArms)
22	_	_	_	_			_	_	_	_	5×11.5	E3	0.95	1.9	170
33	_	_	_	_	-	5×11.5	E3	0.65	1.3	181	6.3×11.5	F3	0.46	0.92	260
47	5×11.5	E3	0.65	1.3	181	6.3×11.5	F3	0.32	0.64	290	6.3×11.5	F3	0.46	0.92	260
100	6.3×11.5	F3	0.32	0.64	290	8×12	G3	0.17	0.34	555	8×12	G3	0.21	0.42	485
150	_	_	_	_	_	_	_	_	_	_	10×12.5	НЗ	0.19	0.38	615
220	8×12	G3	0.17	0.34	555	10×12.5	НЗ	0.12	0.24	760	10×16	H4	0.16	0.32	850
330	10×12.5	НЗ	0.12	0.24	760	10×16	H4	0.080	0.16	1050	10×20	H5	0.085	0.17	1050
470	10×16	H4	0.080	0.16	1050	10×20	H5	0.062	0.124	1220	12.5×20	15	0.060	0.12	1500
680	10×20	H5	0.062	0.124	1220	12.5×20	15	0.042	0.084	1690	12.5×25	16	0.045	0.090	1832
1000	12.5×20	15	0.042	0.084	1690	12.5×25	16	0.034	0.068	1950	16×25	J6	0.038	0.076	2240
2200	16×25	J6	0.028	0.056	2560	16×31.5	J7	0.025	0.050	3010	_	_	_	_	-
3300	16×31.5	J7	0.025	0.050	3010	1	_	_	_	_	_	_	_	1	_

Rated voltage (V)			63					100		
Item	Case	Casing	Impedano	e (Ω max.)	Rated ripple current	Case	Casing	Impedanc	e (Ω max.)	Rated ripple current
Rated capacitance (µF)	φD×L (mm)	symbol	20°C	-10℃	(mArms)	φD×L (mm)	symbol	20℃	-10℃	(mArms)
3.3	_	_	_	_	_	5×11.5	E3	1.9	7.6	57
4.7	5×11.5	E3	1.2	3.6	120	5×11.5	E3	1.9	7.6	57
10	5×11.5	E3	1.2	3.6	120	6.3×11.5	F3	1.1	4.4	78
22	6.3×11.5	F3	0.55	1.7	148	8×12	G3	0.53	2.1	275
33	6.3×11.5	F3	0.55	1.7	148	10×12.5	НЗ	0.47	1.9	319
47	8×12	G3	0.32	0.96	360	10×16	H4	0.32	1.3	424
100	10×12.5	Н3	0.23	0.69	448	12.5×20	15	0.13	0.52	805
220	10×20	H5	0.12	0.36	676	16×25	J6	0.081	0.32	1290
330	12.5×20	15	0.075	0.23	979	16×25	J6	0.081	0.32	1290
470	12.5×25	16	0.065	0.20	1180	16×31.5	J7	0.059	0.23	1630
1000	16×31.5	J7	0.042	0.13	1890	_	_	_	_	_

(Note) Rated ripple current : 105°C, 100kHz ; Impedance : 100kHz



RJH MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS



105°C Use, High-Reliability, Low Impedance Capacitors

• Guarantees 5000 hours at 105℃.

 $(\phi 5 \text{ to } 6.3:2000 \text{ hours}; \phi 8 \text{ to } 10:3000 \text{ hours})$



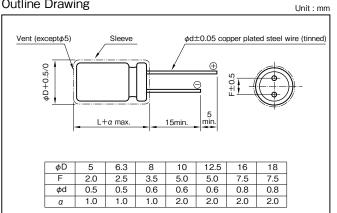


Marking color: White print on a black sleeve

Specifications

Item				Perforn	nance					
Category temperature range (°C)				-55 to	+105					
Tolerance at rated capacitance (%)				±2	0					(20°C,120Hz)
Leakage current (μA) (max.)		0.01CV + 2 (aft	er 2 minutes) C : Rated o	apacitance ([μF) ; V : Rat	ed voltage (V)		(20°C)
Tangent of loss angle	Rated vo	iltage (V)	6.3	10	16	25	35	50	63 0.08 63 2 3	100
tanδ)	tanδ ((max.)	0.22	0.19	0.16	0.14	0.12	0.10	0.08	0.07
(12 1)	0.02 is added to every 10	000μF increase over 1000	μF.			1		1		(20°C,120Hz)
	Rated vo	oltage (V)	6.3	10	16	25	35	50	63	100
Characteristics at high	Impedance ratio	Z-25°C/Z+20°C	2	2	2	2	2	2	2	2
and low temperature	(max.)	Z-55°C/Z+20°C	3	3	3	3	3	3	3	3
										(120Hz)
	Test	time		50		5 to 6.3 : 20 8 to 10 : 30			0.08 63 2	
Endurance (105°C) (Applied ripple current)	Leakage	current			The initial sp	pecified valu	e or less			
(Applied Tipple Current)	Percentage of ca	pacitance change			Within ±20°	% of initial v	alue			
	Tangent of the	ne loss angle			200% or les	s of the initia	al specified	value		
	Test	time			1000 hours					
		current			The initial sp	necified valu	e or less			
Shelf life (105℃)	_	pacitance change			Within ±15					
	Tangent of the				150% or les	s of the initia	al specified	value		
	Voltage application treatm		1 5101-4 4.1							
Applicable standards	<u> </u>		JIS C	5101-14	IEC 60384-	14)				

Outline Drawing



Rated Frequency (Hz) capacitance (µF)	120	1k	10k	100k
1 to 4.7	0.40	0.68	0.78	1
5.6 to 47	0.50	0.76	0.87	1
56 to 270	0.70	0.85	0.90	1
330 to 1000	0.80	0.93	0.98	1
1200 to 15000	0.90	0.95	1.00	1

Part num	nbe	ring sys	te	m (exampl	e : 10V56	300µ	F)	
RJH	_	10	٧	562	М	J7	# —	
Series code		Rated voltage symbol		Rated capacitance symbol	Capacitance tolerance symbol	Casing symbol		Taping(Forming) symbol

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS RJH

Standard Ratings

Rated v	oltage (V)			6.3					10		
Case Cas	Item	Rated capacitance	ESR	Impedance	e (Ω max.)	Rated ripple current	Rated capacitance	ESR	Impedanc	e (Ω max.)	Rated ripple current
	sing symbol	(μF)	(Ω)	20℃	-10°C	(mArms)	(μF)	(Ω)	20℃	-10°C	(mArms)
5×11.5	E3	100	3.65	0.65	1.46	175	82	3.84	0.65	1.46	175
6.3×11.5	F3	220	1.66	0.31	0.70	290	180	1.75	0.31	0.70	290
8×12	G3	470	0.777	0.17	0.38	488	330	0.956	0.17	0.38	488
8×15	G4	680	0.537	0.13	0.29	617	470	0.671	0.13	0.29	617
8×20	G5	1000	0.365	0.095	0.21	800	680	0.464	0.095	0.21	800
10×12.5	НЗ	680	0.537	0.10	0.23	625	470	0.671	0.10	0.23	625
10×16	H4	820	0.446	0.080	0.18	825	560	0.563	0.080	0.18	825
10×20	H5	1200	0.305	0.062	0.14	1010	1000	0.316	0.062	0.14	1010
10×25	H6	1500	0.244	0.052	0.12	1190	1200	0.263	0.052	0.12	1190
10×30	H7	2200	0.181	0.044	0.099	1440	1500	0.211	0.044	0.099	1440
12.5×15	I4	• 1200	0.305	0.062	0.14	1010	• 1000	0.316	0.062	0.14	1010
12.5×20	15	2200	0.181	0.042	0.095	1400	1800	0.176	0.042	0.095	1400
12.5×25	16	2700	0.148	0.034	0.076	1690	2200	0.159	0.034	0.076	1690
12.5×30	17	3900	0.111	0.030	0.068	1950	2700	0.130	0.030	0.068	1950
12.5×35	18	4700	0.099	0.024	0.054	2220	3300	0.116	0.024	0.054	2220
12.5×40	19	5600	0.089	0.021	0.047	2390	3900	0.098	0.021	0.047	2390
16×16	J4	• 2700	0.148	0.046	0.10	1310	• 1800	0.176	0.046	0.10	1310
16×20	J5	• 4700	0.099	0.034	0.077	1660	• 3300	0.116	0.034	0.077	1660
16×25	J6	5600	0.089	0.028	0.063	2070	3900	0.098	0.028	0.063	2070
16×31.5	J7	6800	0.079	0.025	0.056	2350	5600	0.080	0.025	0.056	2350
16×35.5	J8	8200	0.073	0.022	0.050	2550	6800	0.071	0.022	0.050	2550
16×40	J9	12000	0.059	0.018	0.041	2970	8200	0.067	0.018	0.041	2970
18×16	K4	• 3300	0.131	0.043	0.097	1460	• 2200	0.159	0.043	0.097	1460
18×20	K5	• 5600	0.089	0.030	0.068	1850	• 3900	0.098	0.030	0.068	1850
18×25	K6	• 6800	0.079	0.027	0.061	2120	• 4700	0.089	0.027	0.061	2120
18×31.5	K7	10000	0.064	0.023	0.052	2410	6800	0.071	0.023	0.052	2410
18×35.5	K8	12000	0.059	0.019	0.043	2680	8200	0.067	0.019	0.043	2680
18×40	К9	15000	0.054	0.017	0.038	3010	10000	0.059	0.017	0.038	3010

Rated v	oltage (V)			16					25		
Case Case	Item	Rated capacitance	ESR	Impedance	e (Ω max.)	Rated ripple current	Rated capacitance	ESR	Impedance	e (Ω max.)	Rated ripple current
	sing ymbol	(μF)	(Ω)	20°C	-10°C	(mArms)	(μF)	(Ω)	20℃	-10°C	(mArms)
5×11.5	E3	56	4.74	0.65	1.46	175	39	5.96	0.65	1.46	175
6.3×11.5	F3	120	2.21	0.31	0.70	290	82	2.83	0.31	0.70	290
8×12	G3	270	0.983	0.17	0.38	488	180	1.29	0.17	0.38	488
8×15	G4	330	0.805	0.13	0.29	617	220	1.06	0.13	0.29	617
8×20	G5	470	0.565	0.095	0.21	800	330	0.704	0.095	0.21	800
10×12.5	НЗ	330	0.805	0.10	0.23	625	220	1.06	0.10	0.23	625
10×16	H4	390	0.681	0.080	0.18	825	270	0.861	0.080	0.18	825
10×20	H5	680	0.391	0.062	0.14	1010	470	0.495	0.062	0.14	1010
10×25	H6	820	0.324	0.052	0.12	1190	560	0.415	0.052	0.12	1190
10×30	H7	1200	0.222	0.044	0.099	1440	820	0.284	0.044	0.099	1440
12.5×15	14	• 680	0.391	0.062	0.14	1010	• 470	0.495	0.062	0.14	1010
12.5×20	15	1200	0.222	0.042	0.095	1400	820	0.284	0.042	0.095	1400
12.5×25	16	1500	0.177	0.034	0.076	1690	1000	0.233	0.034	0.076	1690
12.5×30	17	2200	0.136	0.030	0.068	1950	1500	0.155	0.030	0.068	1950
12.5×35	18	2700	0.111	0.024	0.054	2220	1800	0.130	0.024	0.054	2220
12.5×40	19	3300	0.101	0.021	0.047	2390	2200	0.121	0.021	0.047	2390
16×16	J4	• 1500	0.177	0.046	0.10	1310	· 820	0.284	0.046	0.10	1310
16×20	J5	• 2200	0.136	0.034	0.077	1660	• 1500	0.155	0.034	0.077	1660
16×25	J6	2700	0.111	0.028	0.063	2070	1800	0.130	0.028	0.063	2070
16×31.5	J7	3900	0.086	0.025	0.056	2350	2700	0.099	0.025	0.056	2350
16×35.5	J8	4700	0.078	0.022	0.050	2550	3300	0.091	0.022	0.050	2550
16×40	J9	5600	0.072	0.018	0.041	2970	3900	0.077	0.018	0.041	2970
18×16	K4	• 1500	0.177	0.043	0.097	1460	• 1200	0.194	0.043	0.097	1460
18×20	K5	• 2700	0.111	0.030	0.068	1850	• 1800	0.130	0.030	0.068	1850
18×25	K6	• 3900	0.086	0.027	0.061	2120	• 2700	0.099	0.027	0.061	2120
18×31.5	K7	4700	0.078	0.023	0.052	2410	3300	0.091	0.023	0.052	2410
18×35.5	K8	6800	0.064	0.019	0.043	2680	3900	0.077	0.019	0.043	2680
18×40	K9	8200	0.061	0.017	0.038	3010	4700	0.071	0.017	0.038	3010

(Note) Rated ripple current : 105°C, 100kHz ; ESR. : 20°C, 120Hz ; Impedance : 100kHz

^{•:} The black circles in the capacitance column denote semi-standard products.

[•] The standard ratings follow the next page.



RJH MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Standard Ratings

	oltage (V)			35					50		
Case Casi	ng Item	Rated capacitance	ESR	Impedance	e (Ω max.)	Rated ripple current	Rated capacitance	ESR	Impedance	e (Ω max.)	Rated ripple current
φD×L (mm)	ymbol	(μF)	(Ω)	20℃	-10°C	(mArms)	(μF)	(Ω)	20°C	-10°C	(mArms)
5×11.5	E3	_	_	_	_	_	1	166	3.5	7.0	36
5×11.5	E3	_	_	_	_	_	2.2	75.4	3.0	6.0	54
5×11.5	E3	_	_	_	_	_	3.3	50.3	2.6	5.2	63
5×11.5	E3	_	_	_	_	_	4.7	35.3	2.2	4.4	75
5×11.5	E3	_	_	_	_	_	10	16.6	1.4	2.8	110
5×11.5	E3	27	7.37	0.65	1.46	175	18	9.22	0.95	1.9	120
6.3×11.5	F3	56	3.56	0.31	0.70	290	39	4.25	0.43	0.86	148
8×12	G3	120	1.66	0.17	0.38	488	68	2.44	0.20	0.40	360
8×15	G4	180	1.11	0.13	0.29	617	82	2.02	0.18	0.36	460
8×20	G5	220	0.905	0.095	0.21	800	120	1.38	0.13	0.26	670
10×12.5	Н3	150	1.33	0.10	0.23	625	82	2.02	0.18	0.36	443
10×16	H4	180	1.11	0.080	0.18	825	100	1.66	0.15	0.30	553
10×20	H5	330	0.604	0.062	0.14	1010	180	0.922	0.085	0.17	676
10×25	H6	390	0.511	0.052	0.12	1190	220	0.754	0.075	0.15	876
10×30	H7	560	0.356	0.044	0.099	1440	330	0.503	0.055	0.11	1010
12.5×15	I4	• 330	0.604	0.062	0.140	1010	• 180	0.922	0.095	0.19	745
12.5×20	I5	560	0.356	0.042	0.095	1400	330	0.503	0.060	0.12	979
12.5×25	I6	680	0.293	0.034	0.076	1690	470	0.353	0.044	0.088	1180
12.5×30	I7	1000	0.200	0.030	0.068	1950	560	0.297	0.040	0.080	1310
12.5×35	18	1200	0.166	0.024	0.054	2220	680	0.244	0.036	0.072	1470
12.5×40	I9	1500	0.133	0.021	0.047	2390	820	0.203	0.034	0.068	1590
16×16	J4	• 560	0.356	0.046	0.10	1310	• 330	0.503	0.065	0.13	982
16×20	J5	• 1000	0.200	0.034	0.077	1660	• 680	0.244	0.045	0.090	1210
16×25	J6	1200	0.166	0.028	0.063	2070	820	0.203	0.038	0.076	1490
16×31.5	J7	1800	0.111	0.025	0.056	2350	1000	0.166	0.032	0.064	1890
16×35.5	J8	2200	0.106	0.022	0.050	2550	1200	0.139	0.028	0.056	2140
16×40	J9	2700	0.087	0.018	0.041	2970	1500	0.111	0.026	0.052	2410
18×16	K4	• 680	0.293	0.043	0.097	1460	• 470	0.353	0.048	0.096	1180
18×20	K5	• 1200	0.166	0.030	0.068	1850	· 820	0.203	0.036	0.072	1450
18×25	K6	• 1800	0.111	0.027	0.061	2120	• 1000	0.166	0.032	0.064	1720
18×31.5	K7	2200	0.106	0.023	0.052	2410	1500	0.111	0.026	0.052	1970
18×35.5	K8	2700	0.087	0.019	0.043	2680	1800	0.074	0.025	0.050	2310
18×40	K9	3300	0.081	0.017	0.038	3010	2200	0.073	0.024	0.048	2530

Rated v	roltage (V)			63					100		
Case Casi	Item	Rated capacitance	ESR	Impedance	e (Ω max.)	Rated ripple current	Rated capacitance	ESR	Impedance	e (Ω max.)	Rated ripple current
\Ou01	ymbol	(μF)	(Ω)	20℃	−10°C	(mArms)	(μF)	(Ω)	20℃	−10°C	(mArms)
5×11.5	E3	12	11.1	1.2	3.6	120	5.6	20.7	1.9	7.6	57
6.3×11.5	F3	27	4.92	0.55	1.7	148	12	9.68	1.1	4.4	78
8×12	G3	47	2.82	0.32	0.96	360	22	5.28	0.53	2.1	275
8×15	G4	68	1.95	0.24	0.72	469	33	3.52	0.35	1.4	360
8×20	G5	82	1.62	0.17	0.51	682	39	2.98	0.27	1.1	490
10×12.5	H3	56	2.37	0.23	0.69	448	27	4.30	0.47	1.9	319
10×16	H4	68	1.95	0.17	0.51	553	33	3.52	0.32	1.3	424
10×20	H5	120	1.11	0.12	0.36	676	56	2.07	0.25	1.0	499
10×25	H6	150	0.885	0.10	0.30	876	68	1.71	0.18	0.72	634
10×30	H7	180	0.738	0.085	0.26	1020	100	1.16	0.15	0.60	739
12.5×15	I4	• 150	0.885	0.11	0.33	745	• 68	1.71	0.20	0.80	613
12.5×20	I5	220	0.604	0.075	0.23	979	100	1.16	0.13	0.52	805
12.5×25	16	270	0.492	0.065	0.20	1180	120	0.968	0.11	0.44	857
12.5×30	I7	390	0.341	0.055	0.17	1310	180	0.646	0.090	0.36	1120
12.5×35	I8	470	0.283	0.048	0.14	1470	220	0.528	0.075	0.30	1240
12.5×40	19	560	0.237	0.042	0.13	1590	270	0.431	0.060	0.24	1330
16×16	J4	• 220	0.604	0.080	0.24	982	• 120	0.968	0.13	0.52	706
16×20	J5	• 390	0.341	0.057	0.17	1210	• 180	0.646	0.11	0.44	916
16×25	J6	470	0.283	0.052	0.16	1490	220	0.528	0.081	0.32	1290
16×31.5	J7	680	0.196	0.042	0.13	1890	330	0.352	0.059	0.23	1630
16×35.5	J8	820	0.162	0.036	0.11	2140	390	0.298	0.052	0.21	1750
16×40	J9	1000	0.133	0.032	0.096	2410	470	0.248	0.045	0.18	1920
18×16	K4	• 330	0.403	0.065	0.20	1200	• 150	0.775	0.12	0.48	871
18×20	K5	• 560	0.237	0.058	0.17	1460	• 270	0.431	0.085	0.34	1170
18×25	K6	• 680	0.196	0.050	0.15	1740	• 330	0.352	0.071	0.28	1500
18×31.5	K7	820	0.162	0.042	0.13	1990	390	0.298	0.058	0.23	1630
18×35.5	K8	1000	0.133	0.035	0.11	2340	560	0.208	0.054	0.22	1920
18×40	K9	1200	0.111	0.032	0.096	2560	680	0.171	0.041	0.16	2100

(Note) Rated ripple current : 105°C, 100kHz ; ESR. : 20°C, 120Hz ; Impedance : 100kHz

^{•:} The black circles in the capacitance column denote semi-standard products.



105°C Use, Miniature, High-Reliability, Extra Low Impedance Capacitors





• Higher ripple current and Lower impedance than RJB series.

Low impedance

RJB

RJF

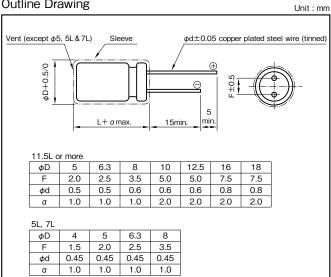


Marking color: White print on a black sleeve

Specifications

Specifications												
Item		Performance -40 to +105 +20 (20°C 120b)										
Category temperature range (°C)		±20 (20°C,120										
Tolerance at rated capacitance (%)				±2	0						(20°C,	120Hz)
Leakage current (μA) (max.)	0.01	CV or 3 whichever is larg	ger (after 2	minutes)	C : Rated o	capacitano	e (μF) ; V	: Rated vo	Itage (V)			(20°C)
Tangent of loss angle	Rated vo	Rated voltage (V) 6.3 10 16 25 35 50 63 80 100 tanδ (max.) 0.22 0.19 0.16 0.14 0.12 0.10 0.09 0.09 0.08]
tangent of loss angle (tanδ)	tanδ (
(0.02 is added to every 10	0.02 is added to every 1000μF increase over 1000μF. (20°C,12									120Hz)	
	Rated vo	Rated voltage (V) 6.3 10 16 25 35 50 63 80 100]
Characteristics at high	Impedance ratio	Impedance ratio Z-25°C/Z+20°C 2 2 2 2 2 2 2 2 2 2									2	1
and low temperature	(max.)	Z-40°C/Z+20°C	3	3	3	3	3	3	3	3	3	1
			(*									120Hz)
Endurance (105°C)	Tes	t time		φ5 φ8	& 7L : & φ6.3 : & φ10 : 2.5 to φ18	3000	hours (63 hours (63	to 100WV to 100WV to 100WV	:7000 hou	rs)		
(Applied ripple current)	Leaka	ge current			The	initial spec	cified value	e or less				1
	Percentage of	capacitance change			With	in ±25% (of initial va	alue				
	Tangent of	the loss angle			200	% or less of	of the initia	al specified	l value]
	Tes	t time			100	0 hours						
	Leaka	Test time 1000 hours Leakage current The initial specified value or less										1
Shelf life (105℃)	Percentage of	capacitance change			With	in ±25% (of initial va	alue				1
	Tangent of	the loss angle			200	% or less of	of the initia	al specified	l value			1
	Voltage application treatr	nent : According to JIS C	5101-4 4.1									_
Applicable standards			JIS C51	01-1, -4 (I	EC 60384	-1, -4)						

Outline Drawing



Rated Frequency (Hz) capacitance (μF)	120	1k	10k	100k
5.6 to 180	0.40	0.75	0.90	1
220 to 390	0.50	0.85	0.94	1
470 to 1800	0.60	0.87	0.95	1
2200 to 3900	0.75	0.90	0.95	1
4700 to 6800	0.85	0.95	0.98	1

Part number	ering sys	te	m (exampl	e:10V10	J00h	ιF)	
RJF —	- 10	٧	102	М	H4	# —	
Series code	Rated voltage symbol		Rated capacitance symbol	Capacitance tolerance symbol	Casing symbol		Taping(Forming) symbol

[•] The standard ratings are described on the next page.



RJF MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Standard Ratings

Rated voltage (V)			6.3					10					16		
Item	Case	Casing	Impedance	e (Ω max.)	Rated ripple current	Case	Casing	Impedance	e (Ω max.)	Rated ripple current	Case	Casing	Impedano	e (Ω max.)	Rated ripple current
Rated capacitance (µF)	φD×L (mm)	symbol	20°C	-10°C	(mArms)	φD×L (mm)	symbol	20℃	-10°C	(mArms)	φD×L (mm)	symbol	20℃	-10°C	(mArms)
18	_	_	_	_	_	_	_	_	_	_	4×7	D1	0.92	2.8	130
27	_	_	_	_	_	4×7	D1	0.89	2.7	130	6.3×5	F0	0.30	0.95	210
33	_		_		_	_		_			5×7	E1	0.45	1.4	210
- 55											6.3×5	F0	0.30	0.95	210
39	4×7	D1	0.85	2.6	130	_	_	_	_	_	_	_	_	_	_
47	_	_	_	_	_	6.3×5	F0	0.29	0.93	210	1	_	_	_	-
56	_	_	_	_	_	5×7	E1	0.44	1.4	210	5×11.5	E3	0.22	0.80	345
68	5×7	E1	0.43	1.3	210	_	_	_	_	_	6.3×7	F1	0.24	0.72	300
100	6.3×5	F0	0.28	0.91	210	5×11.5	E3	0.22	0.8	345	_	_	_	_	_
120	_	_	_	_	_	6.3×7	F1	0.23	0.69	300	8×7	G1	0.15	0.45	380
120						0.0/1		0.20	0.00	000	6.3×11.5	F3	0.094	0.35	540
150	5×11.5	E3	0.22	0.80	345	_	_	_	_	_	_	_	_	_	_
150	6.3×7	F1	0.23	0.69	300										
180	_	_	_	_	_	8×7	G1	0.15	0.45	380	_	_	_	_	_
220	8×7	G1	0.15	0.45	380	6.3×11.5	F3	0.094	0.35	540	_	_	_	_	_
330	6.3×11.5	F3	0.094	0.35	540	_	_	_	_	_	8×12	G3	0.056	0.19	945
470	_		_	_	_	8×12	G3	0.056	0.19	945	8×15	G4	0.045	0.15	1250
560	8×12	G3	0.056	0.19	945	_	_	_	_	_	10×16	H4	0.028	0.10	1760
680	_	_	_	_	_	10×12.5	НЗ	0.039	0.14	1330	-	_	_	_	-
820	8×15	G4	0.045	0.15	1250	_	_	_	_	_	_	_	_	_	_
1000	10×12.5	НЗ	0.039	0.14	1330	10×16	H4	0.028	0.10	1760	10×20	H5	0.020	0.060	1960
1200	10×16	H4	0.028	0.10	1760	10×20	H5	0.020	0.060	1960	10×25	H6	0.018	0.054	2250
1500	10×20	H5	0.020	0.060	1960	10×25	H6	0.018	0.054	2250	12.5×20	I5	0.017	0.043	2480
2200	10×25	H6	0.018	0.054	2250	12.5×20	I5	0.017	0.043	2480	12.5×25	16	0.015	0.038	2900
2700	_	_	_	_	_	_	_	_	_	_	16×20	J5	0.015	0.038	3250
3300	12.5×20	I5	0.017	0.043	2480	12.5×25	16	0.015	0.038	2900	16×25	J6	0.013	0.035	3630
3900	12.5×25	16	0.015	0.038	2900	16×20	J5	0.015	0.038	3250	16×25	J6	0.013	0.035	3630
4700	12.5×30	17	0.013	0.033	3450	16×25	J6	0.013	0.035	3630	ı	_	<u> </u>	_	
5600	16×20	J5	0.015	0.038	3570	16×25	J6	0.013	0.035	3630	_	_	_	_	_
6800	16×25	J6	0.013	0.035	3630	-		_	_	_	-	_	_	_	_

Rated voltage (V)			25					35					50		
Item	Case	Casing	Impedance	e (Ω max.)	Rated ripple current	Case	Casing	Impedance	e (Ω max.)	Rated ripple current	Case	Casing	Impedano	e (Ω max.)	Rated ripple current
Rated capacitance (µF)	φD×L (mm)	symbol	20°C	-10°C	(mArms)	φD×L (mm)	symbol	20°C	-10°C	(mArms)	φD×L (mm)	symbol	20°C	-10°C	(mArms)
5.6	_	_	_	_	_	_	_	_	_	_	4×7	D1	1.0	3.0	130
10	5×5	E0	0.61	1.5	130	5×5	E0	0.63	1.5	130	5×7	E1	0.50	1.5	210
10	3/3	LO	0.01	1.5	130	4×7	D1	0.96	2.9	130	3/1	Li	0.50	1.5	210
15	4×7	D1	0.94	2.9	130	_		_		_	_		_	_	_
18	_	_	_	_		5×7	E1	0.47	1.5	210	_	_	_	_	_
22	6.3×5	F0	0.31	0.97	210	6.3×5	F0	0.32	1.0	210	6.3×7	F1	0.26	0.78	300
	0.0.10		0.0.	0.07		0.01.0		0.02			5×11.5	E3	0.34	1.18	238
27	5×7	E1	0.46	1.4	210	_		_	_		_	_	_	_	_
33	_		_	_		5×11.5	E3	0.22	0.80	345	8×7	G1	0.17	0.51	380
39	_		_	_		6.3×7	F1	0.25	0.75	300	_	_	_	_	_
47	5×11.5	E3	0.22	0.80	345	_		_			_	_	_	_	_
56	6.3×7	F1	0.24	0.72	300	8×7	G1	0.16	0.48	380	6.3×11.5	F3	0.14	0.50	385
	0.0		0.2 .	02		6.3×11.5	F3	0.094	0.35	540	0.0*****		0	0.00	000
100	8×7	G1	0.15	0.45	380	_	_	l _	_	_	8×12	G3	0.074	0.22	724
	6.3×11.5	F3	0.094	0.35	540									-	,_,
120	_	_	_	_		_		_	_		8×15	G4	0.061	0.18	950
150	_	_	_	_	_	8×12	G3	0.056	0.19	945	10×12.5	H3	0.061	0.18	979
180	_		_	_	_	_	_	_	_	_	8×20	G5	0.046	0.14	1190
220	8×12	G3	0.056	0.19	945	10×12.5	НЗ	0.039	0.14	1330	10×16	H4	0.042	0.12	1370
270	_		_	_	_	8×20	G5	0.029	0.11	1500	10×20	H5	0.030	0.090	1580
330	10×12.5	Н3	0.039	0.14	1330	10×16	H4	0.028	0.10	1760	10×25	H6	0.028	0.085	1870
470	10×16	H4	0.028	0.10	1760	10×20	H5	0.020	0.060	1960	12.5×20	15	0.027	0.068	2050
560	_		_	_		10×25	H6	0.018	0.054	2250	12.5×25	16	0.023	0.059	2410
680	10×20	H5	0.020	0.060	1960	12.5×20	15	0.017	0.043	2480	16×20	J5	0.023	0.059	2730
820	10×25	H6	0.018	0.054	2250	_	_	_	_	_	16×20	J5	0.023	0.059	2730
1000	12.5×20	I5	0.017	0.043	2480	12.5×25	16	0.015	0.038	2900	16×25	J6	0.021	0.056	3010
1200			_	_	_	16×20	J5	0.015	0.038	3250	_	1	_	_	_
1500	12.5×25	16	0.015	0.038	2900	16×25	J6	0.013	0.035	3630	_	_	_	_	_
1800	16×20	J5	0.015	0.038	3250	16×25	J6	0.013	0.035	3630	_		_	_	_
2200	16×25	J6	0.013	0.035	3630	_	_	_	_	_	_	_	_	_	_
2700	16×25	J6	0.013	0.035	3630	_	_	_	_	_	_	_	_	_	_

(Note) Rated ripple current : 105°C, 100kHz ; Impedance : 100kHz



Standard Ratings

Standard Rat	III ISS														
Rated voltage (V)			63					80				1	00		
Item Rated	Case φDxL (mm)	Casing symbol	·	dance nax.)	Rated ripple current	Case ϕ DxL (mm)	Casing symbol	(Ω)	dance max.)	Rated ripple current	Case φDxL (mm)	Casing symbol	(Ω)	dance max.)	Rated ripple current
capacitance (µF)			20°C	-10℃	(mArms)			20℃	-10℃	(mArms)			20℃	-10℃	(mArms)
6.8	_	_	_	_	-	_	_	_	_	_	5 × 11.5	E3	1.4	5.6	125
15	5 × 11.5	E3	0.88	3.5	165		_	-	_	_	6.3 × 11.5	F3	0.57	2.3	205
27	_	_	_	_	_		_	-	_	_	8 × 12	G3	0.36	1.4	335
33	6.3 × 11.5	F3	0.35	1.4	265	_	_	_	-	_	_	-	_	-	_
39	_	_	_	_	_	_	_	_	_	_	8 × 15	G4	0.25	1.0	450
47	_	_	_	-	_	_	_	ı	_	-	10 × 12.5	НЗ	0.17	0.66	480
56	8 × 12	G3	0.22	0.88	500	_	_	_	_	_	8 × 20	G5	0.19	0.76	565
68	_	_	_	_	_	10 × 12.5	НЗ	0.17	0.66	480	10 × 16	H4	0.11	0.47	600
82	10 × 12.5	НЗ	0.11	0.44	690	_	_	_	_	_	10 × 20	H5	0.084	0.34	800
100	_	-	_	-	_	10 × 16	H4	0.11	0.47	600	12.5 × 15	14	0.11	0.34	750
100	8 × 20	G5	0.12	0.48	820	10 × 20	115	0.004	0.24	200	10 × 05	LIG	0.060	0.00	000
120	10 × 16	H4	0.076	0.31	950	10 × 20	H5	0.084	0.34	800	10 × 25	H6	0.069	0.28	900
150	_	-	_	-	_	10 × 25	H6	0.069	0.28	900	12.5 × 20	15	0.062	0.18	1100
180	10 × 20	H5	0.056	0.23	1150	_	_	-	_	-	_	-	-	-	_
220	10 × 25	H6	0.046	0.19	1350	12.5 × 20	15	0.062	0.18	1100	16 × 20	J5	0.048	0.15	1350
270	12.5 × 20	15	0.041	0.13	1500	_	_	-	_	-	12.5 × 30	17	0.042	0.13	1500
						12.5 × 25	16	0.047	0.14	1250	12.5 × 35	18	0.036	0.11	1650
330	_	-	_	_	-						16 × 25	J6	0.038	0.12	1700
						16 × 20	J5	0.048	0.15	1350	18 × 20	K5	0.045	0.14	1500
390	12.5 × 25	16	0.031	0.093	1900	12.5 × 30	17	0.042	0.13	1500	12.5 × 40	19	0.032	0.095	1800
	12.5 × 30	17	0.028	0.084	2300	12.5 × 35	18	0.036	0.11	1650	16 × 31.5	J7	0.032	0.095	1850
470						16 × 25	J6	0.038	0.12	1700					
	16 × 20	J5	0.032	0.096	2000	18 × 20	K5	0.045	0.14	1500	18 × 25	K6	0.036	0.11	1750
500	10.5 05	10	0.004	0.070	0500						16 × 35.5	J8	0.029	0.086	2000
560	12.5 × 35	18	0.024	0.070	2500	_	_	_	_	_	18 × 31.5	K7	0.030	0.090	1900
	12.5 × 40	19	0.021	0.063	2800						16 × 40	J9	0.027	0.081	2480
680	16 × 25	J6	0.025	0.075	2600	16 × 31.5	J7	0.032	0.095	1850	10 11 10	-	0.027	0.00	
	18 × 20	K5	0.030	0.090	2500						18 × 35.5	K8	0.027	0.081	2200
000	16 × 31.5	J7	0.021	0.063	2850	16 × 35.5	J8	0.029	0.086	2000	1010				0700
820	18 × 25	К6	0.024	0.072	2800	18 × 31.5	K7	0.030	0.090	1900	18 × 40	К9	0.026	0.077	2700
1000	16 × 35.5	J8	0.019	0.057	2900	_	_	-	-	_	_	-	_	_	_
	16 × 40	J9	0.018	0.054	3400										
1200	18 × 31.5	K7	0.020	0.060	3300	18 × 40	K9	0.026	0.077	2700	_	_	_	_	_
1500	18 × 35.5	K8	0.018	0.054	3400		_	_	_	_	_	-	_	_	_
1800	18 × 40	К9	0.017	0.051	3500	_	_	_	_	_	_	-	_	_	_

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS RJF

(Note) Rated ripple current : 105°C , 100kHz ; Impedance : 100kHz

RJM MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

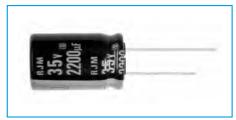


105°C Use, Miniature, Long Life, Extra Low Impedance Capacitors

- · Long life than RJF series.
- Guarantees 10000 hours at 105℃.

 $(\phi 5, \phi 6.3 : 6000 \text{ hours}, \phi 8 : 8000 \text{ hours})$



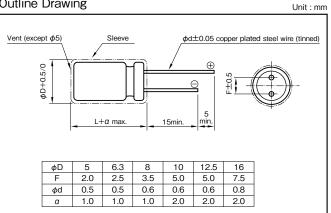


Marking color: White print on a black sleeve

Specifications

Item		Performance -40 to +105										
Category temperature range (°C)	-40 to +105 ±20											
Tolerance at rated capacitance (%)				±20				(20°C,120Hz				
Leakage current (μA) (max.)	(0.01CV or 3 whichever is	larger (after 2 m	inutes) C : Rate	ed capacitance (µ	ıF), V : Rated vo	Itage (V)	(20℃				
Tangent of loss angle	Rated vo	35	50									
tanδ)	tanδ (max.)	0.22	0.19	0.16	0.14	0.12	0.10				
` ,	0.02 is added to every 10	00μF increase over 1000)μF.		1			(20°C,120Hz				
	Rated vo	Itage (V)	6.3	10	16	25	35	50				
Characteristics at high		Z-25°C/Z+20°C	2	2	2	2	2	2				
and low temperature	Impedance ratio (max.)	Z-40°C/Z+20°C	3	3	3	3	3	3				
								(120Hz				
5-d (105°0)	Test	time		φ8:	3: 6000 hours 8000 hours are: 10000 hours	:						
Endurance (105°C) (Applied ripple current)	Leakage	current	The initial specified value or less									
(Percentage of cap	pacitance change		Within ±2	5% of initial valu	e (φ6.3 or less :	±30%)					
	Tangent of the	ne loss angle		200% or le	ess of the initial s	specified value						
	Test	time		1000 hour								
						* looo						
Shelf life (105°C)	Leakage		The initial specified value or less									
, ,		Percentage of capacitance change Within $\pm 25\%$ of initial value (ϕ 6.3 or less : $\pm 30\%$) Tangent of the loss angle 200% or less of the initial specified value										
		Tangent of the loss angle 200% or less of the initial specified value age application treatment: According to JIS C5101-4 4.1										
Applicable standards	voltage application treatm	ient . According to JIS C5										
Applicable standards			JIS C5101-	1, -4 (IEC 6038	4-1, -4)							

Outline Drawing



Rated Frequency (Hz) capacitance (µF)	120	1k	10k	100k
27 to 33	0.42	0.70	0.90	1
39 to 270	0.50	0.73	0.92	1
330 to 680	0.55	0.77	0.94	1
820 to 1800	0.60	0.80	0.96	1
2200 to 8200	0.70	0.85	0.98	1

Part numl	ber	ring sys	ste	m (exampl	e:10V10)00µ	F)	
RJM -		10	٧	102	М	G4	# —	
Series code	Ī	Rated voltage symbol		Rated capacitance symbol	Capacitance tolerance symbol	Casing symbol		Taping(Forming) symbol

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS RJM

Standard Ratings

Rated voltage(V)			6.3					10					16		
Rated Item	Case	Casing	Imped (Ωr	dance	Rated ripple current	Case	Casing		dance max.)	Rated ripple current	Case	Casing	Imped (Ωr		Rated ripple current
capacitance (µF)	φDxL (mm)	symbol	20℃	-10°C	(mArms)	φDxL (mm)	symbol	20°C	-10°C	(mArms)	φDxL (mm)	symbol	20℃	-10°C	(mArms)
82	_	_	_	_	-	_	_	-	_	_	5×11.5	E3	0.22	0.80	345
100	_	_	_	_	-	5×11.5	E3	0.22	0.80	345	5×11.5	E3	0.22	0.80	345
120	_	_	_	_	_	5×11.5	E3	0.22	0.80	345	_	_	_	_	-
150	5×11.5	E3	0.22	0.80	345	5×11.5	E3	0.22	0.80	345	_	_	-	_	-
180	_	_	_	_	_	_	_	_	_	_	6.3×11.5	F3	0.094	0.35	540
220	5×11.5	E3	0.22	0.80	345	6.3×11.5	F3	0.094	0.35	540	6.3×11.5	F3	0.094	0.35	540
270	_	_	_	_	_	6.3×11.5	F3	0.094	0.35	540	_	_	_	_	_
330	6.3×11.5	F3	0.094	0.35	540	6.3×11.5	F3	0.094	0.35	540	_	_	_	_	_
470	6.3×11.5	F3	0.094	0.35	540		_		_	_	8×12	G3	0.056	0.19	945
680	_	_	_	_	_	8×12	G3	0.056	0.19	945	8×15	G4	0.045	0.15	1250
000						0/12	do	0.000	0.13	343	10×12.5	НЗ	0.039	0.14	1560
820	8×12	G3	0.056	0.19	945	_	_	_	_	_	_	_	_	_	_
1000	_	_	_	_	_	8×15	G4	0.045	0.15	1250	8×20	G5	0.029	0.11	1500
1000						10×12.5	НЗ	0.039	0.14	1560	10×16	H4	0.028	0.10	2000
1200	8×15	G4	0.045	0.15	1250	_	_	_	_	_	_	_	_	_	_
1200	10×12.5	Н3	0.039	0.14	1560										
1500	8×20	G5	0.029	0.11	1500	8×20	G5	0.029	0.11	1500	10×20	H5	0.020	0.060	2500
						10×16	H4	0.028	0.10	2000				0.000	
1800	10×16	H4	0.028	0.10	2000	10×20	H5	0.020	0.060	2500	10×25	H6	0.017	0.051	2900
2200	10×20	H5	0.020	0.060	2500	10×25	H6	0.017	0.051	2900	12.5×20	15	0.017	0.043	2600
2700	10×25	H6	0.017	0.051	2900	_	_	_	_	_	12.5×25	16	0.015	0.038	3200
3300	_	_	_	_	_	12.5×20	15	0.017	0.043	2600	12.5×30	17	0.013	0.033	3795
											16×20	J5	0.015	0.038	3575
3900	12.5×20	I5	0.017	0.043	2600	12.5×25	16	0.015	0.038	3200	12.5×35	18	0.012	0.031	4120
4700	12.5×25	16	0.015	0.038	3200	12.5×30	17	0.013	0.033	3795	16×25	J6	0.013	0.035	3810
						16×20	J5	0.015	0.038	3575					
5600	12.5×30	17	0.013	0.033	3795	12.5×35	18	0.012	0.031	4120	_	_	_	_	-
6800	12.5×35	18	0.012	0.031	4120	16×25	J6	0.013	0.035	3810	_	_	_	_	_
	16×20	J5	0.015	0.038	3575										
8200	16×25	J6	0.013	0.035	3810	_	_	_	_	_	_	_	_	_	_

Rated voltage(V)			25					35					50		
Rated Item	Case	Casing		dance nax.)	Rated ripple current	Case	Casing		dance nax.)	Rated ripple current	Case	Casing		dance nax.)	Rated ripple current
capacitance (µF)	φDxL (mm)	symbol	20℃	-10°C	(mArms)	φDxL (mm)	symbol	20℃	-10°C	(mArms)	φDxL (mm)	symbol	20℃	-10°C	(mArms)
27	_	_	_	_	_	_	_	_	_	_	5×11.5	E3	0.34	1.18	238
39	5×11.5	E3	0.22	0.80	345	5×11.5	E3	0.22	0.80	345	6.3×11.5	F3	0.14	0.50	385
47	_	_	_	_	_	5×11.5	E3	0.22	0.80	345	_	_	_	_	_
56	5×11.5	E3	0.22	0.80	345	_	_	_	_	_	6.3×11.5	F3	0.14	0.50	385
68	5×11.5	E3	0.22	0.80	345	_	_		_	-	_	_	_	_	_
82	5×11.5	E3	0.22	0.80	345	6.3×11.5	F3	0.094	0.35	540	_	_	_	_	_
100	6.3×11.5	F3	0.094	0.35	540	6.3×11.5	F3	0.094	0.35	540	8×12	G3	0.074	0.22	724
120	6.3×11.5	F3	0.094	0.35	540	_	_	_	_	_	8×15	G4	0.061	0.18	950
150	6.3×11.5	F3	0.094	0.35	540	_	_	_	_	1	10×12.5	НЗ	0.061	0.18	1250
180		_	_	_	_	_	_	_	_	_	8×20	G5	0.046	0.14	1190
220	_	_	_		-	8×12	G3	0.056	0.19	945	10×16	H4	0.042	0.12	1650
270		_	_	_	_	8×15	G4	0.045	0.15	1250	10×20	H5	0.030	0.090	2060
330	8×12	G3	0.056	0.19	945	10×12.5	НЗ	0.039	0.14	1560	10×25	H6	0.028	0.084	2420
390	8×15	G4	0.045	0.15	1250	8×20	G5	0.029	0.11	1500		_	_	_	_
470	10×12.5	нз	0.039	0.14	1560	10×16	H4	0.028	0.10	2000	12.5×20	15	0.027	0.068	2300
560	8×20	G5	0.029	0.11	1500	10×20	H5	0.020	0.060	2500	12.5×25	16	0.023	0.059	2800
680	10×16	H4	0.028	0.10	2000	10×25	H6	0.017	0.051	2900	12.5×30	17	0.021	0.052	3500
820	10×20	H5	0.020	0.060	2500		_		_	_	12.5×35	18	0.019	0.051	3810
020	10 / 20	113	0.020	0.000	2500					_	16×20	J5	0.023	0.059	3070
1000	10×25	H6	0.017	0.051	2900	12.5×20	15	0.017	0.043	2600	16×25	J6	0.021	0.056	3270
1200	_	_	_	_	_	12.5×25	16	0.015	0.038	3200	-	_	_	_	_
1500	12.5×20	15	0.017	0.043	2600	12.5×30	17	0.013	0.033	3795		_	_	_	_
1300	12.5 \ 20	15	0.017	0.043	2000	16×20	J5	0.015	0.038	3575					_
1800	12.5×25	16	0.015	0.038	3200	12.5×35	18	0.012	0.031	4120	-	_	_	_	_
2200	12.5×30	17	0.013	0.033	3795	16×25	J6	0.013	0.035	3810	_	_	_	_	_
2200	16×20	J5	0.015	0.038	3575	10.20	30	0.013	0.000	3010		_			
2700	12.5×35	18	0.012	0.031	4120		_	_	_	_		_	_	_	_
3300	16×25	J6	0.013	0.035	3810	_	_	_	_	_	1	_	_	_	_

(Note) Rated ripple current : 105°C , 100kHz ; Impedance : 100kHz

MINIATURE ALUMINUM

105℃





105°C Use, miniature, High-Reliability, Low ESR Capacitors

- Smaller and higher ripple current than RJB series.
- Guarantees 8000 hours at 105℃. $(\phi 5 \text{ to } 6.3:2000 \text{ hours}; \phi 8: 3000 \text{ hours}; \phi 10: 5000 \text{ hours})$



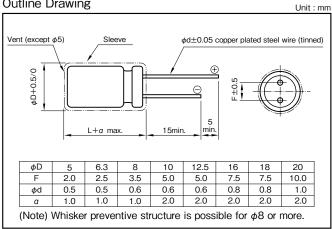


Marking color: White print on a black sleeve

Specifications

Item			Perfor	mance							
Category temperature range (°C)			−55 to	+105							
Tolerance at rated capacitance (%)			±	20						(20℃,	120Hz)
Leakage current (μA) (max.)	0.01 CV or 3 whichever is lar	ger (after 2	2 minutes)	C : Rated	capacitar	ice (μF), V	: Rated vo	oltage (V)			(20°C)
Tangent of loss angle	Rated voltage (V)	6.3	10	16	25	35	50	63	80	100	7
_	tanδ (max.)	0.22	0.19	0.16	0.14	0.12	0.10	0.10	0.08	0.08	1
(tanδ)	0.02 is added to every 1000μF increase over 1000	μF.								(20°C,	120Hz)
	Rated voltage (V)	6.3	10	16	25	35	50	63	80	100	7
Characteristics at high	Impedance ratio (max.) Z−55°C/Z+20°C	3	3	3	3	3	3	3	3	3	
and low temperature										(120Hz)
Endurance (105°C)	Test time			φ5 & 6.3 φ8 φ10 φ12.5 to	: 300 : 500	00 hours 00 hours 00 hours 00 hours					
(Applied ripple current)	Leakage current			The initial	specified	value or le	SS				1
, , , , , ,	Percentage of capacitance change			Within ±2	0% of initi	al value					1
	Tangent of the loss angle			200% or I	ess of the	initial spec	cified value	9			
Shelf life (105°C)	Test time: 1000hours; other items are sai	me as the e	endurance	. Voltage	application	n treatmen	t : Accordi	ing to JIS (C5101-4 4	.1	
Applicable standards		JIS C51	01-1, -4 (I	EC 60384	-1, -4)						

Outline Drawing



o comonent or rioqu	o o, . o.			u u	
Rated Frequency (Hz) Capacitance (μF)	50 • 60	120	300	1k	10k • 100k
56 or less	0.20	0.30	0.50	0.80	1
68 to 330	0.55	0.65	0.75	0.85	1
390 to 1000	0.70	0.75	0.80	0.90	1
1200 to 18000	0.80	0.85	0.90	0.95	1

Part nur	nbe	ering sys	ste	m (exam	ole : 6.3V	1000	ΟμΕ)	
RJD	_	6	٧	103	М	J7	# —	
Series code		Rated voltage symbol		Rated capacitance symbol	Capacitance tolerance symbol	Casing	-	Taping(Forming)

If it is whisker preventive structure, should change "#" into "G".

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS RJD

Standard Ratings

Standard Rated voltage(V)	ı Hatirigs														
			6.3		Poted ripple		ı	10		Datad rippla			16		Dated ripple
Rated Item	Case	Casing	ESR (0) max.)	Rated ripple current	Case	Casing	ESR (0	2 max.)	Rated ripple current	Case	Casing	ESR (C	max.)	Rated ripple current
capacitance (μF)	$\phi D \times L (mm)$	symbol	20℃	-10℃	(mArms)	$\phi D \times L \text{ (mm)}$	symbol	20℃	-10°C	(mArms)	$\phi D \times L \text{ (mm)}$	symbol	20℃	-10°C	(mArms)
22	_		_	_	_	_	_	_	_		5 × 11.5	E3	0.50	1.0	182
33	_	_	_	_	_	_	-	_	_		5 × 11.5	E3	0.50	1.0	182
47	_	_	_	_	_	_	_	_	_	_	5 × 11.5	E3	0.50	1.0	182
82	_	_	_	_	_	_	_	_	_	_	5 × 11.5	E3	0.50	1.0	182
100	_	_	_	_	_	5 × 11.5	E3	0.50	1.0	182	6.3 × 11.5	F3	0.25	0.50	295
150	5 × 11.5	E3	0.50	1.0	182	_	_	_	_		6.3 × 11.5	F3	0.25	0.50	295
180		_	-	_	-	6.3 × 11.5	F3	0.25	0.50	295	8 × 12	G3	0.117	0.234	567
220	_	_	_	_	_	6.3 × 11.5	F3	0.25	0.50	295	8 × 12	G3	0.117	0.234	567
330	6.3 × 11.5	F3	0.25	0.50	295	8 × 12	G3	0.117	0.234	567	8 × 12	G3	0.117	0.234	567
390	_	_	_	_	_	_	_	_	-	_	8 × 12	G3	0.117	0.234	567
470	010		0.447		507	040				507	8 × 15	G4	0.085	0.170	733
470	8 × 12	G3	0.117	0.234	567	8 × 12	G3	0.117	0.234	567	10 × 12.5	НЗ	0.090	0.180	764
560	8 × 12	G3	0.117	0.234	567	8 × 12	G3	0.117	0.234	567	8 × 20	G5	0.065	0.130	996
											8 × 15	G4	0.085	0.170	733
680	8 × 12	G3	0.117	0.234	567	_	_	_	_	_	10 × 12.5	нз	0.090	0.180	764
						8 × 15	G4	0.085	0.170	733	8 × 20	G5	0.065	0.130	996
820	_	_	_	_	-	10 × 12.5	НЗ	0.090	0.180	764	10 × 16	H4	0.068	0.136	1060
						8 × 20	G5	0.065	0.130	996					
1000	8 × 15	G4	0.085	0.170	733	10 × 12.5	Н3	0.090	0.180	764	10 × 16	H4	0.068	0.136	1060
1000	10 × 12.5	нз	0.090	0.180	764	10 × 16	H4	0.030	0.136	1060	10 × 20	H5	0.052	0.104	1230
	10 × 12.5	НЗ	0.090	0.180	764	8 × 20	G5	0.065	0.130	996	10 × 20	H5	0.052	0.104	1230
1200	10 × 12.5	H4	0.090	0.136	1060	10 × 16	H4	0.068	0.136	1060	10 × 25	H6	0.032	0.090	1450
1500	8 × 20	G5	0.065	0.130	996	10 × 20	H5	0.052	0.104	1230	10 × 25	H6	0.045	0.090	1450
	10 × 16	H4	0.068	0.136	1060	12.5 × 15	I4	0.062	0.124	1210	10 × 30	H7	0.035	0.070	1830
1800	12.5 × 15	14	0.062	0.124	1210	10 × 20	H5	0.052	0.104	1230	_	_	_	_	_
						10 × 25	Н6	0.045	0.090	1450					
	10 × 20	H5	0.052	0.104	1230	10 × 25	Н6	0.045	0.090	1450	10 × 30	H7	0.035	0.070	1830
2200	10 × 25	Н6	0.045	0.090	1450	12.5 × 20	15	0.038	0.076	1700	12.5 × 20	15	0.038	0.076	1700
	10 / 20	110	0.040	0.000	1400	12.5 × 20					16 × 16	J4	0.043	0.086	1700
2700	10 × 25	Н6	0.045	0.090	1450	10 × 30	H7	0.035	0.070	1830	12.5 × 25	16	0.030	0.060	1950
						12.5 × 20	15	0.038	0.076	1700	18 × 16	K4	0.038	0.076	2010
3300	10 × 30	H7	0.035	0.070	1830	12.5 × 25	16	0.030	0.060	1950	12.5 × 30	17	0.025	0.050	2330
	12.5 × 20	15	0.038	0.076	1700						16 × 20	J5	0.029	0.058	2230
3900	12.5 × 25	16	0.030	0.060	1950	12.5 × 25	16	0.030	0.060	1950	12.5 × 35	18	0.022	0.044	2620
						18 × 16	K4	0.038	0.076	2010	16 × 20	J5	0.029	0.058	2230
	12.5 × 25	16	0.030	0.060	1950	12.5 × 30	17	0.025	0.050	2330	12.5 × 40	19	0.017	0.034	3160
4700											16 × 25	J6	0.022	0.044	2650
	18 × 16	K4	0.038	0.076	2010	16 × 20	J5	0.029	0.058	2230	18 × 20	K5	0.028	0.056	2500
F600	12.5 × 30	17	0.025	0.050	2330	10 E V 2E	Τ.Ο.	0.000	0.044	0600	16 × 25	J6	0.022	0.044	2650
5600	16 × 20	J5	0.029	0.058	2230	12.5 × 35	18	0.022	0.044	2620	16 × 31.5	J7	0.018	0.036	3210
						12.5 × 40	19	0.017	0.034	3160					
6800	12.5 × 35	18	0.022	0.044	2620	16 × 25	J6	0.022	0.044	2650	18 × 25	K6	0.020	0.040	3000
	12.5 × 40	19	0.017	0.034	3160	16 × 31.5	J7	0.018	0.036	3210					
8200	16 × 25	J6	0.022	0.044	2650		J .	2.010	2.000	JE.0	18 × 35.5	К8	0.015	0.030	3960
	18 × 20	K5	0.028	0.056	2500	18 × 25	K6	0.020	0.040	3000					
	16 × 31.5	J7	0.018	0.036	3210	16 × 40	J9	0.015	0.030	3880					
10000	18 × 25	K6	0.020	0.040	3000	18 × 35.5	K8	0.015	0.030	3960	18 × 40	К9	0.014	0.028	4300
12000	18 × 25	К6	0.020	0.040	3000	_	_	_	_	_	_	_	_	_	_
15000	18 × 35.5	K8	0.015	0.030	3960	18 × 40	К9	0.014	0.028	4300	_	_	_	_	_
18000	18 × 40	К9	0.014	0.028	4300	_	_	-	-	_	_	_	_	_	_
10000	10 / 40	11.0	0.014	0.020	-500				_						

(Note) Rated ripple current : 105°C , 100kHz ; ESR : 100kHz



RJD MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Standard Ratings

Rated voltage(V)			25					35					50		
Rated Item	Case	Casing	ESR (C	2 max.)	Rated ripple current	Case	Casing	ESR (C	2 max.)	Rated ripple current	Case	Casing	ESR (0	max.)	Rated ripple current
capacitance (µF)	$\phi D \times L (mm)$	symbol	20℃	-10℃	(mArms)	$\phi D \times L (mm)$	symbol	20℃	-10℃	(mArms)	$\phi D \times L (mm)$	symbol	20℃	-10℃	(mArms)
10	5 × 11.5	E3	0.50	1.0	182	5 × 11.5	E3	0.50	1.0	182	5 × 11.5	E3	0.90	1.8	173
22	5 × 11.5	E3	0.50	1.0	182	5 × 11.5	E3	0.50	1.0	182	5 × 11.5	E3	0.90	1.8	173
27	5 × 11.5	E3	0.50	1.0	182	5 × 11.5	E3	0.50	1.0	182	5 × 11.5	E3	0.90	1.8	173
33	5 × 11.5	E3	0.50	1.0	182	5 × 11.5	E3	0.50	1.0	182	6.3 × 11.5	F3	0.40	0.80	285
47	5 × 11.5	E3	0.50	1.0	182	6.3 × 11.5	F3	0.25	0.50	295	6.3 × 11.5	F3	0.40	0.80	285
56	5 × 11.5	E3	0.50	1.0	182	6.3 × 11.5	F3	0.25	0.50	295	6.3 × 11.5	F3	0.40	0.80	285
82	6.3 × 11.5	F3	0.25	0.50	295	6.3 × 11.5	F3	0.25	0.50	295	8 × 12	G3	0.19	0.38	508
100	6.3 × 11.5	F3	0.25	0.50	295	8 × 12	G3	0.117	0.234	567	8 × 15	G4	0.155	0.31	636
150	8 × 12	G3	0.117	0.234	567	8 × 12	G3	0.117	0.234	567	10 × 12.5	Н3	0.17	0.34	628
180			_		_	8 × 12	G3	0.117	0.234	567	10 × 12.5	Н3	0.17	0.34	628
220	8 × 12	G3	0.117	0.234	567	8 × 15	G4	0.085	0.170	733	10 × 16	H4	0.119	0.238	850
270	8 × 12	G3	0.117	0.234	567	8 × 15	G4	0.085	0.170	733	10 × 20	H5	0.081	0.162	1120
						10 × 12.5	H3	0.090	0.180	764					
330	8 × 12	G3	0.117	0.234	567	8 × 20	G5	0.065	0.130	996	10 × 20	H5	0.081	0.162	1120
	10 × 12.5	Н3	0.090	0.180	764	10 × 16	H4	0.068	0.136	1060	12.5 × 15	I4	0.09	0.18	1170
390	8 × 15	G4	0.085	0.170	733	8 × 20	G5	0.065	0.130	996	_	_	_	_	_
	0 1/45	0.4	0.005	0.470	700	10 × 16	H4	0.068	0.136	1060					
470	8 × 15	G4	0.085	0.170	733	10 × 20	H5	0.052	0.104	1230	12.5 × 20	15	0.057	0.114	1540
	10 × 12.5	H3	0.090	0.180	764	40 × 00	115	0.050	0.404	1000					
560	8 × 20 10 × 16	G5 H4	0.065	0.130 0.136	996 1060	10 × 20 12.5 × 15	H5 I4	0.052	0.104 0.124	1230 1210	12.5 × 25	16	0.042	0.084	1910
680	10 × 16	H4 H4	0.068	0.136	1060	12.5 × 15 10 × 25	H6	0.062	0.124	1450	18 × 20	K5	0.034	0.068	2420
660	10 × 16	H5	0.052	0.136	1230	10 × 25	по	0.045	0.090	1450	12.5 × 30	17	0.034	0.068	2290
820	10 × 20 12.5 × 15	П5 I4	0.052	0.104	1210	12.5 × 20	15	0.038	0.076	1700	18 × 20	K5	0.038	0.078	2420
	12.5 × 15	H6	0.062	0.090	1450	10 × 30	H7	0.035	0.070	1830	16 × 25	J6	0.034	0.068	2420
1000	10 × 25 12.5 × 20	I5	0.045	0.090	1700	12.5 × 20	I5	0.035	0.076	1700	18 × 20	K5	0.031	0.062	2420
	12.5 ^ 20	10	0.036	0.076	1700	12.5 × 25	I6	0.030	0.076	1950	16 ^ 20	KO	0.034	0.008	2420
1200	12.5 × 20	15	0.038	0.076	1700	18 × 16	K4	0.030	0.076	2010	18 × 25	K6	0.029	0.058	2750
	10 × 30	H7	0.035	0.070	1830	12.5 × 30	17	0.035	0.050	2330	16 × 31.5	J7	0.027	0.054	3100
1500	16 × 16	J4	0.043	0.086	1700	16 × 20	J5	0.029	0.058	2230	18 × 25	K6	0.029	0.058	2750
	12.5 × 25	16	0.030	0.060	1950	12.5 × 35	18	0.023	0.044	2620	16 × 35.5	J8	0.023	0.046	3530
1800	18 × 16	K4	0.038	0.076	2010	16 × 20	J5	0.029	0.058	2230	18 × 31.5	K7	0.025	0.050	3200
	12.5 × 30	17	0.025	0.050	2330	12.5 × 40	19	0.017	0.034	3160	16 × 40	J9	0.020	0.040	3830
2200	12.5 × 30	17	0.025	0.050	2330	16 × 25	J6	0.022	0.044	2650	16 × 40	19	0.020	0.040	3630
	16 × 20	J5	0.029	0.058	2230	18 × 20	K5	0.028	0.056	2500	18 × 35.5	K8	0.022	0.044	3670
	12.5 × 35	18	0.022	0.044	2620	16 × 31.5	J7	0.018	0.036	3210					
2700	18 × 25	K6	0.020	0.040	3000	18 × 25	K6	0.020	0.040	3000	18 × 40	К9	0.018	0.036	4160
	12.5 × 40	19	0.017	0.034	3160	18 × 25	К6	0.020	0.040	3000					
3300	16 × 25	J6	0.022	0.044	2650						_	_	_	_	_
	18 × 20	K5	0.028	0.056	2500	18 × 31.5	K7	0.016	0.032	3660					
						18 × 35.5	K8	0.015	0.030	3960					
3900	_	_	_	-	_	18 × 40	К9	0.014	0.028	4300	_	_	-	-	_
						20 × 25	L6	0.019	0.038	3920					
						18 × 35.5	K8	0.015	0.030	3960					
4700	18 × 25	K6	0.020	0.040	3000	18 × 40	К9	0.014	0.028	4300	_	_	-	_	_
						20 × 30	L7	0.018	0.036	4270					
5600	18 × 35.5	K8	0.015	0.030	3960	18 × 40	К9	0.014	0.028	4300				_	
3000	20 × 25	L6	0.019	0.038	3920	20 × 35.5	L8	0.014	0.028	5250					_
6800	18 × 35.5	K8	0.015	0.030	3960	18 × 40	К9	0.014	0.028	4300	_			_	
0000	20 × 30	L7	0.018	0.036	4270	20 × 40	L9	0.013	0.026	5680					
8200	20 × 35.5	L8	0.014	0.028	5250	18 × 40	K9	0.014	0.028	4300	_	_	l _	_	_
5200						20 × 40	L9	0.013	0.026	5680					
10000	18 × 40	K9	0.014	0.028	4300	_	_	_	_	_	_	_	_	_	_
	20 × 40	L9	0.013	0.026	5680										

Rated voltage(V)			63					80					100		
Rated Item	Case	Casing	ESR (C	2 max.)	Rated ripple current	Case	Casing	ESR (C	max.)	Rated ripple current	Case	Casing	ESR (0	max.)	Rated ripple current
capacitance (µF)	$\phi D \times L (mm)$	symbol	20℃	-10°C	(mArms)	$\phi D \times L (mm)$	symbol	20℃	-10℃	(mArms)	$\phi D \times L (mm)$	symbol	20℃	-10℃	(mArms)
10	5 × 11.5	E3	1.1	2.2	162	5 × 11.5	E3	1.90	3.8	123	6.3 × 11.5	F3	1.1	2.2	186
22	6.3 × 11.5	F3	0.54	1.1	265	8 × 12	G3	0.53	1.1	315	8 × 12	G3	0.53	1.1	315
27	6.3 × 11.5	F3	0.54	1.1	265	_	_	-	-	-	_	_	_	_	_
33	6.3 × 11.5	F3	0.54	1.1	265	8 × 12	G3	0.53	1.1	315	8 × 15	G4	0.35	0.70	423
47	8 × 12	G3	0.32	0.64	406	8 × 15	G4	0.35	0.70	423	10 × 12.5	Н3	0.47	0.94	392
56	8 × 12	G3	0.32	0.64	406	10 × 12.5	H3	0.47	0.94	392	10 × 16	H4	0.32	0.64	520
82	8 × 20	G5	0.17	0.34	682	10 × 16	H4	0.32	0.64	520	10 × 20	H5	0.25	0.50	640
100	10 × 16	H4	0.17	0.34	710	10 × 20	H5	0.25	0.50	640	10 × 25	H6	0.155	0.31	636
150	10 × 20	H5	0.12	0.24	920	12.5 × 20	15	0.13	0.26	1010	12.5 × 25	16	0.11	0.22	1200
180	10 × 25	H6	0.10	0.20	1110	_	_	_	_	_	_	_	_	_	_
220	12.5 × 20	15	0.075	0.15	1340	12.5 × 25	16	0.11	0.22	1200	12.5 × 30	17	0.090	0.18	1450
330	12.5 × 25	16	0.065	0.13	1730	12.5 × 30	17	0.090	0.18	1440	16 × 25	J6	0.079	0.16	1650
470	12.5 × 30	17	0.055	0.11	2110	16 × 31.5	J7	0.059	0.118	2100	16 × 35.5	J8	0.052	0.104	2340
470	16 × 25	J6	0.052	0.104	2180	18 × 25	K6	0.064	0.128	1980	18 × 31.5	K7	0.054	0.108	2350
560	16 × 25	J6	0.052	0.104	2180	16 × 31.5	J7	0.059	0.118	2100	16 × 40	J9	0.045	0.090	2650
360	18 × 20	K5	0.058	0.116	2290	18 × 25	K6	0.064	0.128	1980	18 × 35.5	K8	0.044	0.088	2730
680	16 × 31.5	J7	0.042	0.084	2710	16 × 35.5	J8	0.052	0.104	2340	16 × 40	J9	0.045	0.090	2650
080	18 × 25	K6	0.050	0.10	2610	18 × 31.5	K7	0.054	0.108	2350	18 × 35.5	K8	0.044	0.088	2730
820	16 × 31.5	J7	0.042	0.084	2710	16 × 40	J9	0.045	0.090	2650	18 × 40	К9	0.039	0.078	3050
620	18 × 25	K6	0.050	0.10	2610	18 × 35.5	K8	0.044	0.088	2730	16 × 40	K9	0.039	0.076	3030
1000	16 × 35.5	J8	0.036	0.072	2820	18 × 40	К9	0.039	0.078	3050					_
1000	18 × 31.5	K7	0.042	0.084	3080	16 X 40	1.9	0.039	0.078	3050					_
1500	18 × 35.5	K8	0.035	0.070	3530	I	_	-	_	_	-	_	_	_	_
1800	18 × 40	K9	0.032	0.064	3880		_	_	_	_	_	_	_	_	_

(Note) Rated ripple current : $105^{\circ}\!C$, 100kHz ; ESR : 100kHz



MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS RJE



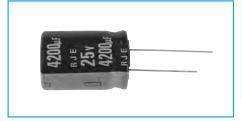






- For SRS AirBag application
- · High capacitance, low impedance, and good low temperature behavior
- Guarantees 5000 hours at 105℃.





Marking color: White print on a black sleeve

Specifications

Item		Performance		
Category temperature range (°C)		-55 to +105		
Tolerance at rated capacitance (%)		0 to +30		(20°C,120Hz)
Leakage current (μA) (max.)	0.01CV (after 2 r	ninutes) C: Rated capacitance (μF), V: Rate	d voltage (V)	(20°C)
Tangent of loss angle	Rated voltage (V)	25	35	
-	tanδ (max.)	0.20	0.16	
(tanδ)	0.02 is added to every 1000µF increase over 1000	μF		(20°C,120Hz)
Characteristics at high	Rated voltage (V)	25	35	
•	Impedance ratio (max.) Z-55°C/Z+20°C	3	3	
and low temperature				(120Hz)
	Test time	5000 hours		
Endurance (105°C)	Leakage current	The initial specifie	d value or less	
Endurance (105°C)	Percentage of capacitance change	Within ±30% of ir	nitial value	
	Tangent of loss angle	300% or less of the	ne initial specified value	
Shelf life (105°C)	Test time: 1000hours; other items are sar	ne as the endurance. Voltage application trea	atment : According to JIS C5101-4	4.1
Applicable standards		JIS C5101-1, -4 (IEC 60384-1, -4)		

Outline Drawing



Coefficient of Frequency for Rated Ripple Current

Rated capacitance (μF)	50 · 60	120	1k	10k•100k
830 to 1100	0.70	0.75	0.90	1
1200 to 11000	0.80	0.85	0.95	1

Vent	\ ,	Sleeve	<u>!</u>	φd±0.05 copper plated steel wire (tinn
φD+0.5/0		+α max		15min. 5
	12.5	16	18	
φD				
φD F	5.0	7.5	7.5	
	_	7.5 0.8	7.5 0.8	

Part numbering system (example : 25V4200µF)									
RJE —	25	٧	422	Α	Ι9	(#)Q	_		
Series code	Rated voltage symbol		Rated capacitance symbol	Capacitance tolerance symbol	Casing symbol	Optional symbol		Taping(Forming) symbol	

If it is whisker preventive structure, should change "#" into "G".

Standard Ratings

Standard 11									
Rated	voltage(V)		2	5			3	5	
Case size Casi		Rated capacitance	ESR Ω (max.) / 100kHz		Rated ripple current	Rated capacitance	Ω (max.)		Rated ripple current
ϕ D×L (mm) \searrow	ymbol	(μF)	20°C	− 40°C	(mArms)	(μF)	20℃	− 40°C	(mArms)
12.5×15	I4	1100	0.174	0.52	1210	830	0.174	0.52	1210
12.5×20	I5	1800	0.107	0.27	1670	1300	0.107	0.27	1670
12.5×25	16	2400	0.084	0.21	1950	1600	0.084	0.21	1950
12.5×30	17	3200	0.070	0.18	2330	2200	0.070	0.18	2330
12.5×35	I8	3700	0.062	0.16	2620	2500	0.062	0.16	2620
12.5×40	19	4200	0.048	0.12	3160	2900	0.048	0.12	3160
16×16	J4	2100	0.121	0.36	1700	1500	0.121	0.36	1700
16×20	J5	3100	0.082	0.21	2230	2100	0.082	0.21	2230
16×25	J6	4300	0.062	0.16	2650	3000	0.062	0.16	2650
16×31.5	J7	5800	0.051	0.13	3210	4000	0.051	0.13	3210
16×35.5	J8	6800	0.045	0.11	3570	4600	0.045	0.11	3570
16×40	J9	7800	0.042	0.11	3880	5300	0.042	0.11	3880
18×16	K4	3000	0.107	0.32	2010	2100	0.107	0.32	2010
18×20	K5	4300	0.079	0.20	2500	3000	0.079	0.20	2500
18×25	K6	6000	0.056	0.14	3000	4200	0.056	0.14	3000
18×31.5	K7	8000	0.045	0.11	3660	5600	0.045	0.11	3660
18×35.5	K8	9300	0.042	0.11	3960	6500	0.042	0.11	3960
18×40	К9	11000	0.040	0.10	4300	7400	0.040	0.10	4300

(Note) Rated ripple current : 105° C, 100kHz

105℃







For SRS AirBag

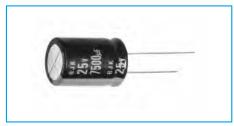






- For SRS AirBag application
- High capacitance, low impedance, and good low temperature behavior.
- Guarantees 5000 hours at 105℃.



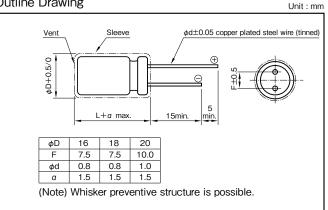


Marking color: White print on a black sleeve

Specifications

Item		Performance								
Category temperature range (°C)	-55 to +105									
Tolerance at rated capacitance (%)		0 to +30 (20°C,120Hz								
Leakage current (μA) (max.)	0.01CV (after 2 i	0.01CV (after 2 minutes) $$ C : Rated capacitance (μF) , V : Rated voltage (V)								
Tangent of loss angle	Rated voltage (V)	25	35							
-	tanδ (max.)	0.20	0.16							
(tanδ)	0.02 is added to every $1000 \mu F$ increase over 1000	DμF	(2	0°C,120Hz)						
Characteristics at high	Rated voltage (V)	25	35							
	Impedance ratio (max.) Z-55°C/Z+20°C	3	3							
and low temperature				(120Hz)						
	Test time	5000 hours								
Endurance (10E°C)	Leakage current	The initial specifie	ed value or less							
Endurance (105°C)	Percentage of capacitance change	Within ±30% of ir	nitial value							
	Tangent of loss angle	300% or less of the	ne initial specified value							
Shelf life (105°C)	Test time : 1000hours ; other items are sar	me as the endurance. Voltage application trea	atment : According to JIS C5101-4 4.1							
Applicable standards		JIS C5101-1, -4 (IEC 60384-1, -4)								

Outline Drawing



Coefficient of Frequency for Rated Ripple Current

Frequency (Hz) Rated voltage (V)	120	1k	10k	100k
25, 35	0.80	0.85	0.95	1

Part num	Part numbering system (example : 25V4200µF)									
RJK — 25 V 422 A J5 #Q — □										
Series code	Rated voltage symbol		Rated capacitance symbol	Capacitance tolerance symbol	Casing symbol	Optional symbol		Taping(Forming) symbol		

If it is whisker preventive structure, should change "#" into "G".



MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS RJK

Standard Ratings

Rated vo	Itage (V)		2	5			3	5	
Case Casing		Rated capacitance	ESR (Ω max. / 100kHz)		Rated ripple current	Rated capacitance		SR ′ 100kHz)	Rated ripple current
\Odd	sing \ symbol \	(μF)	20°C	- 40°C	(mArms)	(μF)	20℃	- 40°C	(mArms)
16 × 20	J5	4200	0.033	0.095	2250	2500	0.033	0.095	2250
18 × 20	K5	5300	0.029	0.082	2500	3100	0.029	0.082	2500
16 × 25	J6	5900	0.024	0.073	2600	3500	0.024	0.073	2600
18 × 25	K6	7500	0.022	0.063	2800	4500	0.022	0.063	2800
16 × 31.5	J7	8000	0.021	0.052	3200	4700	0.021	0.052	3200
18 × 31.5	K7	9500	0.019	0.046	3500	5600	0.019	0.046	3500
16 × 35.5	J8	10000	0.019	0.045	3500	6000	0.019	0.045	3500
18 × 35.5	K8	11000	0.017	0.040	3700	7100	0.017	0.040	3700
16 × 40	J9	11000	0.017	0.040	3800	6600	0.017	0.040	3800
18 × 40	К9	14000	0.015	0.035	4000	8400	0.015	0.035	4000
20 × 40	L9	17000	0.015	0.035	4000	10000	0.015	0.035	4000

(Note) Rated ripple current : 105°C, 100kHz

MINIATURE ALUMINUM

105℃



105°C Use, Miniature, High-Ripple, Long Life Capacitors

GREEN 1 CAP 50

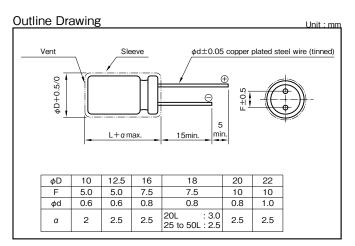
- · Higher ripple current.
- Guarantees 4000 to 5000 hours at 105°C.
- · Best-suited to On-Board-Charger for EV, PHEV.



Marking color: White print on a black sleeve

Specifications

Item			Performance									
Category temperature range (°C)			-40 to +105									
Rated Voltage (V)			160 to 450									
Tolerence at rated capacitance (%)		±20 (20°C,120										
Leakage current (μΑ) (max.)			(after 1 minutes) CV>1000 ed capacitance (μF), V : Rat		1 minutes)	(20°C)						
Tangent of loss angle	Rated vo	Itage (V)	160 to 250	350 to 400	450							
tangent of loss angle (tanδ)	Tangent of	loss angle	0.12	0.15	0.20							
		•			((20°C,120Hz)						
	Rated vo	oltage (V)	160 to 250		350 to 450							
Characteristics at high		Z-25°C/Z+20°C	3		5							
and low temperature	Impedance ratio	Z-40°C/Z+20°C	4		6							
						(120Hz)						
	Tes	t time	φ10 φ12	: 4000 hou .5 to ¢22 : 5000 hou								
Endurance (105°C)	Leakag	ge current	The	initial specified value	or less							
(Applied ripple current)	Capacita	nce change	With	in ±20% of initial valu	ne							
	Tangent o	of loss angle	300	% or less of the initial	specified value							
	Tes	t time	100	0 hours								
	Leakag	ge current	The	initial specified value	or less							
Shelf life (105°C)	Capacita	nce change	With	in ±20% of initial valu	ue							
		of loss angle		% or less of the initial	specified value							
	Voltage application treatn	nent : According to JIS C51	01-4 4.1									
Applicable Standards		JIS	C5101-1, -4 (IEC 60384-1,	-4)								



			- -			
Rated voltage (V)	Rated capacitance (µF)	50 • 60	120	1k	10k	100k
	4.7 to 10	0.80	1	1.75	2.00	2.50
160 to 250	12 to 47	0.80	1	1.60	1.80	2.00
	56 to 560	0.80	1	1.30	1.40	1.40
	1 to 10	0.80	1	1.75	2.00	2.50
350 to 450	12 to 18	0.80	1	1.60	1.80	2.00
	22 or more	0.80	1	1.40	1.50	1.50

Part numbering system (example : 400V10µF)									
RHS —	400	٧	100	М	I5	#	В	_	
Series code	Rated voltage symbol		Rated capacitance symbol	Capacitance tolerance symbol	Casing symbol		Optional symbol		Taping(Forming) symbol

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MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS RHS

Standard Ratings

	Rated vo	Itage (V)	16	30	20	00	25	50	35	50	40	00	45	50
С	ase (mn	n)	Rated	Rated ripple		Rated ripple								
φD	L	Symbol	capacitance (µF)	current (mArms)										
			22	145			4.7	65	3.3	55	2.2	40	1	30
10	10.5		22	145	4.7	05	4.7	65	4.7	65	3.3	43	2.2	45
10	12.5	H3			4.7	65		0=	8.2	85	4.7	65	4.7	50
			27	160			10	95	10	95	6.8	80	6.8	80
			33	170	10	96							8.2	100
10	16	H4		170	22	140	_	_	12	120	10	90	0.2	100
			39	185	33	170							10	110
			47	245					15	135				
10	20	H5	56	270	-	_	22	170	22	160	15	135	12	120
							33	220			18	165	15	150
10	25	H6	68	315	47	260	39	240	_	_	22	180	22	180
									27	220				
10	30	H7	100	425	68	350	47	290	33	250	_	-	-	_
				005	47	280								
12.5	20	15	68	335	56	305	. 33	235	27	220	22	200	18	180
12.0	20	15	82	370	68	335	47	280	33	245		200	22	200
					82	400			39	280	27	240	27	240
12.5	25	16	100	440			68	365						
					100	440			47	320	33	265	33	265
12.5	30	17	150	580	120	520	82	430	56	370	39	310	47	340
					150	580					47	340		
12.5	35	18	220	750	_	_	100	505	68	450	_	_	-	
12.5	40	19	_	_	180	715	120	585	_	_	56	420	_	_
											68	475		
			100	470	47	305	33	250	33	250	22	205	22	205
16	20	J5	120	490	68	393	47	320			33	250	27	225
			150	580	100	450	68	370	47	300	47	300	33	250
16	25	J6	180	660	120	574	100	520	68	420	68	440	47	380
10	23	30	220	770	150	605	120	540		420	00	440	47	300
16	31.5	J7	270	940	180	765	150	700	82	510	_	_	56	445
16	31.3	37	210	940	220	845	150	700	100	590		_	68	490
10	25.5	10	000	005	070	075	100	710	100	600	82	580	_	_
16	35.5	J8	330	965	270	875	180	710	120	680	100	620	1 -	_
													82	600
16	40	J9	390	1070	_	_	220	800	150	920	120	720	100	660
					120	530			56	370			39	310
18	20	K5	180	640	150	620	100	480	68	435	_	_	47	360
					180	710			82	490				
18	25	K6	270	860	220	830	150	645	100	570	_	-	68	470
			200	1000			100	700		2.0	82	610	00	F70
18	31.5	K7	330	1060	270	950	180	780	120	690	100	640	. 82	570
	30	'``	390	1200	0		220	910	0		120	670	100	630
18	35.5	K8	470	1400	330	1180	270	1070	150	820	150	800	120	730
18	40	K9	-	-	390	1350	_	-	180	940	-	_	-	-
18	45	KA	560	1600	470	1270	330	1240	220	1100	180	980	150	880
18	50	KB	680	1900	560	1800	390	1500	_	-	-	-	180	1000
20	40	L9	-	-	-	-	-	-	220		_		150	935
										1110				
20	45	LA	-	-	_		470	1700	270	1200	_		180	1050
20	50	LB	820	2300	-	-	470	1700	-	-	-	-	220	1230
22	40	N9	680	1945	560	1765	390	1475	270	1297	220	1170	180	1065
22	45	NA	820	2235	_		470	1695	330	1511	_		220	1235
22	50	NB	1000	2575	_	_	560	1930	_	_	_	_	270	1430

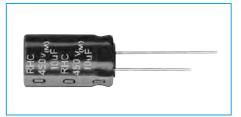




105°C Use, Miniature, High-Ripple, Long Life Capacitors

- Higher ripple current.
- Guarantees 5000 to 10000 hours at 105℃.
- Best-suited On-Board-Charger for EV, PHEV.



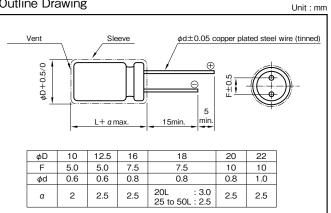


Marking color: White print on a black sleeve

Specifications

Item			Parformanca								
Category temperature range (°C)		Performance -40 to +105									
		-40 to +105 160 to 450									
Rated Voltage (V)		±20 (20°C,1									
Tolerence at rated capacitance (%)		120									
Leakage current (μA) (max.)	0	0.04CV + 100 (after 1 minutes) C : Rated capacitance (μF), V : Rated voltage (V)									
Tangent of loss angle	Rated vo	Itage (V)	160 to 250	350 to 450							
(tanδ)	Tangent of	loss angle	0.15	0.20							
	*The black circles in the	capacitance column corre	espond.		(20°C,120Hz)						
	Rated vo	Rated voltage (V) 160 to 250 350 to 450									
Characteristics at high	Impedance ratio	7.05°0/7.100°0									
and low temperature	(max.)	Z-40°C/Z+20°C	6	6							
					(120Hz)						
	Tes	t time	φ10×12.5L φ10×16L to 25L φ10×30L, φ12.5 to	: 5000 hours : 8000 hours \$\phi\$22 : 10000 hours							
Endurance (105°C) (Applied ripple current)	Leakag	ge current	The initial specifide	value or less							
(Applied ripple current)	Capacita	nce change	Within ±30% of init	ial value							
	Tangent o	of loss angle	300% or less of the	initial specified value							
	Toe	t time	1000 hours								
		ge current	The initial specifide								
Shelf life (105°C)		nce change	Within ±20% of init								
		of loss angle		initial specified value							
	Voltage application treatn	nent : According to JIS C5	101-4 4.1								
Applicable standards		,	JIS C5101-1, -4 (IEC 60384-1, -4)								

Outline Drawing



Rated capacitance (μF)	120	1k	10k	100k
1 to 5.6	0.20	0.40	0.80	1
6.8 to 18	0.30	0.60	0.90	1
22 to 82	0.40	0.70	0.90	1
100 or more	0.45	0.75	0.90	1

Part num	Part numbering system (example : 400V10μF)													
RHC -	- 400	٧	100	М	Н5	#	В	_						
Series code	Rated voltage symbol		Rated capacitance symbol	Capacitance tolerance symbol	Casing symbol		Optional symbol		Taping(Forming) symbol					

MINIATURE ALUMINUM



MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS RHC

Standard Ratings

		Rated vo	Itage (V)		50		00		50		50		00	45	
	С	ase (mn	n)												Rated ripple
10	φD	L	Symbol												(mArms)
10						4.7	225		225	4.7	270				210
10	10	12.5	Н3	-	_	- 10	200		250		005	3.3	245	3.3	245
10						10	300	8.2	270	5.6	285			3.9	255
10				39	665	-		10	525					4.7	400
10	10	16	H4					22	570	18	675			6.8	445
10				47	730			27	710					10	500
10						33	640	21	710					10	300
10	10	20	H5			47	780	33	700	22	690			15	620
10				68	895	=-	0.45		005						
10	10	25	Н6	82	1090					-	_			18	725
12.5 20															
12.5 20	10	30	H7	100	1345	82	1250			_	_				
12.5 25	12.5	20	15	100	1495	68	1295			33	1040				
12.5 25														22	925
12.5 30 17 180 1970 120 1695 100 1590 56 1300 47 1220 33 1035 1220 125 35 18 220 2140 150 1865 120 1700 68 1420 56 1320 39 1155 125 125 1465 180 1985 120 1700 68 1420 56 1320 39 1155 125 1465 180 1985 120 1700 68 1420 56 1320 39 1155 125 1465	12.5	25	16	120	1645	100	1540	68	1330	47	1245	33	1075	27	1055
12.5 30 17 180 1970 120 1695 100 1590 56 1300 47 1220 47 1220 47 1220 12.5 12.5 35 18 220 2140 150 1685 120 1700 68 1420 56 1320 39 1155 12.5 40 19 270 2580 - -				150	1790			82	1430			39	1160		
12.5 35	12.5	30	17	180	1970	120	1695	100	1590	56	1300	47	1220		
12.5						150	1865							71	1220
12.5 40 19 270 2580 150 2090 82 1690 68 1575 56 1465 1465 1485 14	12.5	35	18	220	2140			120	1700	68	1420	56	1320	39	1155
The boundary color The bou	12.5	40	TO	270	2590			150	2000	92	1600	60	1575	56	1.465
150	12.3	40	19	210	2360					02	1090				
16				150	1995	68	1485	68	1485	47	1320				
180	16	20	J5			100	1710	82	1590						
16 25 J6 220 2320 150 2020 120 1855 82 1640 68 1525 47 1330 16 31.5 J7 330 3000 220 2450 150 2135 100 1865 82 1730 56 1500 16 35.5 J8 390 3330 - - 220 2530 120 2000 100 1875 82 1740 16 40 J9 470 3775 330 3120 270 2805 150 2300 120 2110 100 1975 18 20 K5 220 2235 150 1950 120 1790 82 1590 66 1380 47 1295 18 25 K6 330 2725 220 2380 150 2055 100 1840 82 1710 68 1595 18				180	2125	120	1830	100	1710	56	1405				
16 31.5 J7 330 3000 220 2450 180 2215 100 1865 82 1730 56 1500 16 31.5 J7 330 3000 220 2450 180 2280 100 1865 82 1730 56 1500 16 40 J9 470 3775 330 3120 270 2805 150 2300 120 2110 100 1975 18 20 K5 220 2235 150 1950 120 1790 82 1590 56 1380 47 1295 18 25 K6 330 2725 220 2380 150 2055 100 1840 82 1710 68 1595 18 31.5 K7 390 2985 330 2865 220 2445 150 2215 100 1905 82 1765 18 <td>10</td> <td>05</td> <td>10</td> <td>000</td> <td>0000</td> <td>150</td> <td>2020</td> <td>100</td> <td>1055</td> <td>00</td> <td>1040</td> <td></td> <td></td> <td></td> <td></td>	10	05	10	000	0000	150	2020	100	1055	00	1040				
16 31.5 J7 330 3000 270 2640 180 2280 100 1865 82 1730 68 1615 16 35.5 J8 390 3330 - - 220 2530 120 2000 100 1875 82 1740 16 40 J9 470 3775 330 3120 270 2805 150 2300 120 2110 100 1975 18 20 K5 220 2235 150 1950 120 1790 82 1590 56 1380 47 1295 18 25 K6 330 2725 220 2380 150 2055 100 1840 82 1710 68 1595 18 31.5 K7 390 2985 330 2865 220 2445 150 2215 100 1905 82 1765 18 35.5 K8 - - 390 3095 270 2730 180	16	25	10	220	2320	180	2155	120	1855	82	1640	08	1525	47	1330
16	40	04.5		000	0000	220	2450	150	2135	100	1005		1700	56	1500
16 40 J9 470 3775 330 3120 270 2805 150 2300 120 2110 100 1975 18 20 K5 220 2235 150 1950 1790 82 1590 56 1380 47 1295 18 25 K6 330 2725 220 2380 150 2055 100 1840 82 1710 68 1595 18 31.5 K7 390 2985 330 2865 220 2445 150 2215 100 1905 82 1765 18 35.5 K8 - - 390 3095 270 2730 180 2450 150 290 190 1905 82 1765 18 40 K9 560 4070 470 3465 330 3085 220 2720 - - 150 2300 120 2110 18 45 KA 680 4140 560 3755 - - - - 180 2655 - - 18 50 KB 820 4595 -	16	31.5	J/	330	3000	270	2640	180	2280	100	1865	82	1730	68	1615
18 20 K5 220 2235 150 1950 120 1790 82 1590 56 1380 47 1295 18 25 K6 330 2725 220 2380 150 2055 100 1840 82 1710 68 1595 18 31.5 K7 390 2985 330 2865 220 2445 150 2215 100 1905 82 1765 18 35.5 K8 - - 390 3095 270 2730 180 2450 150 2300 120 2110 18 40 K9 560 4070 470 3465 330 3085 220 2720 - - 150 2300 120 2110 18 40 K9 560 4070 470 3465 330 3085 220 2720 - - 150 2300	16	35.5	J8	390	3330	-	-	220	2530	120	2000	100	1875	82	1740
18 20 K5 220 2235 180 2080 120 1790 82 1590 68 1485 56 1380 18 25 K6 330 2725 220 2380 150 2055 100 1840 82 1710 68 1595 18 31.5 K7 390 2985 330 2865 220 2445 150 2215 100 1905 82 1765 18 35.5 K8 - - 390 3095 270 2730 180 2450 150 2300 120 2110 18 40 K9 560 4070 470 3465 330 3085 220 2720 - - 150 2300 120 2110 18 45 KA 680 4140 560 3755 - - - - 180 2655 - - 18 50 KB 820 4595 - - 390 3605 270 3305 220 3065 180 2850 20 40 L9 680 3850 560 3735 <	16	40	J9	470	3775	330	3120	270	2805	150	2300	120	2110	100	1975
18 25 K6 330 2725 220 2380 150 2055 18 25 K6 330 2725 2540 180 2190 100 1840 82 1710 68 1595 18 31.5 K7 390 2985 330 2865 220 2445 150 2215 100 1905 82 1765 18 35.5 K8 - - 390 3095 270 2730 180 2450 150 2300 120 2110 18 40 K9 560 4070 470 3465 330 3085 220 2720 - - 150 2300 120 2110 18 45 KA 680 4140 560 3755 - - - - 180 2655 - - 18 50 KB 820 4595 - - - - - - 180 2655 - - - 20 40 L9 680 3850 560 3735 390 3220 - - - - - -						150	1950		.=			56	1380	47	1295
18 25 K6 330 2725 270 2540 180 2190 18 31.5 K7 390 2985 470 3185 330 2865 220 2445 150 2215 100 1905 120 2035 100 1905 18 35.5 K8 - - 390 3095 270 2730 180 2450 150 2300 120 2110 18 40 K9 560 4070 470 3465 330 3085 220 2720 - - 150 2420 18 45 KA 680 4140 560 3755 - - - - 180 2655 - - 18 50 KB 820 4595 - - 390 3605 270 3305 220 3065 180 2850 20 40 L9 680 3850 560 3735 390 3220 - - - - - - - 20 45 LA 820 4435 680 4320	18	20	K5	220	2235	180	2080	120	1 /90	82	1590	68	1485	56	1380
18						220	2380	150	2055						
18 31.5 K7 470 3185 330 2865 220 2445 150 2215 120 2035 100 1905 18 35.5 K8 - - 390 3095 270 2730 180 2450 150 2300 120 2110 18 40 K9 560 4070 470 3465 330 3085 220 2720 - - - 150 2420 18 45 KA 680 4140 560 3755 - - - - 180 2655 - - 18 50 KB 820 4595 - - 390 3605 270 3305 220 3065 180 2850 20 40 L9 680 3850 560 3735 390 3220 - - - - - - - 20 45 LA 820 4435 680 4320 470 3705 270 3190 - - 180 2750 20 50 LB 1000 5115 - - 560 </td <td>18</td> <td>25</td> <td>K6</td> <td>330</td> <td>2725</td> <td>270</td> <td>2540</td> <td>180</td> <td>2190</td> <td>100</td> <td>1840</td> <td>82</td> <td>1710</td> <td>68</td> <td>1595</td>	18	25	K6	330	2725	270	2540	180	2190	100	1840	82	1710	68	1595
18				390	2985							100	1905	82	1765
18 40 K9 560 4070 470 3465 330 3085 220 2720 — — — 150 2420 18 45 KA 680 4140 560 3755 — — — — — — — 180 2655 — — 18 50 KB 820 4595 — — — 390 3605 270 3305 220 3065 180 2850 20 40 L9 680 3850 560 3735 390 3220 — — — — — — 20 45 LA 820 4435 680 4320 470 3705 270 3190 — — — 180 2750 20 50 LB 1000 5115 — — 560 4225 330 3685 270 3425 220 3175 22 40 N9 820 4270 680 4160 470 3570 270 3070 220 2850 180 2650 22 45 NA 1000 4945	18	31.5	K7	470	3185	330	2865	220	2445	150	2215	120	2035	100	1905
18 45 KA 680 4140 560 3755 —	18	35.5	К8	_	_	390	3095	270	2730	180	2450	150	2300	120	2110
18 50 KB 820 4595 - - 390 3605 270 3305 220 3065 180 2850 20 40 L9 680 3850 560 3735 390 3220 - </td <td>18</td> <td>40</td> <td>К9</td> <td>560</td> <td>4070</td> <td>470</td> <td>3465</td> <td>330</td> <td>3085</td> <td>220</td> <td>2720</td> <td>_</td> <td>_</td> <td>150</td> <td>2420</td>	18	40	К9	560	4070	470	3465	330	3085	220	2720	_	_	150	2420
18 50 KB 820 4595 — — 470 3840 270 3305 220 3065 180 2850 20 40 L9 680 3850 560 3735 390 3220 — — — — — — — — 20 45 LA 820 4435 680 4320 470 3705 270 3190 — — 180 2750 20 50 LB 1000 5115 — — 560 4225 330 3685 270 3425 220 3175 22 40 N9 820 4270 680 4160 470 3570 270 3070 220 2850 180 2650 22 45 NA 1000 4945 — — 560 4085 330 3560 270 3310 220 3070	18	45	KA	680	4140	560	3755	_	_	_	_	180	2655	_	_
20 40 L9 680 3850 560 3735 390 3220 -								390	3605						
20 40 L9 680 3850 560 3735 390 3220 -	18	50	KB	820	4595	_	_			270	3305	220	3065	180	2850
20 45 LA 820 4435 680 4320 470 3705 270 3190 — — 180 2750 20 50 LB 1000 5115 — — 560 4225 330 3685 270 3425 220 3175 22 40 N9 820 4270 680 4160 470 3570 270 3070 220 2850 180 2650 22 45 NA 1000 4945 — — 560 4085 330 3560 270 3310 220 3070	20	40	L9	680	3850	560	3735			_	_	_	_	_	_
20 50 LB 1000 5115 - - 560 4225 330 3685 270 3425 220 3175 22 40 N9 820 4270 680 4160 470 3570 270 3070 220 2850 180 2650 22 45 NA 1000 4945 - - 560 4085 330 3560 270 3310 220 3070	20										3190	_		180	
22 40 N9 820 4270 680 4160 470 3570 270 3070 220 2850 180 2650 22 45 NA 1000 4945 560 4085 330 3560 270 3310 220 3070															
22 45 NA 1000 4945 560 4085 330 3560 270 3310 220 3070															
22 50 NB - - 820 4995 680 4695 - - 330 3815 270 3550															
22 50 NB - - 820 4995 680 4695 - - 330 3815 270 355 35	22					820	4995	680	4695		_	330	3815	270	355

(Note) Rated ripple current : $105^{\circ}\!C$, 120Hz

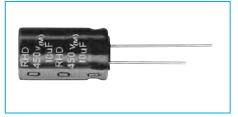
RHD MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS



105°C Use, Miniature, High-Ripple, Long Life Capacitors

- Higher ripple current.
- Guarantees 8000 to 12000 hours at 105°C.
- · Best-suited to On-Board-Charger for EV, PHEV.



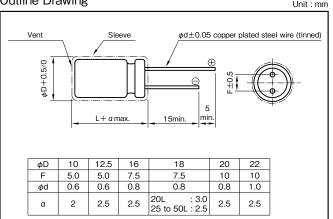


Marking color: White print on a black sleeve

Specifications

Item			Performance		
Category temperature range (°C)			-40 to +105		
Rated Voltage (V)			160 to 450		
Tolerence at rated capacitance (%)			±20		(20°C,120Hz)
			±20		(20 0,120Hz)
Leakage current(μA) (max.)		0.04CV + 100 (after	1 minutes) C:Rated capacitance (μF),V:Rated	Voltage (V)	(20°C)
	Rated vo	Itage (V)	160 to 250	350 to 450	
Tangent of loss angle (tanδ)	Tangent of	loss angle	0.15	0.20	
(terro)					(20°C,120Hz)
	Rated vo	Itage (V)	160 to 250	350 to 450	
Characteristics at high	Impedance ratio	Z-25°C/Z+20°C	3	5	
and low temperature	(max.)	Z-40°C/Z+20°C	6	6	
					(120Hz)
Endurance (105°C)	Test	time	φ10×12.5L φ10×16L to 25L φ10×30L, φ12.5 to	: 8000hours : 10000hours : \$\phi 22 : 12000hours	
(Applied ripple current)	Leakag	e current	The initial specified	value or less	
	Capacita	nce change	Within ±30% of init	ial value	
	Tangent of	loss angle	300% or less of the	initial specified value	
			1000		
		time	1000hours		
01 1/11/ (405°0)		e current	The initial specified		
Shelf life (105°C)		nce change	Within ±20% of init		
	Tangent of			initial specified value	
	Voltage application treatm	nent : According to JIS C51	01-4 4.1		
Applicable Standards		JI	IS C5101-1, -4 (IEC 60384-1, -4)		

Outline Drawing



Rated Frequency (Hz) voltage (V)	120	1k	10k	100k
1 to 5.6	0.20	0.40	0.80	1
6.8 to 18	0.30	0.60	0.90	1
22 to 82	0.40	0.70	0.90	1
100 or more	0.45	0.75	0.90	1

Part numbering system (example : 400V47µF)													
RHD —	400	٧	470	М	K6	#	В	_					
Series code	Rated voltage symbol		Rated capacitance symbol	Capacitance tolerance symbol	Casing		Optional symbol	-	Taping(Forming)				

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS RHD

Standard Ratings

	Rated vo	Itage (V)		60		00		50		50		00		50
С	ase (mn		Rated capacitance	Rated ripple current	Rated capacitance	Rated ripple current	Rated capacitance	Rated ripple current	Rated capacitance	Rated ripple current	Rated capacitance	Rated ripple current	Rated capacitance	Rated ripp current
φD	L	Symbol	(μF)	(mArms)	(μF)	(mArms)	(μF)	(mArms)	(µF)	(mArms)	(μF)	(mArms)	(μF)	(mArms)
			22	360	10	300	6.8	250	4.7	270	3.3	245	3.3	245
10	12.5	Н3	27	380	12	340	8.2	270	5.6	285	4.7	270	3.9	255
			33	405	22	360	10	300	6.8	305	6.8	305	4.7	270
			39	665	15	595			10	565	10	500	6.8	445
10	16	H4			27	580	22	570						
			47	730	33	640			12	595	12	595	10	500
10	20	H5	56	830	39	725	33	700	15	620	15	620	12	575
10	20	113	68	895	47	780	33	700	22	690	18	650	15	620
10	25	Н6	82	1090	56	945	39	825	27	815	22	765	18	725
10	25	110	02	1090	68	1015	47	885	21	013	27	815	10	725
10	30	H7	100	1345	82	1250	56	1080	33	935	33	935	22	835
12.5	20	15	100	1495	68	1295	47	1125	27	985	22	925	18	870
12.0	20	10	100	1400	82	1385	56	1200	33	1040	27	985	22	925
12.5	25	16	120	1645	100	1540	68	1330	39	1160	33	1075	27	1055
12.0		10	150	1790	100	1040	82	1430	47	1245	39	1160		1000
													33	1095
12.5	30	17	180	1970	120	1695	100	1590	56	1300	47	1220	39	1135
													47	1220
12.5	35	18	220	2140	150	1865	120	1700	68	1420	56	1320	ı	_
12.5	40	19	270	2580	180	2225	150	2090	82	1690	68	1575	56	1465
			100	1710	68	1485	47	1290	33	1185	22	1055	22	1055
16	20	J5	150	1995	82	1590	68	1485	47	1320	33	1185	27	1120
10	20	55	130	1995	100	1710	82	1590	47	1020		1103	33	1185
			180	2125	120	1830	100	1710	56	1405	47	1320	39	1195
16	25	J6	220	2320	150	2020	120	1855	68	1525	56	1420	47	1330
10	25	30	220	2320	180	2155	120	1655	82	1640	68	1525	47	1330
16	31.5	J7	270	2640	220	2450	150	2135	100	1865	82	1730	56	1500
10	51.5	07	330	3000	270	2640	180	2280	100	1003	02	1730	68	1615
16	35.5	J8	390	3330	_	-	220	2530	120	2000	100	1875	82	1740
16	40	J9	470	3775	330	3120	270	2805	150	2300	120	2110	82	1835
10	40	09	470	3773	330	3120	270	2003	130	2500	120	2110	100	1975
					150	1950			68	1485	39	1205	47	1295
18	20	K5	220	2235			120	1790			56	1380		
					180	2080			82	1590	68	1485	56	1380
18	25	K6	270	2540	220	2380	150	2055	100	1840	82	1710	68	1595
.5			330	2725	270	2540	180	2190	100	1040	UZ.	.710	00	1000
18	31.5	K7	390	2985	330	2865	220	2445	120	2035	100	1905	82	1765
10	01.0	107	470	3185	330	2000	220	2440	150	2215	120	2035	100	1905
18	35.5	K8	-	-	390	3095	270	2730	180	2450	150	2300	120	2110
18	40	K9	560	4070	470	3465	330	3085	220	2720	-	-	150	2420
18	45	KA	680	4140	560	3755	-	-	_	_	180	2655	-	_
18	50	KB	820	4595	_	_	390	3605	270	3305	220	3065	180	2850
		יעט	020	7000			470	3840	270	5505	220	5505	100	2000
20	40	L9	680	3850	560	3735	390	3220	_	_	180	2550	_	_
20	45	LA	820	4435	680	4320	470	3705	270	3190	220	2960	180	2750
20	50	LB	1000	5115	_	-	560	4225	330	3685	-	-	220	3175
22	40	N9	820	4270	680	4160	470	3570	270	3070	220	2850	180	2650
22	45	NA	1000	4945	_	-	560	4085	330	3560	-	_	220	3070
22	50	NB	_	_	820	4995	680	4695	_	_	270	3450	270	3550
			nt : 105℃ , 1	00415			•						•	

105℃



125°C Use, Miniature, Low ESR Capacitors



- Smaller and low ESR than RK series.
- Guarantees 5000 hours at 125°C (ϕ 8 : 2000 hours)

 $(\phi 10, 63 \text{ to } 100 \text{V } 20 \text{ to } 25 \text{L}: 3000 \text{ hours})$

Miniaturized, Low ESR





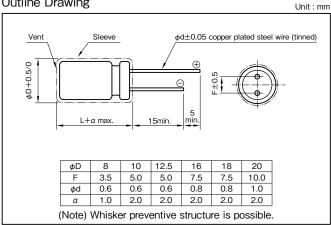


Marking color: White print on a black sleeve

Specifications

Item				Perforn	mance									
Category temperature range (°C)				-40 to	+125									
Tolerance at rated capacitance (%)				±2	20					(20°C,120Hz				
Leakage current (μA) (max.)	0.	01CV or 3 whichever is	larger (after	2 minutes) (C : Rated ca	pacitance (μ	F), V : Rated	voltage (V)		(20°C				
Tangent of loss angle	Rated volta	age (V)	10	16	25	35	50	63	80	100				
(tanδ)	tanδ (m	nax.)	0.20	0.16	0.14	0.12	0.10	0.10	0.08	0.08				
	0.02 is added to every 100	added to every 1000μF increase over 1000μF. (20°C,120Hz)												
Characteristics at high	Rated volta	age (V)	10	16	25	35	50	63	80	100				
and low temperature	Impedance ratio (max.)	Z-40°C/Z+20°C	4	3	3	3	3	3	3	3				
										(120Hz				
Fathware (105°0)	Test ti	me			5000 ho	urs `	2000 hours) 63 to 100V	20 to 25L : 3	3000 hours)					
Endurance (125°C) (Applied ripple current)	Leakage o	current			The initi	ial specified	value or less	i						
(Percentage of capa	acitance change			Within	±30% of init	ial value							
	Tangent of the	loss angle			300% o	r less of the	initial specif	ied value						
Shelf life (125°C)	Test time: 1000	Test time: 1000hours; other items are same as the endurance. Voltage application treatment: According to JIS C5101-4 4.1												
Applicable standards		JIS C5101-1, -4 (IEC 60384-1, -4)												

Outline Drawing



Rated Frequency (Hz) capacitance (µF)	50 · 60	120	1k	10k · 100k
100 to 330	0.55	0.65	0.85	1
390 to 1000	0.70	0.75	0.90	1
1200 to 8200	0.80	0.85	0.95	1

Part numbering system (example : 10V1000µF)														
RKD — 10 V 102 M H5 # — [[]														
Series code	Bated voltage Rated canacitance Canacitance Casing Taping(Forming)													

If it is whisker preventive structure, should change "#" into "G".

Standard Ratings

Rated voltage (V)		10	0			1	6			2	5			3	5	
Pated Item	Case	Casing	ESR	Rated ripple current	Case	Casing	ESR	Rated ripple current	Case	Casing	ESR	Rated ripple current	Case	Casing	ESR	Rated ripple current
capacitance	ϕ D × L (mm)	symbol	(Ω max.)	(mArms)	$\phi D \times L \text{ (mm)}$	symbol	(Ω max.)	(mArms)	ϕ D × L (mm)	symbol	(Ω max.)	(mArms)	φD×L (mm)	symbol	(Ω max.)	(mArms)
100	-	-	_	_	8×12	G3	0.153	501	8×12	G3	0.153	501	8×12	G3	0.153	501
220	8×12	G3	0.153	501	8×12	G3	0.153	501	8×12	G3	0.153	501	10×12.5	Н3	0.098	732
220	6 ^ 12	us	0.155	301	10×12.5	НЗ	0.098	732	10×12.5	Н3	0.098	732	10×16	H4	0.075	953
330	8×12	G3	0.153	501	8×12	G3	0.153	501	10×12.5	Н3	0.098	732	10×16	H4	0.075	953
330	10×12.5	НЗ	0.098	732	10×12.5	НЗ	0.098	732	10×16	H4	0.075	953	10×20	H5	0.057	1140
									10×16	H4	0.075	953	10×20	H5	0.057	1140
470	10×12.5	НЗ	0.098	732	10×16	H4	0.075	953	101100		0.057	44.40	12.5×20	Ι5	0.040	1820
									10×20	H5	0.057	1140	16×16	J4	0.044	1930
	10×20	H5	0.057	1140	10×20	H5	0.057	1140	12.5×20	15	0.040	1820	12.5×25	16	0.032	2400
1000	10.5 × 15	т.4	0.050	1000	12.5×20	Ι5	0.040	1820	12.5×25	16	0.032	2400	16×25	J6	0.024	3100
1	12.5×15	I4	0.059	1380	16×16	J4	0.044	1930	16×16	J4	0.044	1930	18×20	K5	0.029	2490
1200	_	_	_	_	_	_	_	_	12.5×20	15	0.040	1820	12.5×30	I7	0.029	2560
1200									12.07.20		0.040	1020	16×20	J5	0.032	2280
													12.5×35	18	0.023	2970
1500	-	-	-	_	_	-	_	_	_	_	_	_	16×31.5	J7	0.020	3160
													18×25	K6	0.022	3200
1800	_	_	_	_	_	_	_	_	12.5×25	16	0.032	2400	12.5×40	19	0.020	3600
									16×20	J5	0.032	2280	16×25	J6	0.024	3100
I —	12.5×25	16	0.032	2400	12.5×25	16	0.032	2400	12.5×30	I7	0.029	2560	16×31.5	J7	0.020	3160
2200	16×20	J5	0.032	2280	16×25	J6	0.024	3100	16×25	J6	0.024	3100	16×35.5	J8	0.019	3590
	18×16	K4	0.041	2170	18×20	K5	0.029	2490	18×20	K5	0.029	2490	18×25	K6	0.022	3200
									12.5×35	18	0.023	2970	16×35.5	J8	0.019	3590
2700	-	-	_	_	_	-	_	_	16×25	J6	0.024	3100	18×31.5	K7	0.018	3410
\perp									18×20	K5	0.029	2490	20×25	L6	0.022	3500
	16×25	J6	0.024	3100	16×31.5	J7	0.020	3160	12.5×40	19	0.020	3600	16×40	J9	0.017	4300
3300	18×20	K5	0.029	2490	18×25	K6	0.022	3200	16×31.5	J7	0.020	3160	18×35.5 20×30	K8 L7	0.017	4200 4000
									16×35.5	J8	0.019	3590	20/30	Li	0.013	4000
3900	-	-	-	_	-	-	_	_	18×25	K6	0.013	3200	_	-	_	-
	16×31.5	J7	0.020	3160	16×35.5	J8	0.019	3590	18×35.5	K8	0.022	4200	18×40	K9	0.016	4600
4700	18×25	K6	0.020	3200	18×31.5	K7	0.018	3410	20×25	L6	0.017	3500	20×35.5	L8	0.016	4700
	10.723	1.0	0.022	0200	10//01.0	11.7	0.010	0410	16×40	J9	0.022	4300	20/00.0	LO	0.010	7,00
5600	_	_	_	_	_	_	_	_	18×35.5	K8	0.017	4200	20×40	L9	0.015	5100
									20×30	L7	0.017	4000	20		3.010	0.00
									18×40	K9	0.019	4600				
6800	-	-	_	-	-	-	_	-	20×35.5	L8	0.016	4700	-	-	_	-
8200	-	-	_	_	_	_	_	_	20×40	L9	0.015	5100	_	_	_	_

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS RKD

Rated voltage (V)		5	0			6	3			8	0			10	00	
Rated Item	Case	Casing	ESR	Rated ripple current	Case	Casing	ESR	Rated ripple current	Case	Casing	ESR	Rated ripple current	Case	Casing	ESR	Rated ripple current
capacitance (µF)	$\phi D \times L (mm)$	symbol	(Ω max.)	(mArms)	$\phi D \times L (mm)$	symbol	(Ω max.)	(mArms)	$\phi D \times L (mm)$	symbol	(Ω max.)	(mArms)	$\phi D \times L (mm)$	symbol	(Ω max.)	(mArms)
220	10×20	H5	0.081	960	_	_	_	_	_	_	_	_	16×20	J5	0.11	1580
330	_	_	_	_	_	_	_	_	16×20	J5	0.11	1790	16×25	J6	0.079	1690
470	12.5×20	Ι5	0.057	1500	16×20	J5	0.085	1790	16×25	J6	0.079	2030	16×35.5	J8	0.052	2500
560	_	_	_	_	_	_	-	_	18×25	K6	0.064	2280	16×40	J9	0.045	2700
820	12.5×30	17	0.038	2150	16×31.5	J7	0.053	2330	18×35.5	K8	0.044	2890	18×40	K9	0.039	2880
1000	16×25	J6	0.031	2620	16×35.5	J8	0.044	2580	18×40	K9	0.039	3210	-	_	_	-
1800	18×31.5	K7	0.025	3140	18×40	K9	0.032	3210	_	_	_	_	_	_	_	_
2200	18×35.5	K8	0.022	3510	-	_	_	_	-	_	_	_	_	_	_	_

(Note) Rated ripple current : 125°C , 100kHz ; ESR : 20°C , 100kHz

RKB MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS



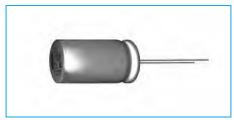
135°C Use, Miniature, Low ESR Capacitors

- High temperature guaranteed and low ESR series for automotive.
- Guarantees 3000 hours at 135°C. (φ10 : 2000 hours)



High temperature





Marking color: Black print

Specifications

Item			Perforn	nance								
Category temperature range (°C)			-40 to	+135								
Tolerance at rated capacitance (%)			±2	20					(20°C,120Hz)			
Leakage current (μA) (max.)	0.01 CV or 3 whichever is	larger (after	2 minutes) (C : Rated cap	oacitance (µl	F), V : Rated	voltage (V)		(20°C)			
Tangent of loss angle (tanδ)	Rated voltage (V) tanδ (max.)	10 0.20	16 0.16	25 0.14	35 0.12	50 0.10	63 0.10	80 0.08	100			
(tario)	0.02 is added to every 1000µF increase over 1000)μF.							(20°C,120Hz)			
Characteristics at high and low temperature	Rated voltage (V) Impedance ratio (max.) Z-40°C/Z+20°C	10	16	25 3	35 3	50 3	63 3	80	100			
and low temperature	·						•	•	(120Hz)			
Endurance (135°C) (Applied ripple current)	Test time Leakage current Percentage of capacitance change Tangent of the loss angle			The initi Within	±30% of init	value or less						
Shelf life (135°C)	Test time: 1000hours; other items are	same as the	endurance.	Voltage ap	plication trea	tment : Acco	ording to JIS	C5101-4 4	1			
Applicable standards		JIS C5101-1, -4 (IEC 60384-1, -4)										

Outline Drawing

Reasin covered φd±0.05 copper plated steel wire (tinned) L+α max. 15min. 10 16 18

5.0

0.6

7.5

0.8

7.5

8.0

5.0

0.6

φd

mm	C
_	

Unit:

Coefficient of Frequency for Rated Ripple Current

Rated Frequency (Hz) capacitance (µF)	50 · 60	120	1k	10k · 100k
220 to 330	0.55	0.65	0.85	1
470 to 1000	0.70	0.75	0.90	1
1200 to 6800	0.80	0.85	0.95	1

Part n	Part numbering system (example : 10V1000µF)											
RKB	_	10	٧	102	М	H5	# —					
Series code		Rated voltage symbol		Rated capacitance symbol	Capacitance tolerance symbol	Casing symbol		Taping(Forming) symbol				

135℃

Standard Ratings

Rated voltage (V)			10				16			25		35				
Rated Item	Case	Casing	ESR	Rated ripple current	Case	Casing	ESR	Rated ripple current	Case	Casing	ESR	Rated ripple current	Case	Casing	ESR	Rated ripple current
(μF)	$\phi D \times L (mm)$	symbol	(Ω max.)	(mArms)	$\phi D \times L (mm)$	symbol	(Ω max.)	(mArms)	$\phi D \times L (mm)$	symbol	(Ω max.)	(mArms)	$\phi D \times L (mm)$	symbol	(Ω max.)	(mArms)
220	_	_	_	_	10×12.5	H3	0.098	725	10×12.5	Н3	0.098	725	10×12.5	НЗ	0.098	725
220					10 × 12.5	113	0.090	725	10 × 12.5	115	0.090	723	10×16	H4	0.075	951
330	10×12.5	Н3	0.098	725	10×12.5	Н3	0.098	725	10×12.5	НЗ	0.098	725	10×16	H4	0.075	951
	10/12.0	110	0.000	720	107.12.0	110	0.000	725	10×16	H4	0.075	951	10×20	H5	0.057	1130
470	10×12.5	НЗ	0.098	725	10×16	H4	0.075	951	10×16	H4	0.075	951	10×20	H5	0.057	1130
470	10/12.0	110	0.000	720	10/10	114	0.070	301	10×20	H5	0.057	1130	12.5×20	15	0.040	1550
1000	10×20	H5	0.057	1130	10×20	H5	0.057	1130	12.5×20	15	0.040	1550	12.5×25	16	0.032	1880
1000	12.5×15	14	0.059	1130	12.5×20	15	0.040	1550	12.5×25	16	0.032	1880	12.5^25	10	0.032	1000
1200	_	_	_	_			_	_	12.5×20	15	0.040	1550	12.5×30	Ι7	0.029	2160
1200									12.5 \ 20	13	0.040	1330	16×20	J5	0.032	2020
1500	_	_	_		_	_	_	_	_	_	_	_	12.5×35	18	0.023	2580
1800	_	_	_	_	_	_	_	_	12.5×25	16	0.032	1880	12.5×40	19	0.020	2920
1000									16×20	J5	0.032	2020	16×25	J6	0.024	2550
2200	12.5×25	16	0.032	1880	12.5×25	16	0.032	1880	12.5×30	17	0.029	2160	16×31.5	J7	0.020	3040
2200	16×20	J5	0.032	2020	16×25	J6	0.024	2550	16×25	J6	0.024	2550	16×35.5	J8	0.019	3280
2700	_		_	_	_	_	_	_	12.5×35	18	0.023	2580	16×35.5	J8	0.019	3280
2700									16×25	J6	0.024	2550	18×31.5	K7	0.018	3410
3300	16×25	J6	0.024	2550	16×31.5	J7	0.020	3040	12.5×40	19	0.020	2920	16×40	J9	0.017	3630
	18×20	K5	0.029	2320	18×25	K6	0.022	2880	16×31.5	J7	0.020	3040	18×35.5	K8	0.017	3710
4700	16×31.5	J7	0.020	3040	16×35.5	J8	0.019	3280	16×35.5	J8	0.019	3280	18×40	К9	0.016	4000
4700	18×25	K6	0.022	2880	18×31.5	K7	0.018	3410	18×31.5	K7	0.018	3410	10/40	1.3	0.010	4000
5600		_	_		_	_	_		16×40	J9	0.017	3630	-	-		_
6800	_	_	_	_	_	_	_	_	18×40	К9	0.016	4000	_	-	_	_

Rated voltage	ge (V)			50			63					80		100				
Rated capacitance (µF)	Item /	Case φD × L (mm)	Casing symbol	ESR (Ω max.)	Rated ripple current (mArms)	Case	Casing symbol	ESR (Ω max.)	Rated ripple current (mArms)	Case	Casing symbol	ESR (Ω max.)	Rated ripple current (mArms)	Case	Casing symbol	ESR (Ω max.)	Rated ripple current (mArms)	
220		10×20	H5	0.098	930	-	-	_	-	_	-	-	-	16×20	J5	0.131	1070	
330		1	-	-	-	_	-	-	-	16×20	J5	0.131	1070	16×25	J6	0.097	1350	
470		12.5×20	15	0.070	1170	16×20	J5	0.099	1230	16×25	J6	0.097	1350	16×35.5	J8	0.077	1740	
560		-	-	-	-	_	-	-	-	18×25	К6	0.088	1530	16×40	19	0.069	1940	
820		12.5×30	17	0.047	1680	16×31.5	J7	0.062	1850	18×35.5	К8	0.069	1980	18×40	К9	0.066	2120	
1000		16×25	J6	0.039	1990	16×35.5	J8	0.058	2010	18×40	К9	0.066	2120	-	-	-	-	
1800		18×31.5	K7	0.030	2670	18×40	К9	0.053	2350	-	-	ı	1	-	1	ı	-	
2200		18×35.5	K8	0.028	2900	-	_	-	-	-	_	-	-	-	-	-	-	

(Note) Rated ripple current : $135^{\circ}\!C$, 100kHz ; ESR : $20^{\circ}\!C$, 100kHz

MINIATURE ALUMINUM

135℃

RKC MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS



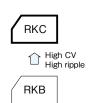
135°C Use, High CV, Low ESR Capacitors

• Guaranteed 3000 hours at 135℃.

(63V to 100V: 2000 hours)

- High CV, high ripple current.
- For ECU of Direct injection engine, ESP etc.

• High temperature guaranteed for automotive.



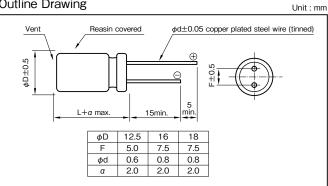


Marking color: Black print

Specifications

Item			Performance				
Category temperature range (°C)			-40 to +135				
Tolerance at rated capacitance (%)			±20				(20°C,120Hz)
Leakage current (μA) (max.)	0.01CV or 3 whichever is	larger (after 2 m	inutes) C : Rated	I capacitance (μF), V : Rated volt	age (V)	(20°C)
Tangent of loss angle	Rated voltage (V)	25	35	50	63	80	100
	tanδ (max.)	0.14	0.12	0.10	0.10	0.08	0.08
(tanδ)	0.02 is added to every 1000µF increase over 1000	DμF.					(20°C,120Hz)
Characteristics at high	Rated voltage (V)	25	35	50	63	80	100
and low temperature	Impedance ratio (max.) Z-40°C/Z+20°C	3	3	3	3	3	3
·							(120Hz)
	Test time		300	0 hours (63V to	100V : 2000 ho	urs)	
Endurance 1 (135°C)	Leakage current		The	initial specified v	alue or less		
(Applied ripple current)	Percentage of capacitance change		With	nin ±30% of initi	al value		
	Tangent of the loss angle		300	% or less of the	initial specified v	value	
	Test time	I	200	0 hours (63V to	100V + 2000 ba		
Endurance 2 (135°C)	Leakage current			initial specified		urs)	
(Applied ripple current)	Percentage of capacitance change			nin ±30% of initi			
(Applied Tipple editority	Tangent of the loss angle			% or less of the		value	
Shelf life (135℃)	Test time: 1000hours; other items are	same as the end	lurance. Voltage	application trea	tment : Accordin	ig to JIS C5101-	4 4.1
Applicable standards	. set time . recorded , other terms are		-1, -4 (IEC 6038			.6 10 0.0 00101	

Outline Drawing



Rated Frequency (Hz) capacitance (µF)	50 · 60	120	1k	10k · 100k
160 to 360	0.55	0.65	0.85	1
390 to 1000	0.70	0.75	0.90	1
1100 to 12000	0.80	0.85	0.95	1

Part num	nbering s	yst	em (exar	mple : 25V	2000)μF)	
RKC —	- 25	٧	202	М	15	# —	
Series code	Rated voltage symbol		Rated capacitance symbol	Capacitance tolerance symbol	Casing symbol		Taping(Forming) symbol



Standard Ratings

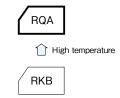
Rated voltage (V)			25				35						50						
Rated Item	Case	Casing	ES (Ω max. /		Rated ripp (mArms /		Case	Casing	ES (Ω max. /		Rated ripp (mArms /		Case	Casing	ES (Ω max. /		Rated ripp (mArms /	ole current 100kHz)	
capacitance (µF)	ϕ D × L (mm)	symbol	20℃	-40℃	135℃	125℃	$\phi D \times L (mm)$	symbol	20℃	-40℃	135℃	125℃	ϕ D \times L (mm)	symbol	20℃	-40℃	135℃	125℃	
620	_	_	_	_	_	_	-	_	_	_		_	12.5 × 20	15	0.073	0.88	1470	2400	
820	_	_	_	_	_	_	_	_	_	_	_	_	12.5 × 25	16	0.058	0.67	2260	3350	
1000	_	_	_	_	_	_	_	_	_	_	_	_	16 × 20	J5	0.050	0.55	1870	2960	
1100	_	_	_	_	_	_	_	_	_	_	_	_	12.5 × 30	17	0.048	0.52	2520	4220	
													12.5 × 35	18	0.042	0.44	2780	4810	
1300	_	_	_	_	_	_	12.5 × 20	15	0.042	0.48	1690	2760	16 × 25	J6	0.042	0.44	2500	4040	
													18 × 20 12.5 × 40	K5 19	0.042	0.44	2110 3020	3130 5240	
1600	_	_	_	-	_	_	_	_	-	_	-	_	16 × 31.5	J7	0.037	0.36	2960	5130	
1800	_	_	_	_	_	_	12.5 × 25	16	0.033	0.30	2010	3480	18 × 25	K6	0.033	0.32	2530	4230	
2000	12.5 × 20	15	0.042	0.48	1690	2760	16 × 20	J5	0.035	0.27	2160	3040	_	_	_	_	_	_	
2200	_	_	_	_	_	_	12.5 × 30	17	0.028	0.24	2900	4490	16 × 35.5	J8	0.029	0.27	3160	5480	
2400	_	_	_	_	_	_	18 × 20	K5	0.034	0.22	2320	3250	18 × 31.5	K7	0.028	0.25	3020	5240	
2700	_	_	_	_	_	_	12.5 × 35	18	0.025	0.21	3190	5140	16 × 40	J9	0.025	0.22	3420	5930	
3000	12.5 × 25	16	0.033	0.30	2010	3480	16 × 25	J6	0.028	0.22	2870	4260	18 × 35.5	К8	0.024	0.20	3390	5870	
3300	16 × 20	J5	0.035	0.27	2160	3040	12.5 × 40	19	0.024	0.19	3470	5810	_	_	_	_	_	_	
3600	12.5 × 30	17	0.028	0.24	2900	4490	16 × 31.5	J7	0.023	0.18	3400	5480	18 × 40	К9	0.023	0.16	3700	6420	
3900	_	_	_	_	_	_	18 × 25	K6	0.027	0.19	2900	4500	_	_	_	_	_	_	
4300	18 × 20	K5	0.034	0.22	2320	3250	16 × 35.5	J8	0.020	0.14	3630	6070	_	_	_	_	_	_	
4700	12.5 × 35	18	0.025	0.21	3190	5140	18 × 31.5	K7	0.022	0.16	3470	5600	_		_		_	_	
4700	16 × 25	J6	0.028	0.22	2870	4260	10 × 31.3	IX7	0.022	0.10	3470	3000							
5100	12.5 × 40	19	0.024	0.19	3470	5810	_	_	_	_	_	_	_	_	_		_	_	
5600	16 × 31.5	J7	0.023	0.18	3400	5480	16 × 40	J9	0.019	0.12	3930	6810	_	_	_	_	_	_	
6200	_	_	_	_	_	_	18 × 35.5	K8	0.019	0.12	3750	6280	_	_	_		_	_	
7500	16 × 35.5	J8	0.020	0.14	3630	6070	18 × 40	К9	0.018	0.10	4080	7070	_	_	_	_	_	_	
7000	18 × 31.5	K7	0.022	0.16	3470	5600	10 // 40	11.5	0.010	0.10	1000	7070							
9100	16 × 40	J9	0.019	0.12	3930	6810	_	_	_	_	_	_	_	_	_	_	_	_	
10000	18 × 35.5	K8	0.019	0.12	3750	6280	_	_	_	_	_	_	-	_	_	_	-	_	
12000	18 × 40	К9	0.018	0.10	4080	7070	-	_	_	_	_	_	-	_	_	_	_	_	

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS RKC

Rated voltage (V)			63				80					100						
Rated Item	Case	Casing	ES (Ω max. /		Rated ripp (mArms /		Case	Casing	ES (Ω max. /		Rated ripp (mArms /		Case	Casing	ES (Ω max. /		Rated ripp (mArms /	
capacitance (µF)	$\phi D \times L (mm)$	symbol	20℃	-40°C	135℃	125℃	ϕ D × L (mm)	symbol	20℃	-40°C	135℃	125℃	$\phi D \times L (mm)$	symbol	20℃	-40°C	135℃	125℃
160	_	_	-	_	_	_	-	_	_	_	_	_	12.5 × 20	15	0.090	0.75	1410	1580
220	1	-	_	_	_	_	1	I	_	1	_	_	12.5 × 25	16	0.068	0.55	1960	2140
270	_	_	_	_	_	_	12.5 × 20	15	0.072	0.56	1420	1640	16 × 20	J5	0.067	0.47	1670	2050
300	_	_	_	_	_	_	_	_	_	_	_	_	12.5 × 30	17	0.052	0.41	2330	2950
360	_	_	_	_	_	_	_	_	_	_	_		12.5 × 35	18	0.045	0.35	2630	3530
300													18 × 20	K5	0.061	0.35	1860	2270
390	12.5 × 20	15	0.072	0.56	1420	1640	12.5 × 25	16	0.052	0.39	2050	2520	16 × 25	J6	0.048	0.33	2360	2790
430	_	_	_	_	_	_	_	_	_	_	_	_	12.5 × 40	19	0.038	0.29	2920	4140
470	_	_	_	_	_	_	16 × 20	J5	0.053	0.34	1910	2140	16 × 31.5	J7	0.041	0.27	2720	3440
510	_		_	_	_	_	12.5 × 30	17	0.042	0.30	2630	3110	18 × 25	K6	0.045	0.25	2470	2920
560	12.5 × 25	16	0.052	0.39	2050	2520	_	_	_	_	_	_	16 × 35.5	J8	0.036	0.23	2960	4190
620	_	_	_	_		_	12.5 × 35	18	0.035	0.25	2970	3760	18 × 31.5	K7	0.037	0.2	2920	3920
020							18 × 20	K5	0.044	0.26	2100	2350	10 / 01.0	107	0.007	0.2	2320	0320
680	16 × 20	J5	0.053	0.34	1910	2140	16 × 25	J6	0.038	0.23	2680	2940	_		_	_	_	_
750	12.5 × 30	17	0.042	0.30	2630	3110	12.5 × 40	19	0.031	0.22	3260	4610	16 × 40	J9	0.028	0.18	3380	5020
700	12.0 / 00	1,	0.042	0.00	2000	0110	16 × 31.5	J7	0.034	0.20	3050	3860	10 / 40		0.020	0.10	0000	3020
820		_	_	_	_	_	18 × 25	K6	0.033	0.19	2810	3080	18 × 35.5	K8	0.030	0.16	3330	4710
910	12.5 × 35	18	0.035	0.25	2970	3760	_	_	_	_	_	_	18 × 40	К9	0.026	0.14	3560	5280
0.0	18 × 20	K5	0.044	0.26	2100	2350							10 11 10		0.020	0.11	0000	0200
1000	16 × 25	J6	0.038	0.23	2680	2940	16 × 35.5	J8	0.027	0.15	3420	4590	_	_	_	_	_	_
1100	12.5 × 40	19	0.031	0.22	3260	4610	18 × 31.5	K7	0.028	0.15	3220	4080	П	_	_	_	_	_
1200	16 × 31.5	J7	0.034	0.20	3050	3860		_	_	_	_	_	_	_	_	_	_	_
1300	18 × 25	K6	0.033	0.19	2810	3080	16 × 40	J9	0.025	0.14	3670	5190	_	_	_	_	_	_
				**			18 × 35.5	K8	0.022	0.12	3690	5220						
1600	16 × 35.5	J8	0.027	0.15	3420	4590	18 × 40	К9	0.021	0.11	3820	5660	_	_	_	_	_	_
	18 × 31.5	K7	0.028	0.15	3220	4080												
1800	16 × 40	J9	0.025	0.14	3670	5190	_	_	_	_	_	_		_	_	_	_	_
2200	18 × 35.5	K8	0.022	0.12	3690	5220	_	_	_	_	_	_	_	_	_	_	_	_
2400	18 × 40	K9	0.021	0.11	3820	5660	_	_	_	_	_	_	_	_	_	_	_	_

150°C Miniature Capacitors

- •150°C, High temperature guaranteed.
- Guarantees 1000 hours at 150℃.

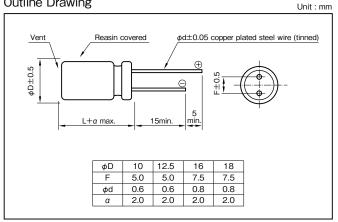




Marking color: Black print

Specifications Item Performance Category temperature range (°C) -40 to +150Tolerance at rated capacitance (% ±20 (20°C,120Hz) Leakage current (µA) 0.01 CV or 3 whichever is larger (after 2 minutes) C: Rated capacitance (µF), V: Rated voltage (V) (20°C) (max.) Rated voltage (V) 10 16 50 63 Tangent of loss angle tanδ (max.) 0.20 0.16 0.14 0.12 0.10 0.10 $(tan\delta)$ 0.02 is added to every 1000µF increase over 1000µF (20°C,120Hz) 10 16 25 35 50 Rated voltage (V) Characteristics at high 3 3 3 3 Impedance ratio (max.) Z-40°C/Z+20°C and low temperature (120Hz) Test time 1000 hours The initial specified value or less Leakage current Endurance (150°C) Within ±30% of initial value Percentage of capacitance change (Applied ripple current) 300% or less of the initial specified value Tangent of the loss angle Shelf life (150°C) Test time: 1000hours; other items are same as the endurance. Voltage application treatment: According to JIS C5101-4 4.1 Applicable standards JIS C5101-1, -4 (IEC 60384-1, -4)

Outline Drawing



Coefficient of Frequency for Rated Ripple Current

Rated Frequency (Hz) capacitance (µF)	50 · 60	120	1k	10k · 100k
220 to 330	0.55	0.65	0.85	1
470 to 1000	0.70	0.75	0.90	1
1500 to 4700	0.80	0.85	0.95	1

Part numbering system (example : 35V1000μF)											
RQA	_	35	٧	102	М	Ι6	# —				
Series code		Rated voltage symbol		Rated capacitance symbol	Capacitance tolerance symbol	Casing symbol		Taping(Forming) symbol			

Standard Ratings

	- 0-												
Rated voltage (V)		10			16			25			35		
Rated Item capacitance	Case	Casing	Rated ripple current										
(μF)	φD×L (mm)	symbol	(mArms)										
220	_	_	_	_		_	10×14.5	НЗ	300	10×14.5	Н3	300	
330	_	_	_	_	_	_	10×18	H4	510	10×18	H4	510	
470	_	_	_	10×18	H4	510	10×22	H5	820	10×22	H5	820	
1000	10×22	H5	820	10×22	H5	820	12.5×26	16	1000	12.5×26	16	1000	
2200	12.5×26	16	1000	12.5×26	16	1000	16×26.5	J6	1200	16×33	J7	1370	
3300	16×26.5	J6	1200	16×33	J7	1370	16×37	J8	1720	18×34	K7	1670	
4700	16×33	J7	1370	16×37	J8	1720	18×38	K8	1790	18×42.5	K9	1870	

Rated voltage (V)		50		63			
Rated Item capacitance	Case	Casing	Rated ripple current	Case	Casing	Rated ripple current	
(μF)	φD×L (mm)	symbol	(mArms)	φD×L (mm)	symbol	(mArms)	
470	12.5×21	15	1070	16×26.5	J6	750	
1000	16×33	J7	1250	18×34	K7	1200	
1500	18×34	K7	1500	18×42.5	K9	1550	
2200	18×38	K8	1700	_	_	_	

(Note) Rated ripple current : 150°C , 100kHz

For Vibration, Resistance Miniature Aluminum Electrolytic Capacitors

ELNA®



Series RPK	30G	125°C, Long Life, with NC terminal	···Page 148
Series RKE	40G	125°C, Miniature, Low ESR	···Page 150
Series RKF	40G	135°C, Miniature, Low ESR	···Page 152
Series BKG	40G	150°C Miniature Low ESB	Page 154

RPK MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS



125°C Use, Long Life Capacitors

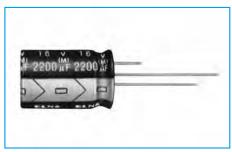






- Guarantees 5000 hours at 125℃.
- · Best-suited to smoothing circuits and control circuits for industrial equipment power supplies of which long life and high reliability are required.
- NC terminal added items are lineup for vibration resistance. (30G guaranteed: 20mmL or less)

For vibration **RPK RKD**

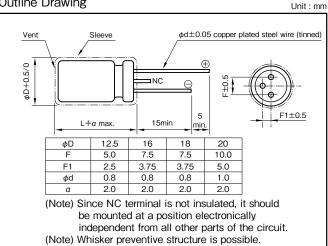


Marking color: White print on a black sleeve

Specifications

Item	Performance											
Category temperature range (°C)	-40 to +125											
Folerance at rated capacitance (%)	±20 (20°C,120								120Hz)			
Leakage current (μA) (max.)	0.01CV or 3 whichever is larger (after 2 minutes) C: Rated capacitance (μF), V: Rated voltage (V) (20								(20°C)			
Tangent of loss angle	Rated voltage (V) tanδ (max.)			16	25	35	50	63	80	100]	
(tanδ)				0.16	0.14	0.12	0.10	0.10	0.08	0.08	1	
	0.02 is added to every 10	00μF increase over 1000	DμF.							(20°C,	120Hz)	
Characteristics at high	Rated vol	10	16	25	35	50	63	80	100]		
and low temperature	Impedance ratio (max.)	4	3	3	3	3	3	3	3	1		
·	(120)										120Hz)	
	Test	5000 hours]		
Endurance (125°C)	Leakage current			The initial specified value or less								
(Applied ripple current)	Percentage of capacitance change			Within ±30% of initial value								
	Tangent of th	e loss angle	300% or less of the initial specified value]	
Shelf life (125°C)	Test time: 1000h	ours ; other items are sar	me as the er	ndurance.	Voltage app	lication trea	tment : Acc	cording to JI	S C5101-4	4.1		
Applicable standards	JIS C5101-1, -4 (IEC 60384-1, -4)											

Outline Drawing



Coefficient of Frequency for Rated Ripple Current

Rated Frequency (Hz) capacitance (µF)	50 · 60	120	1k	10k • 100k
220 to 330	0.55	0.65	0.85	1
390 to 1000	0.70	0.75	0.90	1
1200 to 8200	0.80	0.85	0.95	1

Part numbering system (example : 16V2200µF)									
RPK — 16		V 222		М	J6	D# —			
Series code	Rated voltage symbol		Rated capacitance symbol	Capacitance tolerance symbol	Casing symbol	_	Taping(Forming) symbol		

If it is whisker preventive structure, should change "#" into "G".



Standard Ratings

Rated voltage (V)		1	0			1	6			2	5			3	5	
Rated Item	Case	Casing	ESR	Rated ripple current	Case	Casing	ESR	Rated ripple current	Case	Casing	ESR	Rated ripple current	Case	Casing	ESR	Rated ripple current
Rated capacitance (µF)	ϕ D × L (mm)	symbol	(Ω max.)	(mArms)	$\phi D \times L (mm)$	symbol	(Ω max.)	(mArms)	$\phi D \times L (mm)$	symbol	(Ω max.)	(mArms)	$\phi D \times L (mm)$	symbol	(Ω max.)	(mArms)
470	_	_	_	_	_	_	_	_	_	_	_	_	12.5×20	I5	0.040	1820
					12.5×20	15	0.040	1820	12.5×20	15	0.040	1820	12.5×25	16	0.032	2400
1000	12.5×15	14	0.059	1380					12.5×25	16	0.032	2400	16×25	J6	0.024	3100
					16×16	J4	0.044	1930	16×16	J4	0.044	1930	18×20	K5	0.029	2490
1200	_	_	_	_	_	_	_	_	12.5×20	15	0.040	1820	12.5×30	17	0.029	2560
1200									12.5 \ 20	13	0.040	1020	16×20	J5	0.032	2280
													12.5×35	18	0.023	2970
1500	_	_	_	_	_	-	_	-	_	_	_	-	16×31.5	J7	0.020	3160
													18×25	K6	0.022	3200
1800	_	_	_	_	_	_	_	_	12.5×25	16	0.032	2400	12.5×40	19	0.020	3600
1800									16×20	J5	0.032	2280	16×25	J6	0.024	3100
	12.5×25	16	0.032	2400	12.5×25	16	0.032	2400	12.5×30	17	0.029	2560	16×31.5	J7	0.020	3160
2200	16×20	J5	0.032	2280	16×25	J6	0.024	3100	16×25	J6	0.024	3100	16×35.5	J8	0.019	3590
	18×16	K4	0.041	2170	18×20	K5	0.029	2490	18×20	K5	0.029	2490	18×25	K6	0.022	3200
									12.5×35	18	0.023	2970	16×35.5	J8	0.019	3590
2700	_	_	_	_	_	_	_	_	16×25	J6	0.024	3100	18×31.5	K7	0.018	3410
									18×20	K5	0.029	2490	20×25	L6	0.022	3500
	16×25	J6	0.024	3100	16×31.5	J7	0.020	3160	12.5×40	19	0.020	3600	16×40	J9	0.017	4300
3300	4000			0.100	1005				1001.5			0.00	18×35.5	K8	0.017	4200
	18×20	K5	0.029	2490	18×25	K6	0.022	3200	16×31.5	J7	0.020	3160	20×30	L7	0.019	4000
3900	_	_	_	_	_	_	_	_	16×35.5	J8	0.019	3590	_	_	_	_
0000									18×25	K6	0.022	3200				
4700	16×31.5	J7	0.020	3160	16×35.5	J8	0.019	3590	18×35.5	K8	0.017	4200	18×40	K9	0.016	4600
4700	18×25	K6	0.022	3200	18×31.5	K7	0.018	3410	20×25	L6	0.022	3500	20×35.5	L8	0.016	4700
									16×40	J9	0.017	4300				
5600	_	_	_	_	_	-	_	_	18×35.5	K8	0.017	4200	20×40	L9	0.015	5100
									20×30	L7	0.019	4000				
6800	_	_	_	_	_	_	_	_	18×40	K9	0.016	4600	_	_	_	_
									20×35.5	L8	0.016	4700				
8200	-	_	_	_	_	-	_	_	20×40	L9	0.015	5100	_	_	-	_

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS RPK

Rated voltage (V)		50				6	3	3 80				100				
Rated Item	Case	Casing	ESR	Rated ripple current	Case	Casing	ESR	Rated ripple current	Case	Casing	ESR	Rated ripple current	Case	Casing	ESR	Rated ripple current
capacitance (µF)	$\phi D \times L (mm)$	symbol	(Ω max.)	(mArms)	$\phi D \times L (mm)$	symbol	(Ω max.)	(mArms)	$\phi D \times L (mm)$	symbol	(Ω max.)	(mArms)	$\phi D \times L (mm)$	symbol	(Ω max.)	(mArms)
220	_	_	_	-	_	_	_	-	-	_	_	_	16×20	J5	0.11	1580
330	_	_	_	_	_	_	_	_	16×20	J5	0.11	1790	16×25	J6	0.079	1690
470	12.5×20	15	0.057	1500	16×20	J5	0.085	1790	16×25	J6	0.079	2030	16×35.5	J8	0.052	2500
560	_	_	_	_	_	_	_	_	18×25	K6	0.064	2280	16×40	J9	0.045	2700
820	12.5×30	17	0.038	2150	16×31.5	J7	0.053	2330	18×35.5	K8	0.044	2890	18×40	К9	0.039	2880
1000	16×25	J6	0.031	2620	16×35.5	J8	0.044	2580	18×40	К9	0.039	3210	_	_	_	_
1800	18×31.5	K7	0.025	3140	18×40	K9	0.032	3210	_	_	_	_	_	_	-	_
2200	18×35.5	K8	0.022	3510	-	_	_	_	_	_	_	_	_	_	_	_

(Note) Rated ripple current : 125°C , 100kHz ; ESR : 20°C , 100kHz

RKE MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS



125°C Use, Miniature, Low ESR, High Vibration Resistance Capacitors

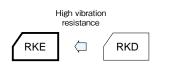








- Vibration resistance (40G,10 to 2000Hz, X,Y,Z = per 2hours).
- For Automotive application (ABS and electric power steering etc.)
- Guaranteed 5000 hours at 125°C



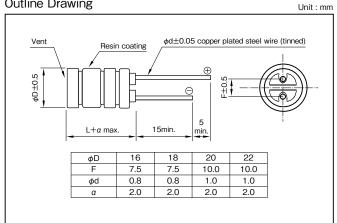


Marking color: Black print

Specifications

Item		Performance							
Category temperature range (°C)		-40 to +125							
Tolerance at rated capacitance (%)		±20		(20℃,1	(20Hz)				
Leakage current (μA) (max.)	0.01CV or 3 whichever is la	arger (after 2 minutes) C : Rated	I capacitance (μF), V : Rated vo	Itage (V)	(20°C)				
Tangent of loss angle	Rated voltage (V)	25	35	50					
(tanδ)	tanδ (max.)	0.14	0.12	0.10					
	0.02 is added to every 1000μF increase over 1000μ	F.		(20°C,1	20Hz)				
Characteristics at high	Rated voltage (V)	25	35	50					
and low temperature	Impedance ratio (max.) Z-40°C/Z+20°C	3	3	3					
				(1	20Hz)				
	Test time	5000 hours							
Endurance (125℃)	Leakage current	Leakage current The initial specified value or less							
Applied ripple current)	Percentage of capacitance change	Within ±30% of initi	al value						
	Tangent of the loss angle	300% or less of the i	initial specified value						
Shelf life (125°C)	Test time: 1000hours; other items are sa	ame as the endurance. Voltage	application treatment : Accordi	ng to JIS C5101-4 4.1					
	Vibration test condition								
	Frequency range	10 to 2000Hz							
	Displacement amplitude	1.5 mm max.							
	Acceleration	40G (392m/s²) max.							
	Sweep rate	0.5 octave/min.							
Vibration	Vibration axis and duration	X, Y, Z per 2 hours, t	total 6 hours						
	Fixation	Capacitor mounted b	by its body which is rigidly clamp	oed to the work surface.					
	Specification after test								
	Leakage current	The initial specified v	value or less						
	Percentage of capacitance change	Percentage of capacitance change Within ±30% of initial value							
	Tangent of the loss angle	300% or less of the i	initial specified value						
Applicable standards		JIS C5101-1, -4 (IEC 60384-1,	-4)						

Outline Drawing



Coefficient of Frequency for Rated Ripple Current

Rated Frequency (Hz) capacitance (µF)	120	1k	10k	100k
1200 to 8200	0.85	0.95	1.00	1

Part num	Part numbering system (example : 35V2700μF)											
RKE —	E — 35 V 272 M K7 # — 🗌											
Series code	Rated voltage symbol		Rated capacitance symbol	Capacitance tolerance symbol	Casing symbol		Forming symbol					

MINIATURE ALUMINUM

125℃



Standard Ratings

Rated voltage(V)			25					35					50		
Rated Item	Case	Casing	ESR (0	max.)	Rated ripple current	Case	Casing	ESR (C	nax.)	Rated ripple current	Case	Casing	ESR (C	max.)	Rated ripple current
capacitance (µF)	$\phi D \times L (mm)$	symbol	20℃	-40°C	(mArms)	$\phi D \times L (mm)$	symbol	20℃	-40℃	(mArms)	$\phi D \times L (mm)$	symbol	20℃	-40°C	(mArms)
1200	=	_	_	_	_	=	_	_	_	_	16×31.5	J7	0.048	0.20	2940
1500	_	_	_	_	_	16×31.5	J7	0.024	0.14	3160	16×35.5	J8	0.039	0.16	3300
2200	_	_	_	_	_	16×35.5	J8	0.023	0.13	3590	18×35.5	К8	0.033	0.15	3520
2700	16×31.5	J7	0.024	0.14	3160	18×31.5	K7	0.020	0.11	3410		_	_	_	_
3300	16×35.5	J8	0.023	0.13	3590	18×35.5	К8	0.019	0.10	3840	20×40	L9	0.027	0.12	3930
4700	18×31.5	K7	0.020	0.11	3410	18×40	К9	0.017	0.094	4250		_	_	_	_
5600	18×35.5	К8	0.019	0.10	3840	20×40	L9	0.017	0.094	4500	_	_	_	_	_
6800	18×40	К9	0.017	0.094	4250	_	_	_	_	-	_	_	_	_	_
7800	20×40	L9	0.017	0.094	4500		_	_	_	_	_	_	_	_	_
8200	22×40	N9	0.017	0.094	4750	_			_	_	_		_	_	_

(Note) Rated ripple current : 125°C , 100kHz ; ESR : 100kHz





135°C Use, Miniature, Low ESR, High Vibration Resistance Capacitors









- Vibration resistance (40G,10 to 2000Hz, X,Y,Z = per 2hours).
- For Automotive application (ABS and electric power steering etc.)
- •Guaranteed 3000 hours at 135℃ (63V to 100V: Guaranteed 2000 hours)

High vibration resistance





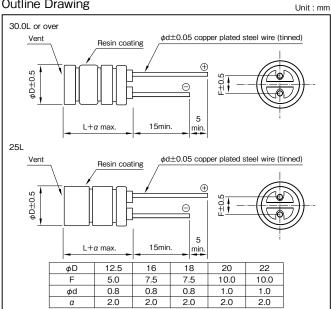


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Specifications

Item			Performance						
Category temperature range (°C)			-40 to +135						
Tolerance at rated capacitance (%)			±20				(20°C,120Hz)		
Leakage current (μA) (max.)	0.01CV or 3 whichever is	larger (after 2 m	inutes) C : Rated	I capacitance (μΙ	F), V : Rated vol	tage (V)	(20℃)		
Tangent of loss angle	Rated voltage (V)	25	35	50	63	80	100		
tanδ)	tanδ (max.)	0.14	0.12	0.10	0.10	0.08	0.08		
	0.02 is added to every 1000μF increase over 1000	DμF.					(20°C,120Hz)		
Characteristics at high	Rated voltage (V)	25	35	50	63	80	100		
Characteristics at high and low temperature	Impedance ratio (max.) Z-40°C/Z+20°C	3	3	3	3	3	3		
·							(120Hz)		
	Test time	300	0 hours (63V to	100V : 2000 ho	urs)				
Endurance	Leakage current	The	initial specified v	value or less					
(135°C or 125°C) Applied ripple current)	Percentage of capacitance change	With	nin ±30% of initi	ial value					
	Tangent of the loss angle	300	% or less of the	initial specified v	ralue				
Shelf life (135℃)	Test time: 1000hours; other items are	same as the end	urance. Voltage	e application trea	tment : Accordir	ng to JIS C5101-	4 4.1		
	Vibration test condition								
	Frequency range	101	o 2000Hz						
	Displacement amplitude	1.5	mm max.						
	Acceleration	400	(392m/s²) max.						
	Sweep rate	0.5	octave/min.						
Vibration	Vibration axis and duration	X, Y	, Z per 2 hours,	total 6 hours					
	Fixation	Cap	acitor mounted b	y its body which	is rigidly clampe	ed to the work su	ırface.		
	Specification after test								
	Leakage current	The	initial specified	value or less					
	Percentage of capacitance change	With	nin ±30% of initi	ial value					
	Tangent of the loss angle 300% or less of the initial specified value								
Applicable standards		JIS C5101-1,	-4 (IEC 60384-1	, -4)					

Outline Drawing



Coefficient of Frequency for Rated Ripple Current

Rated Frequency (Hz) capacitance (µF)	120	1k	10k	100k
180 to 330	0.65	0.85	1.00	1
390 to 1000	0.75	0.90	1.00	1
1100 to 10000	0.85	0.95	1.00	1

Part num	Part numbering system (example : 35V3600μF)											
RKF —	RKF — 35 V 362 M K7 # — 🖂											
Series code	Rated voltage symbol		Rated capacitance symbol	Capacitance tolerance symbol	Casing		Forming symbol					



Standard Ratings

Rated voltage	Rated capacitanc	Case	Casing	ES (Ω max. /			ole current 100kHz)
(V)	(μF)	φD×L (mm)	symbol	20℃	-40℃	135℃	125℃
	1800	12.5 × 25	16	0.033	0.30	2010	3480
	2200	12.5 × 30	17	0.028	0.24	2900	4490
	2700	12.5 × 35	18	0.025	0.21	3190	5140
	3300	12.5 × 40	19	0.024	0.19	3470	5810
	4700	16 × 31.5	J7	0.023	0.18	3400	5480
25	5400	16 × 35.5	J8	0.020	0.14	3630	6070
25	6200	16 × 40	19	0.019	0.12	3930	6810
	6200	18 × 31.5	K7	0.022	0.16	3470	5600
	7800	18 × 35.5	К8	0.019	0.12	3750	6280
	8200	18 × 40	К9	0.018	0.10	4080	7070
	9500	20 × 40	L9	0.016	0.090	4570	7950
	10000	22 × 40	N9	0.016	0.090	5000	8700
	1100	12.5 × 25	16	0.033	0.30	2010	3480
	1500	12.5 × 30	17	0.028	0.24	2900	4490
	1800	12.5 × 35	18	0.025	0.21	3190	5140
	2000	12.5 × 40	19	0.024	0.19	3470	5810
	2700	16 × 31.5	J7	0.023	0.18	3400	5480
0.5	3100	16 × 35.5	J8	0.020	0.14	3630	6070
35	3600	16 × 40	J9	0.019	0.12	3930	6810
	3600	18 × 31.5	K7	0.022	0.16	3470	5600
	4700	18 × 35.5	К8	0.019	0.12	3750	6280
	5400	18 × 40	К9	0.018	0.10	4080	7070
	5900	20 × 40	L9	0.016	0.090	4570	7950
	6200	22 × 40	N9	0.016	0.090	5000	8700
	560	12.5 × 25	16	0.079	0.39	2260	3350
	750	12.5 × 30	17	0.065	0.30	2520	4220
	900	12.5 × 35	18	0.057	0.25	2780	4810
	1000	12.5 × 40	19	0.050	0.22	3020	5240
	1300	16 × 31.5	J7	0.048	0.20	2960	5130
FO	1600	16 × 35.5	J8	0.039	0.15	3160	5480
50	1900	16 × 40	19	0.034	0.14	3420	5930
	2000	18 × 31.5	K7	0.038	0.15	3020	5240
	2400	18 × 35.5	К8	0.033	0.12	3390	5870
	2600	18 × 40	К9	0.031	0.11	3700	6420
	3300	20 × 40	L9	0.027	0.10	4200	7260
	3300	22 × 40	N9	0.027	0.10	4420	7660

Rated voltage	Rated capacitanc	Case	Casing		SR / 100kHz)	Rated ripp (mArms /	ole current 100kHz)
(V)	(μF)	φD×L (mm)	symbol	20℃	-40℃	135℃	125℃
	390	12.5 × 25	16	0.076	0.39	2050	2520
	560	12.5 × 30	17	0.061	0.30	2630	3110
	650	12.5 × 35	18	0.051	0.25	2970	3760
	750	12.5 × 40	19	0.045	0.22	3260	4610
	1000	16 × 31.5	J7	0.049	0.20	3050	3860
63	1300	16 × 35.5	J8	0.039	0.15	3420	4590
63	1300	18 × 31.5	K7	0.041	0.15	3220	4080
	1500	16 × 40	19	0.036	0.14	3670	5190
	1800	18 × 35.5	К8	0.032	0.12	3690	5220
	2000	18 × 40	К9	0.031	0.11	3820	5660
	2500	20 × 40	L9	0.026	0.10	4580	6480
	2500	22 × 40	N9	0.026	0.10	4830	6830
	290	12.5 × 25	16	0.076	0.39	2050	2520
	420	12.5 × 30	17	0.061	0.30	2630	3110
	490	12.5 × 35	18	0.051	0.25	2970	3760
	570	12.5 × 40	19	0.045	0.22	3260	4610
	750	16 × 31.5	J7	0.049	0.20	3050	3860
	820	16 × 35.5	J8	0.039	0.15	3420	4590
80	820	18 × 31.5	K7	0.041	0.15	3220	4080
	950	16 × 40	J9	0.036	0.14	3670	5190
	1200	18 × 35.5	К8	0.032	0.12	3690	5220
	1300	18 × 40	К9	0.031	0.11	3820	5660
	1500	20 × 40	L9	0.026	0.10	4580	6480
	1500	22 × 40	N9	0.026	0.10	4830	6830
	180	12.5 × 25	16	0.099	0.55	1960	2140
	250	12.5 × 30	17	0.076	0.41	2330	2950
	290	12.5 × 35	18	0.065	0.35	2630	3530
	330	12.5 × 40	19	0.055	0.29	2920	4140
	420	16 × 31.5	J7	0.060	0.27	2720	3440
400	510	16 × 35.5	J8	0.052	0.23	2960	4190
100	510	18 × 31.5	K7	0.054	0.20	2920	3920
	570	16 × 40	J9	0.041	0.18	3380	5020
	680	18 × 35.5	К8	0.044	0.16	3330	4710
	820	18 × 40	К9	0.038	0.14	3560	5280
	950	20 × 40	L9	0.033	0.13	3820	5410
	1000	22 × 40	N9	0.033	0.13	4030	5700

150℃

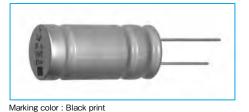


150°C Use, Miniature, Low ESR, High Vibration Resistance Capacitors

- Vibration resistance (40G,10 to 2000Hz, X,Y,Z = per 2hours).
- For Automotive application (ABS and electric power steering etc.)
- Guaranteed 2000 hours at 150°C

(63V, 80V: 1000 hours)

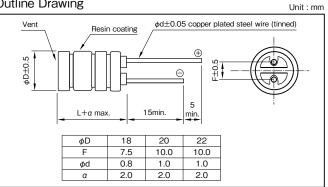
High vibration resistance RKG RQA



Specifications

Item		P	erformance							
Category temperature range (°C)			10 to +150							
Tolerance at rated capacitance (%)			±20			(20°C,120H;				
Leakage current (μA) (max.)	0.01CV or 3 whichever is I	arger (after 2 minu	tes) C : Rated capac	citance (μF), V : Rat	ed voltage (V)	(20°0				
Tangent of loss angle	Rated voltage (V)	25	35	50	63	80				
tangent of loss angle (tanδ)	tanδ (max.)	0.14	0.12	0.10	0.10	0.08				
(/	0.02 is added to every 1000μF increase over 1000μF. (20°C,120l									
Characteristics at high	Rated voltage (V)	25	35	50	63	80				
and low temperature	Impedance ratio (max.) Z-40°C/Z+20°C	3	3	3	3	3				
						(120H:				
	Test time	2000 h	nours (63V, 80V : 10	000 hours)						
Endurance	Leakage current	The ini	tial specified value o	r less						
(150°C or 125°C) Applied ripple current)	Percentage of capacitance change	Within	±30% of initial valu	е						
(Tangent of the loss angle	300%	or less of the initial s	specified value						
Shelf life (150°C)	Test time: 1000hours; other items are s	ame as the endura	nce. Voltage applic	cation treatment : Ad	ccording to JIS C510	01-4 4.1				
	Vibration test condition									
	Frequency range	10 to 2	2000Hz							
	Displacement amplitude	1.5 mn	n max.							
	Acceleration	40G (3	92m/s²) max.							
	Sweep rate	0.5 oc	ave/min.							
Vibration	Vibration axis and duration	X, Y, Z	per 2 hours, total 6	hours						
	Fixation	Capaci	tor mounted by its bo	ody which is rigidly	clamped to the work	surface.				
	Specification after test									
	Leakage current		tial specified value o							
	Percentage of capacitance change	Within ±30% of initial value								
	Tangent of the loss angle	300% or less of the initial specified value								
Applicable standards		JIS C5101-1, -	4 (IEC 60384-1, -4)							

Outline Drawing



Coefficient of Frequency for Rated Ripple Current

Rated Frequency (Hz) capacitance (µF)	120	1k	10k	100k
800 to 1000	0.75	0.90	1.00	1
1100 to 4700	0.85	0.95	1.00	1

Part no	uml	bering s	yst	em (exa	mple : 35\	/2700	μF)	
RKG	_	35	٧	272	М	K9	# —	
Series code		Rated voltage symbol		Rated capacitance symbol	Capacitance tolerance symbol	Casing symbol	-	Forming symbol

Standard Ratings

Rated voltage (V)			25						35						50			
Rated Item capacitance	Case	Casing	(Ω max.			ole current 100kHz)	Case	Casing	(12 IIIdX. /	SR ′ 100kHz)	Rated ripp (mArms /	ole current 100kHz)	Case	Casing	(Ω max.	SR / 100kHz)	Rated ripp (mArms /	ole current 100kHz)
(μF)	$\phi D \times L (mm)$	symbol	20°C	-40°C	150℃	125℃	$\phi D \times L (mm)$	symbol	20°C	-40°C	150℃	125℃	$\phi D \times L (mm)$	symbol	20℃	-40°C	150℃	125℃
1800	_	_	_	_	_	_	_	_	_	_	_	_	18 × 42	K9	0.034	0.19	2800	7000
2400					_					_			20 × 42	L9	0.030	0.17	3200	9000
2400	_	_		_	_	_	_	_			_	_	22 × 42	N9	0.030	0.17	3400	9500
2700	_	_	_	_	_	_	18 × 42	K9	0.020	0.11	3100	8000	_	_	_	_	_	_
3300							20 × 42	L9	0.018	0.10	3500	10000						
3300	_	_	_	_	_	_	22 × 42	N9	0.018	0.10	3700	10500	_	_	_	_	_	_
3900	18 × 42	К9	0.020	0.11	3100	8000	_	_	_	_	_	_	_	_	_	_	_	_
4700	20 × 42	L9	0.018	0.10	3500	10000												
4700	00 V 40	NIO	0.040	0.40	0700	40500	. –	_	. –	. –	_		_		_	ı —	_	_

Rated voltage (V)			63						80			
Rated Item capacitance	Case	Casing	ES (Ω max. /			ole current 100kHz)	Case	Casing	ES (Ω max. /	SR ′ 100kHz)	Rated ripp (mArms /	ole current 100kHz)
(μF)	$\phi D \times L (mm)$	symbol	20℃	-40℃	150°C	125℃	$\phi D \times L (mm)$	symbol	20℃	-40°C	150℃	125℃
800	_	_		_	_	_	18 × 42	K9	0.034	0.19	2900	7300
1000	_	_	_	_	_	-	20 × 42	L9	0.029	0.16	3300	9300
1100	_	_	_	_	_	_	22 × 42	N9	0.029	0.16	3500	9800
1200	18 × 42	K9	0.034	0.19	2900	7300	_	_	_	_	_	_
1500	20 × 42	L9	0.029	0.16	3300	9300	_	_	_	_	_	_
1800	22 × 42	N9	0.029	0.16	3500	9800	_	_	_	_	_	_

Aluminum Electrolytic Capacitors

Conductive Polymer Hybrid Aluminum Electrolytic Capacitors

Aluminum Electrolytic Capacitors With Conductive Polymer Solid Electrolyte

Chip Type Aluminum Electrolytic Capacitors

Miniature Type Aluminum Electrolytic Capacitors

Large Capacitance Aluminum Electrolytic Capacitors

Aluminum Electrolytic Capacitors for Audio

LA5, LT5 LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS

PCB Snap-In Miniaturized Capacitors

- •20mm-tall products for every diameter of ϕ 22 to ϕ 35 are now offered in series.
- As many as 4 case sizes available for the same rating.



Marking color: White print on a black sleeve

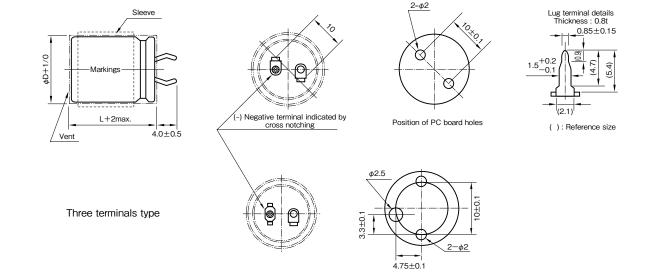
Miniaturized, High ripple Miniaturized, High ripple, Long life LA5

Specifications

opcomoations -										
Item					erformance					
Category temperature range (°C)				-40 to +85	(450V is at −2	25 to +85)				
Tolerance at rated capacitance (%)					±20				(20℃	,120Hz)
Leakage current (μA) (max.)			3√CV (after 5 mi	inutes) C : Rat	ed capacitance	(μF) ; V : Rated	l voltage (V)			(20°C)
		Rated vo	Itage (V)	10	16	25	35	50	63 to 100	7
		tanδ (max.)	0.80	0.60	0.50	0.40	0.30	0.20]
Tangent of loss angle (tanδ)	tanδ	φD (mm)	Rated voltage (V)	160 to 250	315 to 450					
	(max.)		22 to 30	0.10	0.15	1				
			35	0.15	0.15	1				
						,			(20°C	,120Hz)
		Rated vo	Itage (V)	10	16 to 35	50 to 100	160 to 200	250 to 400	450	ا ا
Characteristics at high	Impadan	ce ratio (max.)	Z-25°C/Z+20°C	5	4	3	3	4	4	1
and low temperature	Impedan	ce ratio (max.)	Z-40°C/Z+20°C	18	15	10	6	8	_	1
									((120Hz)
		Test	time		20	00 hours				7
Endurance (85°C)		Leakage	current		The	e initial specifie	d value or less			1
(Applied ripple current)	Pe	ercentage of cap	pacitance change		Wit	thin ±20% of ir	nitial value			1
		Tangent of th	ne loss angle		20	0% or less of th	e initial specifie	d value]
		Test	timo		10	00 hours				
		Leakage				e initial specifie	d value or less			-
Shelf life (85°C)	D ₂		pacitance change			thin ±15% of ir				-
3.10.1 1.10 (00 0)		Tangent of th					e initial specifie	d value		+
	Voltage or		ent : According to JIS C5	101 4 4 1	10	0.0 OF 1000 OF 111	ctidi opconio	a .aiuo		_
	voltage ap	phication treatin	ient . According to JIS CS	101-4 4.1						
Applicable standards				JIS C5101-	1, -4 (IEC 6038	4-1, -4)				

Outline Drawing

Unit: mm Lug terminal details Thickness: 0.8t 0.85±0.15



Part numb series LA5, star				F										
LA5 400 V 331 M S43 # B														
Series code Rated voltage Symbol Rated capacitance Capacitance Casing Optional Symbol symbol symbol symbol symbol														
series LT5, thre	e terminals t	ype	e :400V330µF											
LT5 — 400 V 331 M S43 # B														
Series code	Rated voltage symbol	-	Rated capacitance symbol	Capacitance tolerance symbol	Casing symbol	_	Optional symbol							

Coefficient of Frequency for Rated Ripple Current

Frequency (Hz) Rated voltage (V)	50	120	1k	10k	20k
100 or less	0.95	1	1.10	1.15	1.15
160 to 250	0.81	1	1.32	1.45	1.50
315 or more	0.77	1	1.30	1.41	1.43

Standard Ratings

	ard Hatin		(mm)	l				Cooo	(2020)	1		<u> </u>		Cooo	(mm)	1	1
Rated voltage	Rated capacitance	Case		Casing Symbol	Rated ripple current	Rated voltage	Rated capacitance	Case		Casing Symbol	Rated ripple current	Rated voltage	Rated capacitance	Case		Casing Symbol	Rated ripple current
(V)	(μF)	D	L	Symbol	(Arms)	(V)	(μF)	D	L	Symbol	(Arms)	(V)	(μF)	D	L	Symbol	(Arms)
	8200	22	20	S21	2.00		47000	35	25	S52	5.97		22000	22	35	S24	4.12
	10000	22	20	S21	2.21		47000	35	30	S53	6.20		22000	22	40	S25	4.31
	12000	22	20	S21	2.42		56000	25	45	S36	6.47		22000	22	50	S27	4.50
	12000	22	25	S22	2.50		56000	25	50	S37	6.55		22000	25	30	S33	4.12
	12000	25	20	S31	2.50		56000	30	35	S44	6.59		22000	25	35	S34	4.31
	15000	22	25	S22	2.80		56000	30	40	S45	6.66		22000	25	40	S35	4.40
	15000	22	30	S23	3.00		56000	30	45	S46	6.90		22000	30	25	S42	4.31
	15000	25	20	S31	2.80		56000	35	30	S53	6.77		22000	30	30	S43	4.40
	18000	22	25	S22	3.06		56000	35	35	S54	7.00		22000	35	20	S51	4.48
	18000	22	30	S23	3.29		68000	25	50	S37	7.22		22000	35	25	S52	4.60
	18000	25	20	S31	3.06		68000	30	40	S45	7.34		27000	22	40	S25	4.78
	18000	25	25	S32	3.20		68000	30	45	S46	7.60		27000	22	45	S26	4.90
	18000	30	20	S41	3.30		68000	30	50	S47	7.70		27000	25	35	S34	4.78
	22000	22	30	S23	3.63	10	68000	35	30	S53	7.46		27000	25	40	S35	4.87
	22000	22	35	S24	3.70		68000	35	35	S54	7.71		27000	25	45	S36	5.00
	22000	25	25	S32	3.54		68000	35	40	S55	7.90		27000	30	25	S42	4.78
	22000	25	30	S33	3.70		82000	30	45	S46	8.35		27000	30	30	S43	4.87
	22000	30	20	S41	3.65		82000	30	50	S47	8.46		27000	30	35	S44	5.10
	22000	35	20	S51	3.90		82000	35	35	S54	8.47		27000	35	25	S52	5.10
	27000	22	35	S24	3.90		82000	35	40	S55	8.68		33000	22	45	S26	5.41
	27000	22	40	S25	4.10		82000	35	45	S56	8.90		33000	22	50	S27	5.51
	27000	22	45	S26	4.30		100000	30	50	S47	9.34		33000	25	40	S35	5.39
	27000	25	25	S32	3.92		100000	35	40	S55	9.58		33000	25	45	S36	5.53
	27000	25	30	S33	4.10		100000	35	50	S57	10.20		33000	30	30	S43	5.39
	27000	25	35	S34	4.20		120000	35	45	S56	10.80		33000	30	35	S44	5.64
	27000	30	20	S41	4.04		120000	35	50	S57	11.20	16	33000	30	40	S45	5.80
10	27000 27000	30 35	25 20	S42 S51	4.20 4.32	-	150000 5600	35 22	50 20	S57 S21	12.50	10	33000	35 35	25 30	S52 S53	5.63 5.80
	33000	22	35	S24	4.53		6800	22	20	S21	2.09		33000	25	45	S36	6.01
	33000	22	40	S25	4.54		8200	22	20	S21	2.09		39000	25	50	S37	6.27
	33000	22	50	S27	4.90		8200	22	25	S22	2.40		39000	30	35	S44	6.13
	33000	25	30	S33	4.53		8200	25	20	S31	2.30		39000	30	40	S45	6.31
	33000	25	35	S34	4.64		10000	22	25	S22	2.65		39000	30	45	S46	6.40
	33000	25	40	S35	4.80		10000	25	20	S31	2.54		39000	35	30	S53	6.31
	33000	30	25	S42	4.64		12000	22	25	S22	2.78		39000	35	35	S54	6.50
	33000	30	30	S43	4.90		12000	22	30	S23	3.00		47000	25	50	S37	6.88
	33000	35	20	S51	4.78		12000	25	20	S31	2.78		47000	30	40	S45	6.92
	33000	35	25	S52	5.00		12000	25	25	S32	2.90		47000	30	45	S46	7.03
	39000	22	40	S25	4.93		12000	30	20	S41	3.00		47000	30	50	S47	7.20
	39000	22	45	S26	5.17		15000	22	30	S23	3.35		47000	35	30	S53	6.92
	39000	25	35	S34	5.05	16	15000	22	35	S24	3.40		47000	35	35	S54	7.14
	39000	25	40	S35	5.22		15000	25	25	S32	3.24		47000	35	40	S55	7.40
	39000	25	45	S36	5.40		15000	25	30	S33	3.40		56000	30	45	S46	7.67
	39000	30	25	S42	5.05		15000	30	20	S41	3.35		56000	30	50	S47	7.86
	39000	30	30	\$43	5.33		15000	35	20	S51	3.70		56000	35	35	S54	7.79
	39000	30	35	S44	5.50		18000	22	30	S23	3.67		56000	35	40	S55	8.08
	39000	35	25	S52	5.44		18000	22	35	S24	3.72		56000	35	45	S56	8.20
	47000	22	50	S27	5.85		18000	22	40	S25	3.90		68000	30	50	S47	8.66
	47000	25	40	S35	5.73		18000	25	25	S32	3.55		68000	35	40	S55	8.90
	47000	25	45	S36	5.93		18000	25	30	S33	3.72		68000	35	45	S56	9.04
	47000	25	50	S37	6.00		18000	25	35	S34	3.90		82000	35	45	S56	9.92
	47000	30	30	S43	5.85		18000	30	20	S41	3.67		82000	35	50	S57	10.30
	47000	30	35	S44	6.04		18000	30	25	S42	3.90		100000	35	50	S57	11.40
	47000	30	40	S45	6.10		18000	35	20	S51	4.05						

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS LA5, LT5

(Note) Rated ripple current : 85°C , 120Hz ; ESR. : 20°C , 120Hz

[•] The standard ratings follow the next page.

LA5, LT5 LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS ELNA



Standard Ratings

Part		ard Ratir		(mm)	1				Cooo	(2020)					Cooo	(mm)	1	
	Rated voltage	Rated capacitance				Rated ripple current	Rated voltage	Rated capacitance				Rated ripple current	Rated voltage	Rated capacitance				Rated ripple current
4700 20 201 1.98 49 201 2.91 2.91 2.91 2.91 2.91 2.91 2.91 2.91 2.91 2.91 2.91 2.92<			D	L	Symbol				D	L	Symbol				D	L	Symbol	
		3900	22	20	S21	1.80		22000	35	25	S52	5.33		10000	22	35	S24	3.52
5000 22 25 522 2.50 2.20 2.50 2.20 2.50 2.20 2.50 3.20 2.20 2.50 3.20 2.20 2.50 3.20 2.20 2.50 3.20 2.20 2.50 3.20 2.20 2.50 3.20 2.20		4700	22	20	S21	1.98		22000	35	30	S53	5.50		10000	22	40	S25	3.64
1		5600		20	S21	2.16		27000	25	45	S36	5.76		10000	22	50	S27	3.90
February		5600	22	25	S22	2.30		27000	25	50	S37	5.98		10000	25	30	S33	3.52
Record 25														10000				3.64
REND 22 28 822 2.78 822 2.78 820 22 30 823 2.80 2.80 820 25 22 832 2.80 8300 30 40 846 6.85 6.74 10000 22 30 823 3.00 826 33000 20 841 2.90 10000 22 30 823 3.00 825 3.00 30 45 846 6.85 6.74 10000 22 30 823 3.00 825 3.00 30 45 846 6.85 6.74 10000 22 40 825 3.90 10000 22 35 824 3.20 83000 30 45 846 6.85 6.74 10000 25 35 844 3.20 10000 35 20 831 3.20 83000 30 45 846 6.85 6.74 10000 25 30 833 3.00 83000 30 45 846 6.85 6.74 10000 30 20 841 3.20 10000 35 20 851 3.80 38000 30 45 846 6.85 7.45 10000 35 20 851 3.80 38000 36 36 854 7.45 10000 35 20 851 3.80 38000 36 36 854 7.45 10000 35 20 851 3.80 38000 36 36 854 7.45 10000 35 20 851 3.80 38000 36 36 854 7.45 10000 30 25 846 3.30 38000 36 35 854 7.67 10000 30 25 852 3.30 38000 36 35 854 7.67 10000 30 25 852 3.30 38000 36 35 854 7.67 10000 30 25 852 3.30 38000 36 35 854 7.67 10000 30 25 852 3.30 38000 36 35 854 7.67 10000 30 25 852 3.30 38000 36 36 854 7.67 10000 30 25 852 3.30 38000 36 36 854 7.67 10000 30 30 834 4.80 10000 36 36 854 3.00 36 36 36 36 36 36 36																		
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22000 30 30 \$\sec{843}\$ \$\sec{5.21}\$ 22000 30 35 \$\sec{844}\$ \$\sec{5.31}\$ 8200 30 20 \$\sec{841}\$ \$\sec{3.15}\$ 8200 30 25 \$\sec{842}\$ \$\sec{3.30}\$ 39000 35 \$\sec{45}\$ \$\sec{56}\$ \$\sec{8.56}\$ 39000 35 \$\sec{50}\$ \$\sec{57}\$ \$\sec{8.89}\$																		
22000 30 35 \$44 5.31 8200 30 25 \$42 3.30 39000 35 50 \$57 8.89																		
				30	S43	5.21			30							45		
22000 30 40 \$45 5.50 8200 35 20 \$51 3.40														39000	35	50	S57	8.89
		22000	30	40	S45	5.50		8200	35	20	S51	3.40						

LNA® LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS LA5, LT5

Standard Ratings

Rated	Rated	Case	(mm)	Casing	Rated ripple	Rated	Rated	Case	(mm)	Casing	Rated ripple	Rated	Rated	Case	(mm)	Casing	Rated ripple
(V)	capacitance (µF)	D	L	Symbol	current (Arms)	voltage (V)	capacitance (µF)	D	L	Symbol	current (Arms)	voltage (V)	capacitance (µF)	D	L	Symbol	current (Arms)
	1800	22	20	S21	1.60		10000	30	30	S43	4.73		3900	35	20	S51	3.40
	2200	22	20	S21	1.77		10000	30	35	S44	4.86		4700	22	35	S24	3.46
	2700	22	20	S21	1.96		10000	30	40	S45	5.00		4700	22	40	S25	3.62
	2700	22	25	S22	2.10		10000	35	25	S52	4.85		4700	22	45	S26	3.70
	2700	25	20	S31	2.10		10000	35	30	S53	5.00		4700	25	30	S33	3.51
	3300	22	25	S22	2.32		12000	25	45	S36	5.20		4700	25	35	S34	3.60
	3300	25	20	S31	2.32		12000	25	50	S37	5.37		4700	30	25	S42	3.62
	3900	22	25	S22	2.52		12000	30	35	S44	5.32		4700	35	20	S51	3.73
	3900	22	30	S23	2.60		12000	30	40	S45	5.48		5600	22	40	S25	3.95
	3900	25	20	S31	2.52		12000	30	45	S46	5.60		5600	22	45	S26	4.04
	3900	25	25	S32	2.60		12000	35	30	S53	5.48		5600	22	50	S27	4.10
	3900	30	20	S41	2.70		12000	35	35	S54	5.70		5600	25	35	S34	3.93
	4700	22	30	S23	2.85		15000	25	50	S37	6.00		5600	25	40	S35	4.00
	4700	22	35	S24	3.10		15000	30	40	S45	6.12		5600	30	25	S42	3.95
	4700	25	25	S32	2.85	50	15000	30	45	S46	6.26		5600	30	30	S43	4.10
	4700	25	30	S33	3.00		15000	30	50	S47	6.40		5600	35	20	S51	4.07
	4700	30	20	S41	2.96		15000	35	30	S53	6.12		5600	35	25	S52	4.20
	4700	35	20	S51	3.20		15000	35	35	S54	6.37		6800	22	45	S26	4.45
	5600	22	30	S23	3.12		15000	35	40	S55	6.50		6800	22	50	S27	4.52
	5600	22	35	S24	3.38		18000	30	45	S46	6.86		6800	25	35	S34	4.33
	5600	22	40	S25	3.40		18000	30	50	S47	7.01		6800	25	40	S35	4.41
	5600	25	25	S32	3.12		18000	35	35	S54	6.98		6800	25	45	S36	4.60
	5600	25	30	S33	3.27		18000	35	40	S55	7.12		6800	30	30	S43	4.52
	5600	25	35	S34	3.40		18000	35	45	S56	7.30		6800	30	35	S44	4.60
	5600	30	20	S41	3.24		22000	30	50	S47	7.75		6800	35	25	S52	4.63
50	5600	30	25	S42	3.40		22000	35	40	S55	7.87	63	6800	35	30	S53	4.80
	5600	35	20	S51	3.49		22000	35	45	S56	8.07		8200	22	50	S27	4.96
	6800	22	35	S24	3.73		27000	35	45	S56	8.94		8200	25	45	S36	5.05
	6800	22	40	S25	3.75		27000	35	50	S57	9.29		8200	30	35	S44	5.05
	6800	22	50	S27	3.90		1500	22	20	S21	1.70		8200	30	40	S45	5.20
	6800	25	30	S33	3.61		1800	22	20	S21	1.86		8200	35	25	S52	5.08
	6800	25	35	S34	3.75		1800	25	20	S31	2.00		8200	35	30	S53	5.27
	6800	25	40	S35	3.80		2200	22	20	S21	2.06		8200	35	35	S54	5.50
	6800	30	25	S42	3.75		2200	22	25	S22	2.20		10000	25	50	S37	5.82
	6800	30	30	S43	3.90		2200	25	20	S31	2.21		10000	30	35	S44	5.58
	6800	35	20	S51	3.85		2700	22	25	S22	2.25		10000	30	40	S45	5.74
	6800	35	25	S52	4.00		2700	22	30	S23	2.50		10000	30	45	S46	5.90
	8200	22	40	S25	4.11		2700	25	20	S31	2.25		10000	35	30	S53	5.82
	8200	22	45	S26	4.21		2700	25	25	S32	2.30		10000	35	35	S54	6.07
	8200	25	35	S34	4.11	63	2700	30	20	S41	2.60		10000	35	40	S55	6.20
	8200	25	40	S35	4.17		3300	22	30	S23	2.76		12000	30	45	S46	6.46
	8200	25	45	S36	4.30		3300	22	35	S24	2.90		12000	35	35	S54	6.65
	8200	30	25	S42	4.11		3300	25	25	S32	2.54		12000	35	40	S55	6.79
	8200	30	30	S43	4.28		3300	30	20	S41	2.87		12000	35	45	S56	6.90
	8200	30	35	S44	4.40		3900	22	30	S23	3.00		15000	30	50	S47	7.52
	8200	35	25	S52	4.39		3900	22	35	S24	3.15		15000	35	40	S55	7.59
	10000	22	45	S26	4.64		3900	22	40	S25	3.30		15000	35	45	S56	7.71
	10000	22	50	S27	4.73		3900	25	25	S32	2.76		15000	35	50	S57	7.90
	10000	25	40	S35	4.61		3900	25	30	S33	3.20		18000	35	45	S56	8.45
	10000	25	45	S36	4.75		3900	30	20	S41	3.12		18000	35	50	S57	8.65
	10000	25	50	S37	4.90		3900	30	25	S42	3.30		22000	35	50	S57	9.57

(Note) Rated ripple current : 85°C , 120Hz ; ESR. : 20°C , 120Hz

[•] The standard ratings follow the next page.

LA5, LT5 LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS ELNA



Standard Ratings

Rated	Rated	Case	(mm)	Casing	Rated ripple	Rated	Rated	Case	(mm)	Casing	Rated ripple	Rated	Rated	Case	(mm)	Casing	Rated ripple
voltage (V)	capacitance (µF)	D	L	Symbol	current (Arms)	voltage (V)	capacitance (µF)	D	L	Symbol	current (Arms)	voltage (V)	capacitance (µF)	D	L	Symbol	current (Arms)
	1000	22	20	S21	1.50		5600	25	50	S37	4.37		2200	22	45	S26	3.20
	1200	22	20	S21	1.64		5600	30	35	S44	4.37		2200	25	30	S33	3.03
	1200	25	20	S31	1.70		5600	30	40	S45	4.50		2200	25	35	S34	3.10
	1500	22	25	S22	1.90		5600	35	30	S53	4.58		2200	25	40	S35	3.20
	1500	25	20	S31	1.90		5600	35	35	S54	4.70		2200	30	25	S42	3.10
	1800	22	25	S22	2.08		6800	25	50	S37	4.81		2200	30	30	S43	3.20
	1800	22	30	S23	2.20		6800	30	40	S45	4.96		2200	35	20	S51	3.27
	1800	25	20	S31	2.08		6800	30	45	S46	5.10		2200	35	25	S52	3.40
	1800	25	25	S32	2.20		6800	35	30	S53	5.05		2700	22	45	S26	3.55
	1800	30	20	S41	2.20		6800	35	35	S54	5.18		2700	22	50	S27	3.70
	2200	22	30	S23	2.43	80	6800	35	40	S55	5.30		2700	25	35	S34	3.43
	2200	22	35	S24	2.50		8200	30	45	S46	5.60		2700	25	40	S35	3.55
	2200	25	25	S32	2.43		8200	30	50	S47	5.83		2700	25	45	S36	2.90
	2200	25	30	S33	2.50		8200	35	35	S54	5.69		2700	30	30	S43	3.55
	2200	30	20	S41	2.43		8200	35	40	S55	5.82		2700	30	35	S44	3.70
	2700	22	30	S23	2.69		8200	35	45	S56	6.00		2700	35	25	S52	3.77
	2700	22	35	S24	2.77		10000	30	50	S47	6.44		3300	22	50	S27	4.09
	2700	22	40	S25	2.80		10000	35	40	S55	6.43		3300	25	40	S35	3.92
	2700	25	25	S32	2.69		10000	35	45	S56	6.63		3300	25	45	S36	3.98
	2700	25	30	S33	2.77		10000	35	50	S57	6.80		3300	25	50	S37	4.10
	2700	30	20	S41	2.69		12000	35	45	S56	7.26		3300	30	30	S43	3.92
	2700	30	25	S42	2.90		12000	35	50	S57	7.45		3300	30	35	S44	4.09
	2700	35	20	S51	3.00		560	22	20	S21	1.30		3300	30	40	S45	4.20
80	3300	22	35	S24	3.06		680	22	20	S21	1.43	100	3300	35	25	S52	4.16
	3300	22	40	S25	3.10		820	22	20	S21	1.57		3300	35	30	S53	4.30
	3300	22	45	S26	3.20		820	22	25	S22	1.70		3900	25	45	S36	4.33
	3300	25	30	S33	3.06		820	25	20	S31	1.70		3900	25	50	S37	4.46
	3300	25	35	S34	3.10		1000	22	25	S22	1.88		3900	30	35	S44	4.45
ŀ	3300	30	25	S42	3.21		1000	25	20	S31	1.88		3900	30	40	S45	4.57
	3300 3900	35 22	20 40	S51 S25	3.32		1200 1200	22	25 30	S22 S23	2.06		3900 3900	30 35	45 30	S46 S53	4.70 4.67
	3900	22	45	S25	3.48		1200	25	20	S23	2.10		3900	35	35	S54	4.80
	3900	22	50	S27	3.60		1200	25	25	S32	2.10		4700	30	40	S45	5.01
	3900	25	35	S34	3.37		1200	30	20	S41	2.10		4700	30	45	S45	5.16
	3900	25	40	S35	3.50		1500	22	30	S23	2.35		4700	30	50	S47	5.20
	3900	30	25	S42	3.49	100	1500	22	35	S24	2.50		4700	35	30	S53	5.13
	3900	30	30	S43	3.60		1500	25	25	S32	2.35		4700	35	35	S54	5.17
	3900	35	25	S52	3.70		1500	25	30	S33	2.50		4700	35	40	S55	5.40
	4700	22	45	S26	3.82		1500	30	20	S41	2.46		5600	30	45	S46	5.63
	4700	22	50	S27	3.95		1500	35	20	S51	2.70		5600	30	50	S47	5.68
	4700	25	40	S35	3.84		1800	22	35	S24	2.74		5600	35	35	S54	5.75
	4700	25	45	S36	3.92		1800	22	40	S25	2.80		5600	35	40	S55	5.89
	4700	25	50	S37	4.00		1800	25	30	S33	2.74		5600	35	45	S56	6.00
	4700	30	30	S43	3.95		1800	25	35	S34	2.80		6800	30	50	S47	6.25
	4700	30	35	S44	4.00		1800	30	20	S41	2.69		6800	35	40	S55	6.50
	4700	35	25	S52	4.06		1800	30	25	S42	2.80		6800	35	45	S56	6.61
	4700	35	30	S53	4.20		1800	35	20	S51	2.96		8200	35	45	S56	7.26
	5600	25	45	S36	4.15		2200	22	40	S25	3.10		8200	35	50	S57	7.55
(Note) R	ated ripple cu	ırrent · 8	5°C 12	OHz · FS	R. : 20°C , 12	OHz											

2.96

3.11

2.60

2.96

3.14

2.60

3.00

3.20

2.66

3.13

3.61

3.47

3.60

2.90

3.23

3.53

3.46

4.11

3.94

4.13

3.30

3.87

4.04 3.79

4.07

4.80

4.52

4.90

4.56

4.76

5.14

5.36

4.30

5.21

4.30 5.93

6.17 5.76

5.97

4.80 7.92

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS LA5, LT5 Standard Ratings

Rated	Rated	Case	(mm)	Casing	Rated ripple	Rated	Rated	Case	(mm)	Casing	Rated ripple	Rated	Rated	Case	(mm)	Casing
voltage (V)	capacitance (µF)	D	L	Symbol	current (Arms)	voltage (V)	capacitance (µF)	D	L	Symbol	current (Arms)	voltage (V)	capacitance (µF)	D	L	Symbol
	270	22	20	S21	1.49		1500	30	35	S44	4.52		680	35	20	S51
	330	22	20	S21	1.65		1500	30	40	S45	3.70		820	22	35	S24
	390	22	20	S21	1.71		1500	35	25	S52	4.24		820	22	40	S25
	390	22	25	S22	1.93		1500	35	30	S53	4.56		820	22	45	S26
	390	25	20	S31	1.76		1800	25	50	S37	5.26		820	25	30	S33
	470	22	25	S22	2.12		1800	30	35	S44	4.95		820	25	35	S34
	470	25	20	S31	1.93		1800	30	40	S45	5.14		820	25	40	S35
	560	22	25	S22	2.31		1800	30	45	S46	4.20		820	30	25	S42
	560	22	30	S23	2.43		1800	35	30	S53	4.99		820	30	30	S43
	560	25	25	S32	2.43	160	1800	35	35	S54	5.21		820	35	20	S51
	560	30	20	S41	2.11	160	2200	30	40	S45	5.68		820	35	25	S52
	680	22	30	S23	2.68		2200	30	45	S46	5.93		1000	22	45	S26
	680	22	35	S24	2.70		2200	30	50	S47	4.70		1000	25	35	S34
	680	25	25	S32	2.68		2200	35	35	S54	5.76		1000	25	40	S35
	680	25	30	S33	2.70		2200	35	40	S55	4.70		1000	25	45	S36
	680	30	20	S41	2.33		2700	30	50	S47	6.83		1000	30	25	S42
	680	35	20	S51	2.42		2700	35	40	S55	6.61		1000	30	30	S43
	820	22	35	S24	2.96		2700	35	50	S57	5.40		1000	35	25	S52
	820	22	40	S25	2.50		3300	35	45	S56	7.60		1200	22	50	S27
	820	25	30	S33	2.96		3900	35	50	S57	8.61		1200	25	40	S35
	820	25	35	S34	2.50		220	22	20	S21	1.34		1200	25	45	S36
160	820	30	20	S41	2.56		270	22	20	S21	1.49	180	1200	25	50	S37
	820	30	25	S42	3.13		330	22	20	S21	1.56		1200	30	30	S43
	820	35	20	S51	2.66		330	22	25	S22	1.77		1200	30	35	S44
	1000	22	40	S25	3.43		330	25	20	S31	1.62		1200	35	25	S52
	1000	22	50	S27	2.90		390	22	25	S22	1.92		1200	35	30	S53
	1000	25	30	S33	3.27		390	25	20	S31	1.76		1500	25	50	S37
	1000	25	35	S34	3.47		470	22	25	S22	2.11		1500	30	35	S44
	1000	25	40	S35	2.80		470	22	30	S23	2.23		1500	30	45	S46
	1000	30	25	S42	3.30		470	25	25	S32	2.23		1500	35	30	S53
	1000	30	30	S43	3.54		470	30	20	S41	1.94		1500	35	35	S54
	1000	35	20	S51	2.94	180	560	22	30	S23	2.43		1800	30	40	S45
	1000	35	25	S52	3.46		560	22	35	S24	2.45		1800	30	45	S46
	1200	22	45	S26	3.96		560	25	25	S32	2.43		1800	30	50	S47
	1200	25	35	S34	3.80		560	25	30	S33	2.45		1800	35	35	S54
	1200	25	45	S36	4.13		560	30	20	S41	2.12		1800	35	40	S55
	1200	30	30	S43	3.87		560	35	20	S51	2.10		2200	30	45	S46
	1200	30	35	S44	3.30		680	22	35	S24	2.70	1	2200	30	50	S47
	1200	35	25	S52	3.79		680	22	40	S25	2.30		2200	35	35	S54
	1500	22	50	S27	4.60		680	25	30	S33	2.70		2200	35	40	S55
	1500	25	40	S35	4.41		680	25	35	S34	2.30		2200	35	45	S56
	1500	25	50	S37	4.80		680	30	20	S41	2.33	İ	3300	35	50	S57
	1500	30	30	S43	4.33		680	30	25	S42	2.86					

(Note) Rated ripple current : 85°C , 120Hz ; ESR. : 20°C , 120Hz

[•] The standard ratings follow the next page.

LA5, LT5 LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS ELNA



Standard Ratings

Rated	Rated	Case	(mm)	Casing	Rated ripple	Rated	Rated	Case	(mm)	Casing	Rated ripple	Rated	Rated	Case	(mm)	Casing	Rated ripple
voltage (V)	capacitance (µF)	D	L	Symbol	current (Arms)	voltage (V)	capacitance (µF)	D	L	Symbol	current (Arms)	voltage (V)	capacitance (µF)	D	L	Symbol	current (Arms)
	180	22	20	S21	1.00		1500	35	30	S53	4.56		680	35	25	S52	2.85
	220	22	20	S21	1.34		1500	35	35	S54	4.75		680	35	30	S53	2.60
	270	22	20	S21	1.41		1500	35	40	S55	3.90		820	22	50	S27	3.40
	270	22	25	S22	1.30		1800	30	45	S46	5.35		820	25	40	S35	3.26
	270	25	20	S31	1.47		1800	35	35	S54	5.20		820	25	45	S36	3.42
	330	22	25	S22	1.77	200	1800	35	45	S56	4.40		820	30	30	S43	3.20
	330	25	20	S31	1.62		2200	30	50	S47	6.16		820	30	35	S44	3.34
	390	22	25	S22	1.92		2200	35	40	S55	5.97		820	30	40	S45	2.90
	390	22	30	S23	1.60		2200	35	45	S56	6.20		820	35	25	S52	3.13
	390	25	20	S31	1.69		2200	35	50	S57	5.00		820	35	30	S53	3.36
	390	25	25	S32	2.03		2700	35	45	S56	6.87		820	35	35	S54	2.90
	390	30	20	S41	1.70		150	22	20	S21	1.10		1000	25	50	S37	3.92
	470	22	25	S22	2.11		180	22	20	S21	1.15		1000	30	35	S44	3.69
	470	22	30	S23	2.23		180	25	20	S31	1.20		1000	30	40	S45	3.83
	470	22	35	S24	1.90		220	22	20	S21	1.24	250	1000	30	45	S46	3.30
	470	25	25	S32	2.23		220	22	25	S22	1.44		1000	35	30	S53	3.72
	470	30	20	S41	1.94		220	25	20	S31	1.33		1000	35	35	S54	3.88
	560	22	30	S23	2.43		270	22	25	S22	1.60		1000	35	40	S55	3.30
	560	22	35	S24	2.44		270	22	30	S23	1.40		1200	30	40	S45	4.20
	560	22	40	S25	2.10		270	25	20	S31	1.40		1200	30	45	S46	4.38
	560 560	25 25	25 30	S32 S33	2.43		270 270	25 30	25 20	S32 S41	1.40		1200 1200	30 35	50 35	S47 S54	3.70 4.25
	560	30	20	S41	2.45		330	22	25	S22	1.40		1200	35	45	S54 S56	3.70
	560	30	25	S42	2.11		330	22	30	S23	1.77		1500	30	50	S47	5.08
	560	35	20	S51	2.10		330	22	35	S24	1.60		1500	35	40	S55	4.93
	680	22	35	S24	2.69		330	25	25	S32	1.87		1500	35	50	S57	4.93
	680	22	45	S26	2.40		330	30	20	S41	1.63		1800	35	45	S56	5.62
	680	25	30	S33	2.70		390	22	30	S23	2.03		1800	35	50	S57	5.85
200	680	25	35	S34	2.86		390	22	35	S24	2.04		2200	35	50	S57	6.47
	680	30	25	S42	2.86		390	22	40	S25	1.80		100	22	20	S21	0.90
	680	35	20	S51	2.42		390	25	25	S32	2.03		120	22	20	S21	0.94
	820	22	40	S25	3.11		390	25	30	S33	2.04		120	25	20	S31	0.88
	820	22	50	S27	2.60		390	30	20	S41	1.77		150	22	20	S21	1.02
	820	25	35	S34	3.14	250	390	30	25	S42	1.80		150	22	25	S22	1.20
	820	25	40	S35	2.60		390	35	20	S51	1.84		150	25	20	S31	1.10
	820	30	25	S42	3.00		470	22	35	S24	2.24		180	22	25	S22	1.31
	820	30	30	S43	3.20		470	22	45	S26	2.00		180	22	30	S23	1.38
	820	35	20	S51	2.66		470	25	30	S33	2.24		180	25	20	S31	1.15
	820	35	25	S52	3.13		470	25	35	S34	2.00		180	25	25	S32	1.38
	1000	22	45	S26	3.61		470	30	25	S42	2.37		180	30	20	S41	1.20
	1000	25	40	S35	3.60		470	35	20	S51	2.02		220	22	25	S22	1.45
	1000	25	50	S37	3.00		560	22	40	S25	2.57		220	22	30	S23	1.53
	1000	30	30	S43	3.53		560	22	50	S27	2.20	315	220	22	35	S24	1.30
	1000	30	35	S44	3.00		560	25	30	S33	2.44		220	25	20	S31	1.32
	1000	35	25	S52	3.46		560	25	35	S34	2.60		220	25	25	S32	1.53
	1000	35	30	S53	3.00		560	25	40	S35	2.20		220	30	20	S41	1.33
	1200	22	50	S27	4.11		560	30	25	S42	2.48		270	22	30	S23	1.69
	1200	25	45	S36	4.13		560	30	30	S43	2.64		270	22	35	S24	1.70
	1200	30	35	S44	4.04		560	35	20	S51	2.20		270	22	40	S25	1.50
	1200	30	40	S45	3.40		560	35	25	S52	2.59		270	25	25	S32	1.69
	1200	35	25	S52	3.79		680	22	45	S26	2.98		270	25	30	S33	1.70
	1200	35	30	S53	4.08		680	25	35	S34	2.86		270	30	20	S41	1.47
	1200	35	35	S54	3.40		680	25	40	S35	2.97		270	30	25	S42	1.50
	1500	25	50	S37	4.80		680	25	45	S36	2.50		270	35	20	S51	1.69
	1500	30	40	S45	4.69		680	30	30	S43	2.91		330	22	35	S24	1.88
	1500	30	50	S47	4.00	1	680	30	35	S44	2.60	1	330	22	40	S25	1.97

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS LA5, LT5

Standard Ratings

Rated	Rated capacitance	Case	(mm)	Casing	Rated ripple current	Rated voltage	Rated capacitance	Case	(mm)	Casing	Rated ripple current	Rated	Rated capacitance	Case	(mm)	Casing	Rated ripp current
(V)	(μF)	D	L	Symbol	(Arms)	(V)	(μF)	D	L	Symbol	(Arms)	(V)	(μF)	D	L	Symbol	(Arms)
	330	22	45	S26	1.70	315	1500	35	50	S57	5.34		390	25	50	S37	1.90
	330	25	30	S33	1.88		68	22	20	S21	0.61		390	30	30	S43	2.20
	330	25	35	S34	1.96		82	22	20	S21	0.81		390	30	40	S45	1.90
	330	30	20	S41	1.62		100	22	20	S21	0.85		390	35	25	S52	2.16
	330	30	25	S42	1.99		100	22	25	S22	0.78		390	35	30	S53	1.90
	330	35	20	S51	1.87		100	25	20	S31	0.77		470	22	50	S27	2.57
	390	22	35	S24	2.04		120	22	20	S21	0.91		470	25	40	S35	2.47
	390	22	40	S25	2.14		120	22	25	S22	1.07		470	25	45	S36	2.58
	390	25	30	S33	2.04		120	25	20	S31	0.97		470	30	30	S43	2.42
	390	25	35	S34	2.14		150	22	25	S22	1.20		470	30	35	S44	2.53
	390 390	25 30	40 25	S35 S42	1.80		150	22 25	30 20	S23 S31	1.26		470 470	30 35	45 25	\$46 \$52	2.10 2.37
	390	30	30	S42 S43	2.08		150 150	25	25	S32	0.99		470	35	30	S52 S53	2.57
	390	35	25	S52	2.20		150	30	20	S41	1.00		470	35	35	S53	2.33
	470	22	40	S25	2.35		180	22	25	S22	1.31		560	25	45	S36	2.82
ŀ	470	22	45	S26	2.48		180	22	30	S23	1.37		560	25	50	S37	2.93
	470	25	35	S34	2.34		180	22	35	S24	1.10		560	30	35	S44	2.76
ŀ	470	25	40	S35	2.46		180	25	20	S31	1.15	350	560	30	40	S45	2.87
Ì	470	25	50	S37	2.10		180	25	25	S32	1.38		560	30	50	S47	2.40
	470	30	25	S42	2.23		180	25	30	S33	1.10		560	35	30	S53	2.79
	470	30	30	S43	2.42		180	30	20	S41	1.20		560	35	35	S54	2.90
	470	30	35	S44	2.10		180	35	20	S51	1.20		560	35	40	S55	2.50
	470	35	25	S52	2.37		220	22	30	S23	1.52		680	30	40	S45	3.16
	470	35	30	S53	2.55		220	22	35	S24	1.53		680	30	45	S46	3.30
	560	22	45	S26	2.70		220	22	40	S25	1.30		680	35	30	S53	3.07
	560	22	50	S27	2.81		220	25	25	S32	1.53		680	35	35	S54	3.20
	560	25	40	S35	2.69		220	25	30	S33	1.54		680		45	S56	2.80
15	560	25	50	S37	2.93		220	25	35	S34	1.30		820		45	S46	3.62
	560	30	30	S43	2.64	350	220	30	20	S41	1.33		820		50	S47	3.76
	560	30 30	35	S44	2.76		220	30	25	S42	1.30		820		35	S54	3.51
	560 560	35	40 25	\$45 \$52	2.40		220 270	35 22	20 35	S51 S24	1.38		820 1000		40	S55 S55	3.65 4.03
	560	35	30	S53	2.79		270	22	40	S25	1.78		1000		45	S56	4.18
	560	35	35	S54	2.79		270	22	50	S27	1.50		1200		50	S57	4.78
	680	25	45	S36	3.11		270	25	25	S32	1.69		56		20	S21	0.54
	680	25	50	S37	3.23		270	25	30	S33	1.70		82		20	S21	0.82
	680	30	35	S44	3.04		270	25	40	S35	1.50		82	22	25	S22	0.69
	680	30	40	S45	3.16		270	30	20	S41	1.47		82	25	20	S31	0.69
	680	30	45	S46	2.70		270	30	25	S42	1.71		100	22	20	S21	0.91
	680	35	30	S53	3.07		270	30	30	S43	1.50		100	22	25	S22	1.07
	680	35	35	S54	3.20		270	35	20	S51	1.53		100	25	20	S31	0.99
	680	35	40	S55	2.80		270	35	25	S52	1.60		120	22	25	S22	1.17
	820	25	50	S37	3.55		330	22	40	S25	1.97		120	22	30	S23	0.86
	820	30	40	S45	3.47		330	22	50	S27	2.15		120	25	20	S31	1.03
	820	30	45	S46	3.62		330	25	30	S33	1.88	400	120	25	25	S32	0.87
	820	35	35	S54	3.51		330	25	35	S34	2.00		120	30	20	S41	0.93
	820	35	40	S55	3.65		330	25	45	S36	1.70		150	22	25	S22	1.31
	820	35	45	S56	3.10		330	30	25	S42	1.85		150	22	30	S23	1.35
	1000	30	45	S46	4.00		330	30	30	S43	2.03		150		35	S24	1.00
	1000	30	50	S47	4.16		330	30	35	S44	1.70		150		20	S31	1.20
}	1000	35	40	S55	4.03		330	35	20	S51	1.69		150		25	S32	1.35
	1000	35	45	S56	4.20		330	35	25	S52	1.99		150		30	S33	1.00
ŀ	1000	35 30	50	S57	3.50		390	22	45	S26	2.26		150		20	S41	1.21
	1200	35	50 45	S47 S56	4.56 4.60		390 390	22 25	50 35	S27 S34	2.34		150 180		20 30	S51 S23	1.20
1	1200				4 00	1	.390	70	. 35	0.34	2.17	1	180	30	- 3U	1 5/3	1.52

(Note) Rated ripple current : 85°C , 120Hz ; ESR. : 20°C , 120Hz

 $^{{\}boldsymbol{\cdot}}$ The standard ratings follow the next page.

LA5, LT5 LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS ELNA



Standard Ratings

	ard Ratir		, .						, .	1				_	, .		1
Rated	Rated capacitance	Case	(mm)	Casing	Rated ripple current	Rated	Rated capacitance	Case	(mm)	Casing	Rated ripple current	Rated	Rated capacitance	Case	(mm)	Casing	Rated ripple current
(V)	(μF)	D	L	Symbol	(Arms)	(V)	(μF)	D	L	Symbol	(Arms)	(V)	(μF)	D	L	Symbol	(Arms)
	180	22	40	S25	1.10		470	35	30	S53	2.80		180	25	40	S35	1.20
	180	25	25	S32	1.52		470	35	35	S54	2.93		180	30	25	S42	1.58
	180	25	30	S33	1.53		470	35	40	S55	2.30		180	30	30	S43	1.20
	180	25	35	S34	1.10		560	30	40	S45	3.15		180	35	20	S51	1.37
	180	30	20	S41	1.32		560	30	45	S46	3.29	İ	180	35	25	S52	1.30
	180	30	25	S42	1.20		560	35	30	S53	3.06	İ	220	22	40	S25	1.77
	180	35	20	S51	1.37		560	35	35	S54	3.19		220	25	30	S33	1.69
	220	22	30	S23	1.68		560	35	45	S56	2.60		220	25	35	S34	1.79
	220	22	35	S24	1.69	400	680	30	45	S46	3.63	İ	220	25	50	S37	1.40
	220	22	45	S26	1.30		680	30	50	S47	3.77		220	30	25	S42	1.68
	220	25	25	S32	1.68		680	35	35	S54	3.52		220	30	30	S43	1.82
	220	25	30	S33	1.69		680	35	40	S55	3.65		220	30	35	S44	1.40
	220	25	40	S35	1.30		680	35	50	S57	2.90	İ	220	35	20	S51	1.52
	220	30	20	S41	1.46		820	35	40	S55	4.01		220	35	25	S52	1.79
	220	30	25	S42	1.70		820	35	45	S56	4.17		220	35	30	S53	1.50
	220	30	30	S43	1.40		1000	35	45	S56	4.60		270	22	45	S26	2.07
	220	35	20	S51	1.52		1000	35	50	S57	4.80		270	25	35	S34	1.98
	220	35	25	S52	1.50		47	22	20	S21	0.49		270	25	40	S35	2.05
	270	22	35	S24	1.87		56	25	20	S31	0.57		270	30	30	S43	2.02
	270	22	40	S25	1.96		68	22	20	S21	0.82		270	30	35	S44	2.11
	270	22	45	S26	2.06		68	22	25	S22	0.62		270	30	40	S45	1.60
	270	25	30	S33	1.87		82	22	20	S21	0.85		270	35	25	S52	1.98
	270	25	35	S34	1.98		82	22	25	S22	0.97		270	35	30	S53	2.13
	270	25	45	S36	1.50		82	22	30	S23	0.71		270	35	35	S54	1.70
	270	30	25	S42	1.84		82	25	20	S31	0.87		330	22	50	S27	2.37
	270	30	30	S43	2.02		82	25	25	S32	0.72	450	330	25	40	S35	2.27
400	270	30	35	S44	1.60		82	30	20	S41	0.77	450	330	25	45	S36	2.38
	270	35	20	S51	1.68		100	22	25	S22	1.07		330	30	30	S43	2.23
	270	35	25	S52	1.98		100	22	35	S24	0.82		330	30	35	S44	2.34
	330	22	40	S25	2.17		100	25	20	S31	0.92		330	30	50	S47	1.80
	330	22	45	S26	2.28		100	30	20	S41	0.98		330	35	25	S52	2.19
	330	25	35	S34	2.19		120	22	25	S22	1.17		330	35	30	S53	2.35
	330	25	40	S35	2.27		120	22	30	S23	1.23		330	35	40	S55	1.90
	330	25	50	S37	1.70		120	22	40	S25	0.92		390	25	45	S36	2.59
	330	30	25	S42	2.01	450	120	25	20	S31	0.99		390	25	50	S37	2.69
	330	30	30	S43	2.24	1.00	120	25	25	S32	1.24		390	30	35	S44	2.54
	330	30	40	S45	1.80		120	25	30	S33	0.91		390	30	40	S45	2.63
	330	35	25	S52	2.19		120	30	20	S41	1.07		390	35	30	S53	2.56
	330	35	30	S53	1.80		120	30	25	S42	0.97		390	35	35	S54	2.66
	390	22	50	S27	2.58		120	35	20	S51	1.00		390	35	45	S56	2.20
	390	25	40	S35	2.47		150	22	30	S23	1.38		470	30	40	S45	2.89
	390	25	45	S36	2.59		150	22	35	S24	1.42		470	30	45	S46	3.01
	390	30	30	S43	2.43		150	22	45	S26	1.10		470	35	35	S54	2.92
	390	30	35	S44	2.53		150	25	25	S32	1.39		470	35	40	S55	3.03
	390	30	45	S46	2.00		150	25	30	S33	1.40		470	35	50	S57	2.40
	390	35	25	S52	2.38		150	25	35	S34	1.00		560	30	45	S46	3.29
	390	35	30	S53	2.55		150	30	20	S41	1.20		560	30	50	S47	3.42
	390	35	35	S54	2.10		150	30	25	S42	1.48		560	35	35	S54	3.19
	470	25	45	S36	2.84		150	35	20	S51	1.26		560	35	40	S55	3.31
	470	25	50	S37	2.96		180	22	35	S24	1.56		680	35	45	S56	3.80
	470	30	35	S44	2.78		180	22	50	S27	1.20		680	35	50	S57	3.95
	470	30	40	S45	2.89		180	25	25	S32	1.52		820	35	50	S57	4.34
	470	30	50	S47	2.20		180	25	30	S33	1.53						
(Note) R	ated ripple co	urrent : 8	35°C , 12	20Hz ; ES	R.:20°C,12	:OHz											

105℃

LAH, LTH LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS ELNA



Miniaturized, High-Reliability, High-Ripple Capacitors



- · High-reliability, high-ripple capacitors.
- Guarantees 2000 hours at 105℃.



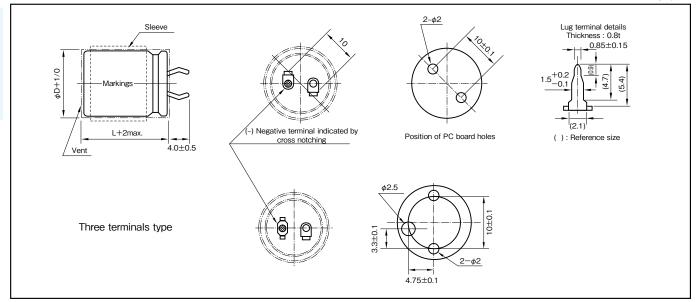


Marking color: White print on a black sleeve

Specifications

Item			F	Performance						
Category temperature range (°C)		−40 t	o +105 (-2	25 to +105 a	at 160V or m	nore)				
Tolerance at rated capacitance (%)				± 20					(20°	C,120Hz)
Leakage current (μA) (max.)		3√CV (after 5 minu	ites) C : Rate	ed capacitan	ce (μF) ; V :	Rated voltag	ge (V)			(20°C)
Tangent of loss angle		oltage (V) (max.)	16	25	35	50		160 to 250		
(tanδ)	tano	(max.)	0.50	0.40	0.35	0.30	0.20	0.15	0.20 (20°	C,120Hz)
Characteristics at high		oltage (V)	16	to 100		160 to 200		250 to	400	
and low temperature	Impedance ratio (max.)	Z-25°C/Z+20°C Z-40°C/Z+20°C		4 15		<u>4</u> —		<u>4</u> _		(120Hz)
Endurance (105°C)	Test Leakage				2000 hours The initial sp	ecified value	or less			
(Applied ripple current)	Percentage of cap Tangent of the				Within ±20% 200% or less			alue		
	Test				1000 hours					
Shelf life (105°C)	Leakage Percentage of cap				The initial sp Within ±15%					
,	Tangent of th	ne loss angle			150% or less	of the initia	I specified v	alue		
	Voltage application treatm	ent : According to JIS C5	101-4 4.1							
Applicable standards			JIS C5101	-1, -4 (IEC 6	60384-1, -4)					

Outline Drawing Unit: mm



Coefficient of Frequency for Rated Ripple Current

Frequency (Hz) Rated voltage (V)	50	120	1k	10k	30k
100 or less	0.95	1	1.10	1.15	1.15
160 to 250	0.81	1	1.32	1.45	1.50
400 or more	0.77	1	1.30	1.41	1.43

Part numbering system series LAH, standard terminal type :400V330µF # B 400 331 Μ S54 LAH Rated voltage Rated capacitance Optional symbol Capacitance Casing Series code tolerance symbol symbol series LTH, three terminals type :400V330 μF 400 **S54** # B LTH 331 Μ Rated voltage Rated capacitance Capacitance Casing Optional symbol Series code symbol symbol symbol

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS LAH, LTH

Standard Ratings

Rated	Rated	Case	(mm)	Casing	Rated ripple	Rated	Rated	Case	(mm)	Casing	Rated ripple	Rated	Rated	Case	(mm)	Casing	Rated ripple
(V)	capacitance (µF)	D	L	Symbol	current (Arms)	voltage (V)	capacitance (µF)	D	L	Symbol	current (Arms)	voltage (V)	capacitance (µF)	D	L	Symbol	current (Arms)
	4700	22	20	S21	1.23		27000	35	25	S52	3.80		10000	30	25	S42	2.48
	5600	22	20	S21	1.35		27000	35	30	S53	3.82		10000	35	20	S51	2.40
	6800	22	20	S21	1.48		33000	22	50	S27	4.00		12000	22	35	S24	2.59
	6800	22	25	S22	1.60		33000	25	45	S36	4.16		12000	22	40	S25	2.63
	6800	25	20	S31	1.53		33000	25	50	S37	4.21		12000	22	45	S26	2.69
	8200	22	25	S22	1.76		33000	30	35	S44	4.15		12000	25	30	S33	2.61
	8200	25	20	S31	1.68		33000	30	40	S45	4.23		12000	25	35	S34	2.67
	8200	30	20	S41	1.84		33000	30	45	S46	4.30		12000	25	40	S35	2.74
	10000	22	25	S22	1.94		33000	35	30	S53	4.22		12000	30	25	S42	2.59
	10000	22	30	S23	1.99		33000	35	35	S54	4.24		12000	30	30	S43	2.70
	10000	25	20	S31	1.85		39000	25	50	S37	4.58		12000	35	20	S51	2.63
	10000	25	25	S32	1.99		39000	30	40	S45	4.60		12000	35	25	S52	2.80
	10000	30	20	S41	2.03		39000	30	45	S46	4.67		15000	22	40	S25	2.94
	12000	22	30	S23	2.18	16	39000	30	50	S47	4.74		15000	22	45	S26	3.01
	12000	22	35	S24	2.28	10	39000	35	30	S53	4.59		15000	25	35	S34	2.99
	12000	25	25	S32	2.18		39000	35	35	S54	4.61		15000	25	40	S35	3.06
	12000	25	30	S33	2.30		39000	35	40	S55	4.72		15000	25	45	S36	3.15
	12000	30	20	S41	2.23		47000	30	45	S46	5.13		15000	30	30	S43	3.02
	12000	30	25	S42	2.38		47000	30	50	S47	5.20		15000	30	35	S44	3.13
	12000	35	20	S51	2.38		47000	35	35	S54	5.06		15000	35	25	S52	3.13
	15000	22	30	S23	2.44		47000	35	40	S55	5.18		15000	35	30	S53	3.22
	15000	22	35	S24	2.55		47000	35	45	S56	5.27		18000	22	45	S26	3.29
	15000	22	40	S25	2.64		56000	30	50	S47	5.68		18000	22	50	S27	3.44
	15000	25	25	S32	2.44		56000	35	40	S55	5.66		18000	25	40	S35	3.36
	15000	25	30	S33	2.57		56000	35	45	S56	5.75		18000	25	45	S36	3.45
	15000	25	35	S34	2.68		68000	35	45	S56	6.34		18000	25	50	S37	3.54
	15000	30	25	S42	2.66		68000	35	50	S57	6.59		18000	30	30	S43	3.31
16	15000	35	20	S51	2.66		82000	35	50	S57	7.23	25	18000	30	35	S44	3.43
	18000	22	35	S24	2.79		3300	22	20	S21	1.21		18000	30	40	S45	3.54
	18000	22	40	S25	2.89		3900	22	20	S21	1.31		18000	35	25	S52	3.43
Ì	18000	22	45	S26	2.98		4700	22	20	S21	1.44		18000	35	30	S53	3.53
	18000	25	30	S33	2.82		4700	22	25	S22	1.55		22000	22	50	S27	3.80
	18000	25	35	S34	2.94		4700	25	20	S31	1.48		22000	25	45	S36	3.81
	18000	25	40	S35	3.04		5600	22	25	S22	1.69		22000	25	50	S37	3.91
	18000	30	25	S42	2.91		5600	25	20	S31	1.61		22000	30	35	S44	3.79
	18000	30	30	S43	3.00		5600	30	20	S41	1.74		22000	30	40	S45	3.91
	18000	35	20	S51	2.91		6800	22	25	S22	1.86		22000	30	45	S46	4.24
	18000	35	25	S52	3.10		6800	22	30	S23	1.91		22000	35	30	S53	3.90
	22000	22	40	S25	3.20		6800	25	20	S31	1.78		22000	35	35	S54	3.96
	22000	22	45	S26	3.29		6800	25	25	S32	1.91		27000	25	50	S37	4.34
	22000	25	35	S34	3.25		6800	30	20	S41	1.92		27000	30	40	S45	4.34
}	22000	25	40	S35	3.36	25	8200	22	30	S23	2.10		27000	30	45	S46	4.70
}	22000	25	45	S36	3.40		8200	22	35	S24	2.14		27000	35	35	S54	4.39
ŀ	22000	30	30	S43	3.32		8200	25	25	S32	2.10		27000	35	40	S55	4.56
}	22000	30	35	S44	3.39		8200	25	30	S33	2.16		27000	35	45	S56	4.75
}	22000	35	25	S52	3.43		8200	30	20	S41	2.10		33000	30	45	S46	5.19
	27000	22	45	S26	3.65		8200	30	25	S42	2.25		33000	30	50	S47	5.30
}	27000	22	50	S27	3.70		8200	35	20	S51	2.17		33000	35	35	S54	4.85
	27000	25	40	S35	3.72		10000	22	30	S23	2.32		33000	35	40	S55	5.04
}	27000	25	45	S36	3.77		10000	22	35	S24	2.36		33000	35	50	S57	5.39
}	27000	25	50	S37	3.81		10000	22	40	S25	2.40		39000	30	50	S47	5.58
}	27000	30	30	S43	3.67		10000	25	25	S32	2.32		39000	35	40	S55	5.48
	2,000	30	35	S44	3.76		10000	25	30	S33	2.39		39000	35	45	S56	5.71
l	27000																

[•] The standard ratings follow the next page.

LAH, LTH LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS ELNA

Standard Ratings

Stand	lard Ratin	igs		,												1	
Rated	Rated	Case	(mm)	Casing	Rated ripple	Rated	Rated	Case	(mm)	Casing	Rated ripple	Rated	Rated	Case	(mm)	Casing	Rated ripple
voltage (V)	capacitance (µF)	D	L	Symbol	current (Arms)	voltage (V)	capacitance (µF)	D	L	Symbol	current (Arms)	voltage (V)	capacitance (µF)	D	L	Symbol	current (Arms)
	2200	22	20	S21	1.08		12000	35	25	S52	3.14		4700	22	45	S26	2.56
	2700	22	20	S21	1.20		12000	35	30	S53	3.20		4700	25	30	S33	2.39
	3300	22	20	S21	1.33		15000	25	45	S36	3.58		4700	25	35	S34	2.50
	3300	22	25	S22	1.43		15000	25	50	S37	3.64		4700	30	25	S42	2.44
	3300	25	20	S31	1.39		15000	30	35	S44	3.58		4700	30	30	S43	2.58
	3900	22	25	S22	1.55		15000	30	40	S45	3.67		4700	35	20	S51	2.51
	3900	22	30	S23	1.65		15000	30	45	S46	3.74		4700	35	25	S52	2.67
	3900	25	20	S31	1.51		15000	35	30	S53	3.58		5600	22	40	S25	2.70
	3900	30	20	S41	1.65		15000	35	35	S54	3.69		5600	22	45	S26	2.79
	4700	22	25	S22	1.71		18000	25	50	S37	3.99		5600	22	50	S27	2.89
	4700	22	30	S23	1.81		18000	30	40	S45	4.02		5600	25	35	S34	2.73
	4700	25	20	S31	1.66		18000	30	45	S46	4.10		5600	25	40	S35	2.81
	4700	25	25	S32	1.78	35	18000	35	30	S53	3.92		5600	30	25	S42	2.66
	4700	30	20	S41	1.82	55	18000	35	35	S54	4.04		5600	30	30	S43	2.82
	5600	22	30	S23	1.98		18000	35	40	S55	4.16		5600	30	35	S44	2.95
	5600	22	35	S24	2.02		22000	30	45	S46	4.10		5600	35	25	S52	2.91
	5600	25	25	S32	1.94		22000	30	50	S47	4.71			22	45	S26	3.08
		25	30		2.04		22000	35	35	S54			6800	22	50	S27	3.18
	5600	30	20	S33					40		4.47 4.60		6800		40		3.10
	5600			S41	1.98		22000	35		S55			6800	25		S35	
	5600	30	25	S42	2.12		22000	35	50	S57	4.92		6800	25	45	S36	3.24
	5600	35	20	S51	2.16		27000	30	50	S47	5.22		6800	25	50	S37	3.37
	6800	22	35	S24	2.23		27000	35	40	S55	5.09		6800	30	30	S43	3.10
	6800	22	40	S25	2.28		27000	35	45	S56	5.24		6800	30	35	S44	3.25
	6800	25	25	S32	2.14		33000	35	45	S56	5.80		6800	30	40	S45	3.39
	6800	25	30	S33	2.25		33000	35	50	S57	6.03		6800	35	25	S52	3.21
	6800	25	35	S34	2.31		1200	22	20	S21	0.99		6800	35	30	S53	3.31
35	6800	30	25	S42	2.34		1500	22	20	S21	1.11	50	8200	22	50	S27	3.50
	6800	35	20	S51	2.38		1800	22	20	S21	1.22		8200	25	40	S35	3.40
	8200	22	35	S24	2.44		1800	22	25	S22	1.31		8200	25	45	S36	3.56
	8200	22	40	S25	2.50		1800	25	20	S31	1.29		8200	30	35	S44	3.57
	8200	22	50	S27	2.67		2200	22	25	S22	1.45		8200	30	40	S45	3.72
	8200	25	30	S33	2.47		2200	25	20	S31	1.43		8200	30	45	S46	3.89
	8200	25	35	S34	2.54		2700	22	25	S22	1.60		8200	35	30	S53	3.63
	8200	25	40	S35	2.60		2700	22	30	S23	1.70		8200	35	35	S54	3.66
	8200	30	25	S42	2.45		2700	25	20	S31	1.58		10000	25	45	S36	3.93
	8200	30	30	S43	2.56		2700	25	25	S32	1.70		10000	25	50	S37	4.09
	8200	35	20	S51	2.61		2700	30	20	S41	1.73		10000	30	40	S45	3.90
	8200	35	25	S52	2.78		3300	22	30	S23	1.88		10000	30	45	S46	4.00
	10000	22	40	S25	2.76		3300	22	35	S24	1.98		10000	30	50	S47	4.09
	10000	22	45	S26	2.83	50	3300	25	25	S32	1.88		10000	35	30	S53	4.01
	10000	25	35	S34	2.80		3300	25	30	S33	2.00		10000	35	35	S54	4.05
	10000	25	40	S35	2.87		3300	30	20	S41	1.91		10000	35	40	S55	4.07
	10000	25	45	S36	2.92		3300	35	20	S51	2.10		12000	30	45	S46	4.30
	10000	30	30	S43	2.83		3900	22	30	S23	2.04		12000	30	50	S47	4.68
	10000	30	35	S44	2.92		3900	22	35	S24	2.15		12000	35	35	S54	4.43
	10000	35	25	S52	3.07		3900	22	40	S25	2.25		12000	35	40	S55	4.46
	12000	22	45	S26	3.09		3900	25	25	S32	2.04		12000	35	45	S56	4.50
	12000	22	50	S27	3.23		3900	25	30	S33	2.17		15000	30	50	S47	4.95
	12000	25	40	S35	3.15		3900	25	35	S34	2.28		15000	35	40	S55	4.98
	12000	25	45	S36	3.20		3900	30	20	S41	2.08		15000	35	45	S56	5.03
	12000	25	50	S37	3.26		3900	30	25	S42	2.22		18000	35	45	S56	5.51
	12000	30	30	S43	3.10		3900	35	20	S51	2.28		18000	35	50	S57	5.73
	12000	30	35	S44	3.20		4700	22	35	S24	2.36		22000	35	50	S57	6.33
	12000	30	40	S45	3.28		4700	22	40	S25	2.47						
(Note) R	ated ripple cu	ırrent : 1	05℃,1	120Hz													

105℃

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS LAH, LTH

Standard Ratings

Rated	Rated	Case	(mm)		Rated ripple	Rated	Rated	Case	(mm)		Rated ripple	Rated	Rated	Case	(mm)		Rated ripple
voltage	capacitance	D	L	Casing Symbol	current	voltage	capacitance		L	- Casing Symbol	current	voltage	capacitance	D	L	- Casing Symbol	current
(V)	(μF)			-	(Arms)	(V)	(μF)			-	(Arms)	(V)	(μF)				(Arms)
	820	22	20	S21	0.96		4700	35	30	S53	2.83		2200	22	45	S26	2.09
	1000	22	20	S21	1.06		5600	25	45	S36	3.04		2200	25	30	S33	1.96
	1200	22	20	S21	1.11		5600	25	50	S37	3.14		2200	25	35	S34	2.01
	1200	22	25	S22	1.25		5600	30	35	S44	3.06		2200	30	25	S42	2.00
	1200	25	20	S31	1.16		5600	30	40	S45	3.17		2200	30	30	S43	2.10
	1500	22	25	S22	1.40		5600	30	45	S46	3.28		2200	35	20	S51	2.04
	1500	25	20	S31	1.29		5600	35	30	S53	3.09		2200	35	25	S52	2.17
	1800	22	25	S22	1.46		5600	35	35	S54	3.24		2700	22	40	S25	2.24
	1800	22	30	S23	1.60		6800	25	50	S37	3.46		2700	22	45	S26	2.32
	1800	25	20	S31	1.42		6800	30	40	S45	3.49		2700	25	35	S34	2.23
	1800	25	25	S32	1.52		6800	30	45	S46	3.61		2700	25	40	S35	2.32
	1800	30	20	S41	1.47		6800	30	50	S47	3.73		2700	25	45	S36	2.43
	2200	22	30	S23	1.68	l	6800	35	30	S53	3.40		2700	30	25	S42	2.22
	2200	22	35	S24	1.73	63	6800	35	35	S54	3.57		2700	30	30	\$43	2.33
	2200	25	25	S32	1.68		6800	35	40	S55	3.71		2700	30	35	S44	2.43
	2200	25	30	S33	1.75		8200	30	45	S46	3.97		2700	35	25	S52	2.40
	2200	30	20	S41	1.63		8200	30	50	S47	4.10		3300	22	45	S26	2.56
	2200	35	20	S51	1.85		8200	35	35	S54	3.92		3300	22	50	S27	2.67
	2700	22	30	S23	1.86		8200	35	40	S55	4.07		3300	25	35	S34	2.46
	2700	22	35	S24	1.92		8200	35	45	S56	4.16		3300	25	40	S35	2.57
	2700	22	40	S25	1.97		10000	30	50	S47	4.52		3300	25	50	S37	2.76
	2700	25	25	S32	1.86		10000	35	40	S55	4.50		3300	30	30	S43	2.57
	2700	25	30	S33	1.94		10000	35	45	S56	4.59		3300	30	35	S44	2.69
	2700	25	35	S34	1.99		10000	35	50	S57	4.69		3300	30	40	S45	2.78
	2700	30	20	S41	1.81		12000	35	45	S56	5.03		3300	35	25	S52	2.66
	2700	30	25	S42	1.93		12000	35	50	S57	5.14		3300	35	30	S53	2.71
	2700	35	20	S51	2.05		15000	35	50	S57	5.74		3900	22	50	S27	2.90
63	3300	22	35	S24	2.12		560	22	20	S21	0.85	80	3900	25	40	S35	2.79
	3300	22	40	S25	2.18		680	22	20	S21	0.94		3900	25	45	S36	2.92
	3300	22	50	S27	2.32		820	22	20	S21	1.03		3900	25	50	S37	3.00
	3300	25	30	S33	2.14		820	22	25	S22	1.11		3900	30	35	S44	2.92
	3300	25	35	S34	2.20		820	25	20	S31	1.07		3900	30	40	S45	3.02
	3300	25	40	S35	2.27		1000	22	25	S22	1.23		3900	30	45	S46	3.12
	3300	30	25	S42	2.13		1000	25	20	S31	1.18		3900	35	30	S53	2.95
	3300	30	30	S43	2.24		1200	22	25	S22	1.34		3900	35	35	S54	3.07
	3300	35	20	S51	2.26		1200	22	30	S23	1.39		4700	25	50	S37	3.29
	3300	35	25	S52	2.41		1200	25	20	S31	1.29		4700	30	40	S45	3.32
	3900	22	40	S25	2.37		1200	25	25	S32	1.39		4700	30	45	S46	3.43
	3900	22	45	S26	2.42		1200	30	20	S41	1.38		4700	30	50	S47	3.56
	3900	25	35	S34	2.39		1500	22	30	S23	1.55		4700	35	30	S53	3.23
	3900	25	40	S35	2.47	80	1500	22	35	S24	1.61		4700	35	35	S54	3.37
	3900	25	45	S36	2.54	00	1500	25	25	S32	1.55		4700	35	40	S55	3.50
	3900	30	25	S42	2.32		1500	25	30	S33	1.62		5600	30	45	S46	3.74
	3900	30	30	S43	2.44		1500	30	20	S41	1.55		5600	30	50	S47	3.89
	3900	30	35	S44	2.55		1500	35	20	S51	1.68		5600	35	35	S54	3.68
	3900	35	25	S52	2.62		1800	22	30	S23	1.70		5600	35	40	S55	3.82
	4700	22	45	S26	2.65		1800	22	35	S24	1.76		5600	35	45	S56	3.87
	4700	22	50	S27	2.77		1800	22	40	S25	1.83		6800	30	50	S47	4.03
	4700	25	40	S35	2.71		1800	25	25	S32	1.70		6800	35	40	S55	3.93
	4700	25	45	S36	2.79		1800	25	30	S33	1.77		6800	35	45	S56	4.03
	4700	25	50	S37	2.88		1800	30	20	S41	1.69		6800	35	50	S57	4.19
	4700	30	30	S43	2.67		1800	30	25	S42	1.81		8200	35	45	S56	4.32
	4700	30	35	S44	2.80		1800	35	20	S51	1.84		8200	35	50	S57	4.60
	4700	30	40	S45	2.90		2200	22	35	S24	1.95		10000	35	50	S57	5.08
	4700	35	25	S52	2.72		2200	22	40	S25	2.02		12000	35	50	S57	5.14
	ated ripple cu																

[•] The standard ratings follow the next page.

LAH, LTH LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS ELNA®

Standard Ratings

Stand	dard Ratin	igs									
Rated	Rated	Case	(mm)	Casing	Rated ripple	Rated	Rated	Case	(mm)	Casing	Rated ripple
voltage (V)	capacitance (µF)	D	L	Symbol	current (Arms)	voltage (V)	capacitance (µF)	D	L	Symbol	current (Arms)
	390	22	20	S21	0.83		1800	25	45	S36	2.28
	470	22	20	S21	0.91		1800	30	25	S42	2.09
	560	22	20	S21	0.99		1800	30	30	S43	2.19
	560	22	25	S22	1.07		1800	30	35	S44	2.27
	560	25	20	S31	1.04		1800	35	25	S52	2.27
	680	22	25	S22	1.18		2200	22	45	S26	2.41
	680	25	20	S31	1.14		2200	22	50	S27	2.52
	820	22	25	S22	1.29		2200	25	40	S35	2.46
	820	22	30	S23	1.35		2200	25	45	S36	2.52
	820	25	20	S31	1.26		2200	25	50	S37	2.57
	820	25	25	S32	1.35		2200	30	30	S43	2.42
	820	30	20	S41	1.32		2200	30	35	S44	2.51
	1000	22	30	S23	1.49		2200	30	40	S45	2.59
	1000	22	35	S24	1.54		2200	35	25	S52	2.51
	1000	25	25	S32	1.49		2200	35	30	S53	2.56
	1000	25	30	S33	1.56		2700	25	45	S36	2.79
	1000	30	20	S41	1.46		2700	25	50	S37	2.85
	1000	35	20	S51	1.59		2700	30	35	S44	2.78
	1200	22	30	S23	1.63		2700	30	40	S45	2.87
	1200	22	35	S24	1.69		2700	30	45	S46	2.94
100	1200	22	40	S25	1.74	100	2700	35	30	S53	2.79
	1200	25	25	S32	1.63		2700	35	35	S54	2.90
	1200	25	30	S33	1.71		3300	25	50	S37	3.15
	1200	25	35	S34	1.76		3300	30	40	S45	3.17
	1200	30	20	S41	1.60		3300	30	45	S46	3.25
	1200	30	25	S42	1.71		3300	30	50	S47	3.32
	1200	35	20	S51	1.74		3300	35	30	S53	3.09
	1500	22	35	S24	1.89		3300	35	35	S54	3.21
	1500	22	40	S25	1.95		3300	35	40	S55	3.31
	1500	22	45	S26	1.99		3900	30	45	S46	3.53
	1500	25	30	S33	1.91		3900	30	50	S47	3.61
	1500	25	35	S34	1.97		3900	35	35	S54	3.49
	1500	25	40	S35	2.03		3900	35	40	S55	3.60
	1500	30	25	S42	1.91		3900	35	45	S56	3.69
	1500	30	30	S43	2.00		4700	30	50	S47	3.96
	1500	35	20	S51	1.94		4700	35	40	S55	3.95
	1500	35	25	S52	2.07		4700	35	45	S56	4.05
	1800	22	40	S25	2.13		4700	35	50	S57	4.14
	1800	22	45	S26	2.18		5600	35	45	S56	4.42
	1800	25	35	S34	2.16		5600	35	50	S57	4.52
	1800	25	40	S35	2.22		6800	35	50	S57	4.98
(Note) F	Rated ripple cu	ırrent : 1	05℃ , 1	20Hz							

(Note) Rated ripple current : $105^{\circ}\!C$, 120Hz

Standard Ratings

Rated	Rated	Case	(mm)	Casing	Rated ripple	Rated	Rated	Case	(mm)	Casing	Rated ripple	Rated	Rated	Case	(mm)	Casing	Rated ripple
voltage (V)	capacitance (µF)	D	L	Symbol	current (Arms)	voltage (V)	capacitance (µF)	D	L	Symbol	current (Arms)	(V)	capacitance (µF)	D	L	Symbol	current (Arms)
	330	22	25	S22	1.16		330	25	25	S32	1.35		120	22	35	S24	0.75
	390	22	30	S23	1.43		390	22	35	S24	1.41		120	25	30	S33	0.70
	470	22	35	S24	1.52		470	22	40	S25	1.50		120	30	25	S42	0.78
	470	25	25	S32	1.55		470	25	30	S33	1.50		150	22	40	S25	0.82
	560	22	40	S25	1.62		470	30	25	S42	1.56		150	25	35	S34	0.73
	560	25	30	S33	1.73		560	22	45	S26	1.58		180	22	50	S27	0.78
	680	22	45	S26	1.70		560	25	35	S34	1.65		180	25	40	S35	0.82
	680	25	35	S34	1.81		680	22	50	S27	1.68		180	30	30	S43	0.83
	680	30	25	S42	1.82		680	25	40	S35	1.80		180	35	25	S52	0.86
	820	22	50	S27	1.81	200	680	30	30	S43	1.82	400	220	25	45	S36	0.87
160	820	25	40	S35	1.98	200	680	35	25	S52	1.96	400	220	30	35	S44	0.86
100	820	30	30	S43	1.98		820	25	50	S37	1.87		270	25	50	S37	0.94
	820	35	25	S52	1.93		820	30	35	S44	1.99		270	30	40	S45	0.95
	1000	25	45	S36	2.04		820	35	30	S53	2.07		270	35	30	S53	0.91
	1000	30	35	S44	2.14		1000	30	45	S46	2.22		330	30	45	S46	1.11
	1200	25	50	S37	2.12		1000	35	35	S54	2.22		330	35	35	S54	1.13
	1200	30	40	S45	2.22		1200	30	50	S47	2.89		390	30	50	S47	1.15
	1200	35	30	S53	2.74		1200	35	40	S55	2.42		390	35	40	S55	1.26
	1500	30	45	S46	2.46		1500	35	45	S56	2.59		470	35	45	S56	1.31
	1500	35	35	S54	2.53		1800	35	50	S57	2.70		560	35	50	S57	1.50
	1800	35	45	S56	2.98		180	22	25	S22	0.94		56	22	25	S22	0.47
	2200	35	50	S57	3.10		220	22	30	S23	1.10		68	22	30	S23	0.56
	270	22	25	S22	1.08		220	25	25	S32	1.15		68	25	25	S32	0.65
	330	22	30	S23	1.30		270	22	35	S24	1.13		82	22	35	S24	0.64
	390	25	25	S32	1.35		330	22	40	S25	1.20		100	22	40	S25	0.70
	470	22	35	S24	1.58		330	25	30	S33	1.35		100	25	30	S33	0.70
	470	25	30	S33	1.62		330	30	25	S42	1.30		100	30	25	S42	0.78
	560	22	40	S25	1.79		390	22	45	S26	1.26		120	22	45	S26	0.73
	560	25	35	S34	1.69		390	25	35	S34	1.41		120	25	35	S34	0.73
	560	30	25	S42	1.67		470	22	50	S27	1.37		150	22	50	S27	0.78
	680	22	50	S27	1.76		470	25	40	S35	1.52		150	25	40	S35	0.82
	680	25	40	S35	1.72	250	470	30	30	S43	1.36	450	150	30	30	S43	0.83
100	680	30	30	S43	1.74		470	35	25	S52	1.40	450	150	35	25	S52	0.86
180	680	35	25	S52	1.92		560	25	45	S36	1.59		180	25	45	S36	0.87
	820	25	45	S36	1.78		560	30	35	S44	1.57		180	30	35	S44	0.86
	820	30	35	S44	1.85		560	35	30	S53	1.56		220	25	50	S37	0.94
	1000	25	50	S37	1.91		680	25	50	S37	2.20		220	30	40	S45	0.95
	1000	30	40	S45	2.01		680	30	40	S45	1.76		220	35	30	S53	0.91
	1000	35	30	S53	2.16		820	30	45	S46	1.83		270	30	45	S46	1.11
	1200	30	45	S46	2.19		820	35	35	S54	2.35		270	35	35	S54	1.13
	1200	35	35	S54	2.34		1000	30	50	S47	1.87		330	30	50	S47	1.15
	1500	30	50	S47	2.36		1000	35	40	S55	2.90		330	35	40	S55	1.26
	1500	35	40	S55	2.56		1200	35	45	S56	3.30		390	35	45	S56	1.31
	1800	35	45	S56	2.67		68	22	25	S22	0.47		470	35	50	S57	1.50
000	220	22	25	S22	1.08	400	82	22	30	S23	0.56						
200		22	30	S23	1.30	1	82	25	25	S32	0.65						

(Note) Rated ripple current : 105°C , 120Hz

LARGE ALUMINUM

105℃

LAT, LTT LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS

Miniaturized, High ripple

LAH



Ultra Miniaturized, High-Reliability, High-Ripple Capacitors

- · Best suited as input filters for various power supplies.
- Guarantees 2000 hours at 105℃.
- · Best suited to On-Board-Charger for EV, PHEV.



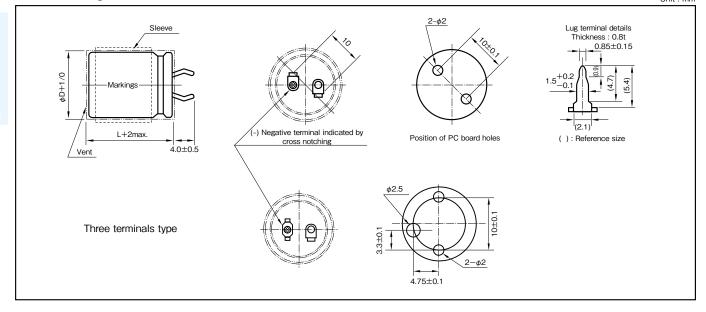


Marking color: White print on a black sleeve

Specifications

Specifications					
Item			Performance		
Category temperature range (°C)			-25 to +105		
Tolerance at rated capacitance (%)			±20		(20°C,120Hz)
Leakage current (μA) (max.)		3√CV (after 5 min	utes) C : Rated capacitance (μF) ; V : Rated	voltage (V)	(20°C)
Tangent of loss angle	Rated voltage		160 to 250	315 to 500	
(tanδ)	tanδ (max	.)	0.15	0.20	
(tario)					(20°C,120Hz)
Characteristics at high	Percentage of capacitance change (%)	-25°C	Within ±30% of the v	alue at 20°C	
·	Impedance ratio (max.)	Z-25°C/Z+20°C	4		
and low temperature					(120Hz)
	Test time		2000 hours		
Endurance (105°C)	Leakage curre	ent	The initial specified va	alue or less	
(Applied ripple current)	Percentage of capacita	ance change	Within ±20% of initia	I value	
	Tangent of the los	ss angle	200% or less of the in	nitial specified value	
	Test time		1000 hours		
	Leakage curre	ent	The initial specified va	alue or less	
Shelf life (105°C)	Percentage of capacita	ance change	Within ±15% of initia	I value	
	Tangent of the los	ss angle	150% or less of the in	nitial specified value	
	Voltage application treatment :	According to JIS C510	1-4 4.1		
Applicable standards		JI	S C5101-1, -4 (IEC 60384-1, -4)		

Outline Drawing Unit: mm



Part numbering system series LAT, standard terminal type :400V220µF LAT 400 221 Μ S52 # В Capacitance Optional Series code symbol tolerance symbol symbol series LTT, three terminals type :400V220 μF 400 I TT 221 M S52 # В Rated voltage Optional Series code tolerance symbol symbol symbol symbol

Coefficient of Frequency for Rated Ripple Current

Frequency (Hz) Rated voltage (V)	50	120	1k	10k	30k
160 to 250	0.81	1	1.32	1.45	1.50
315 or more	0.77	1	1.30	1.41	1.43

Standard Ratings

Rated	Rated	Case	(mm)	Cosine	Rated ripple	Rated	Rated	Case	(mm)	Cosins	Rated ripple	Rated	Rated	Case	(mm)	Cooine	Rated ripple
voltage (V)	capacitance (µF)	D	L	Casing Symbol	current (Arms)		capacitance (µF)	D	L	Casing Symbol	current (Arms)	voltage (V)	capacitance (µF)	D	L	- Casing Symbol	current (Arms)
	220	22	20	S21	0.90		1200	25	45	S36	2.90		560	30	20	S41	1.64
	270	22	20	S21	1.00		1200	30	30	S43	2.84		560	35	20	S51	1.66
	270	25	20	S31	1.13		1200	30	35	S44	2.96		680	22	35	S24	1.90
	330	22	20	S21	1.10		1200	35	25	S52	2.69		680	25	30	S33	1.91
	330	25	20	S31	1.25		1500	22	60	S29	3.41		680	30	25	S42	1.86
	390	22	25	S22	1.35		1500	25	45	S36	3.25		680	35	20	S51	1.83
	390	25	20	S31	1.36		1500	25	50	S37	3.38		820	22	40	S25	2.17
	390	30	20	S41	1.37		1500	30	35	S44	3.10		820	25	35	S34	2.14
	470	22	25	S22	1.48		1500	30	40	S45	3.21		820	30	25	S42	2.04
	470	22	30	S23	1.50		1500	35	30	S53	3.06		820	30	30	S43	2.17
	470	25	25	S32	1.53		1800	25	55	S38	3.84		820	35	20	S51	2.01
	470	30	20	S41	1.50	100	1800	30	40	S45	3.52		820	35	25	S52	2.11
	560	22	30	S23	1.68	160	1800	30	45	S46	3.91		1000	22	45	S26	2.44
	560	22	35	S24	1.75		1800	35	30	S53	3.35		1000	25	40	S35	2.43
	560	25	25	S32	1.63		1800	35	35	S54	3.52		1000	30	30	S43	2.39
	560	30	20	S41	1.63		2200	30	45	S46	4.03		1000	35	25	S52	2.33
	560	35	20	S51	1.82		2200	30	50	S47	4.16		1200	22	50	S27	2.74
	680	22	35	S24	1.93		2200	35	35	S54	3.89	100	1200	25	45	S36	2.73
160	680	22	40	S25	1.98		2200	35	40	S55	4.36	180	1200	30	30	S43	2.62
160	680	25	30	S33	1.91		2200	35	45	S56	4.59		1200	30	35	S44	2.66
	680	30	20	S41	1.80		2700	30	55	S48	4.76		1200	35	25	S52	2.55
	680	30	25	S42	1.85		2700	35	50	S57	5.03		1200	35	30	S53	2.65
	680	35	20	S51	2.01		3300	35	50	S57	5.47		1500	25	50	S37	3.12
	820	22	35	S24	2.08		3900	35	55	S58	6.18		1500	25	55	S38	3.38
	820	22	40	S25	2.17		220	22	20	S21	0.91		1500	30	40	S45	3.01
	820	22	45	S26	2.19		270	22	20	S21	1.00		1500	35	30	S53	2.96
	820	25	30	S33	2.09		270	25	20	S31	1.14		1500	35	35	S54	3.02
	820	25	35	S34	2.17		330	22	25	S22	1.25		1800	25	60	S39	3.83
	820	30	25	S42	2.03		330	25	20	S31	1.20		1800	30	45	S46	3.42
	820	35	20	S51	2.20		390	22	25	S22	1.35		1800	35	35	S54	3.31
	1000	22	45	S26	2.42	180	470	22	25	S22	1.49		2200	30	50	S47	3.83
	1000	22	50	S27	2.60	100	470	22	30	S23	1.55		2200	35	40	S55	3.73
	1000	25	35	S34	2.40		470	25	25	S32	1.56		2700	30	60	S49	4.64
	1000	25	40	S35	2.47		470	30	20	S41	1.50		2700	35	45	S56	4.25
	1000	30	30	S43	2.45		560	22	30	S23	1.69		3300	35	55	S58	4.92
	1000	35	25	S52	2.60		560	22	35	S24	1.73		3900	35	60	S59	5.53
	1200	22	50	S27	2.84		560	25	25	S32	1.67					_	
	1200	25	40	S35	2.84		560	25	30	S33	1.74						

(Note) Rated ripple current : 105°C , 120Hz

105℃

[•] The standard ratings follow the next page.

LAT, LTT LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS



Standard Ratings

Rated	Rated	Case	(mm)	Casing	Rated ripple	Rated	Rated	Case	(mm)	Casing	Rated ripple	Rated	Rated	Case	(mm)	Casing	Rated ripple
voltage (V)	capacitance (µF)	D	L	Symbol	current (Arms)	(V)	capacitance (μF)	D	L	Symbol	current (Arms)	(V)	capacitance (µF)	D	L	Symbol	current (Arms)
	150	22	20	S21	0.76		1200	25	45	S36	2.73		470	22	35	S24	1.58
	180	22	20	S21	0.82		1200	25	50	S37	2.82		470	22	40	S25	1.64
	180	25	20	S31	0.93		1200	30	35	S44	2.63		470	25	30	S33	1.61
	220	22	20	S21	0.91		1200	30	40	S45	2.69		470	25	35	S34	1.63
	270	22	20	S21	1.00		1200	35	30	S53	2.63		470	30	25	S42	1.61
	270	25	20	S31	1.09		1500	25	55	S38	3.38		470	35	20	S51	1.55
	330	22	25	S22	1.29		1500	30	40	S45	3.01		560	22	40	S25	1.79
	330	25	20	S31	1.18		1500	30	45	S46	3.12		560	22	45	S26	1.82
	330	30	20	S41	1.26		1500	35	30	S53	2.96		560	25	35	S34	1.77
	390	22	25	S22	1.35	200	1500	35	35	S54	2.97		560	25	40	S35	1.82
	390	22	30	S23	1.40	200	1800	30	45	S46	3.42		560	30	25	S42	1.69
	390	25	25	S32	1.37		1800	30	50	S47	3.54		560	30	30	S43	1.80
	390	30	20	S41	1.37		1800	35	35	S54	3.25		560	35	20	S51	1.66
	470	22	30	S23	1.53		1800	35	40	S55	3.59		560	35	25	S52	1.80
	470	25	25	S32	1.50		1800	35	45	S56	4.00		680	22	45	S26	2.01
	470	30	20	S41	1.50		2200	30	55	S48	4.06		680	22	50	S27	2.06
	470	35	20	S51	1.67		2200	35	40	S55	3.73		680	25	40	S35	2.01
	560	22	30	S23	1.69		2200	35	45	S56	4.13		680	25	45	S36	2.06
	560	22	35	S24	1.73		2700	35	50	S57	5.09		680	25	55	S38	2.28
	560	25	25	S32	1.64		3300	35	60	S59	6.03		680	30	30	S43	1.98
	560	25	30	S33	1.70		120	22	20	S21	0.67		680	30	35	S44	2.04
	560	30	20	S41	1.64		150	22	20	S21	0.75	250	680	35	25	S52	1.98
200	560	30	25	S42	1.75		150	25	20	S31	0.92	250	680	35	30	S53	2.04
	560	35	20	S51	1.82		180	22	20	S21	0.82		820	22	55	S28	2.34
	680	22	35	S24	1.90		180	25	20	S31	1.01		820	25	45	S36	2.26
	680	22	40	S25	1.97		220	22	25	S22	1.11		820	25	50	S37	2.42
	680	25	30	S33	1.87		220	25	20	S31	1.02		820	30	35	S44	2.24
	680	25	35	S34	1.95		220	30	20	S41	1.03		820	35	25	S52	2.07
	680	30	25	S42	1.92		270	22	25	S22	1.13		820	35	30	S53	2.24
	680	35	20	S51	1.92		270	22	30	S23	1.25		1000	25	50	S37	2.57
	820	22	40	S25	2.17		270	25	20	S31	1.07		1000	30	40	S45	2.67
	820	22	45	S26	2.21		270	25	25	S32	1.15		1000	35	30	S53	2.47
	820	25	35	S34	2.14	250	270	30	20	S41	1.14		1000	35	35	S54	2.60
	820	25	40	S35	2.20		330	22	30	S23	1.30		1200	30	45	S46	2.79
	820	30	25	S42	2.04		330	22	35	S24	1.50		1200	30	50	S47	2.89
	820	30	30	S43	2.17		330	25	25	S32	1.27		1200	35	35	S54	2.85
	820	35	25	S52	2.07		330	30	20	S41	1.26		1200	35	40	S55	3.18
	1000	22	50	S27	2.50		330	35	20	S51	1.30		1500	30	50	S47	3.23
	1000	25	40	S35	2.43		390	22	30	S23	1.38		1500	35	40	S55	3.28
	1000	25	45	S36	2.49		390	22	35	S24	1.52		1500	35	45	S56	3.69
	1000	30	30	S43	2.39		390	25	25	S32	1.38		1500	35	50	S57	3.80
	1000	30	35	S44	2.40		390	25	30	S33	1.41		1800	35	45	S56	3.74
	1000	35	25	S52	2.29		390	30	20	S41	1.37		1800	35	50	S57	4.16
	1000	35	30	S53	2.40		390	30	25	S42	1.47		2200	35	50	S57	4.23
	1200	22	60	S29	2.93		390	35	20	S51	1.41						
Note) R	ated ripple cu	rrent : 1	05℃,1	120Hz													

ELNA®

LAT, LTT

Standard Ratings

Rated	lard Ratin	Case	(mm)		Rated ripple	Rated	Rated	Case	(mm)		Rated ripple	Rated	Rated	Case	(mm)		Rated ripple
voltage	capacitance			Casing Symbol	current	voltage	capacitance			Casing Symbol	current	voltage	capacitance			Casing Symbol	current
(V)	(μF)	D	L	-	(Arms)	(V)	(µF)	D	L	-	(Arms)	(V)	(μF)	D	L	-	(Arms)
	68	22	20	S21	0.50		680	25	55	S38	2.20		270	25	40	S35	1.27
	82	22	20	S21	0.55		680	30	40	S45	2.03		270	30	25	S42	1.17
	100	22	20	S21	0.61		680	30	50	S47	2.18		270	30	30	S43	1.24
	100	25	20	S31	0.69		680	35	30	S53	2.00		270	35	20	S51	1.15
	120	22	20	S21	0.67		680	35	40	S55	2.07		270	35	25	S52	1.19
	120	22	25	S22	0.75		820	25	60	S39	2.49		330	22	40	S25	1.37
	150 150	22 22	25 30	S22 S23	0.84	315	820 820	30 35	45 35	S46 S54	2.31		330 330	22 25	45 35	S26 S34	1.40
	150	25	20	S23	0.80		820	35	45	S54 S56	2.24		330	25	40	S35	1.40
	150	30	20	S41	0.85		1000	30	55	S48	2.67		330	25	45	S36	1.43
	180	22	25	S22	0.92		1000	35	40	S55	2.52		330	30	25	S42	1.43
	180	22	30	S23	0.92		1200	30	60	S49	2.97		330	30	30	S43	1.29
	180	22	35	S24	0.98		1200	35	50	S57	2.86		330	30	35	S44	1.40
	180	25	25	S32	0.97		1500	35	55	S58	3.31		330	35	25	S52	1.31
	180	30	20	S41	0.93		56	22	20	S21	0.46		390	22	50	S27	1.56
	180	35	20	S51	0.94		82	22	20	S21	0.55		390	25	40	S35	1.52
	220	22	30	\$23	1.06		82	25	20	S31	0.63		390	25	45	S36	1.56
	220	22	40	S25	1.12		100	22	20	S21	0.61		390	25	50	S37	1.66
	220	25	25	S32	1.07		100	22	25	S22	0.69		390	30	30	S43	1.49
	220	25	30	S33	1.09		100	25	20	S31	0.69		390	30	35	S44	1.52
	220	30	20	S41	1.03		120	22	20	S21	0.67		390	30	40	S45	1.54
	270	22	35	S24	1.20		120	22	25	S22	0.75		390	35	25	S52	1.43
	270	22	45	S26	1.27		120	22	30	S23	0.78		390	35	30	S53	1.51
	270	25	30	S33	1.20		120	25	20	S31	0.72		470	22	55	S28	1.78
	270	25	35	S34	1.23		120	30	20	S41	0.76		470	25	45	S36	1.71
	270	30	25	S42	1.17		150	22	25	S22	0.84	050	470	25	50	S37	1.83
04.5	270	35	20	S51	1.15		150	22	30	S23	0.88	350	470	30	35	S44	1.67
315	330	22	35	S24	1.33		150	22	35	S24	0.89		470	30	40	S45	1.69
	330	22	50	S27	1.44		150	25	20	S31	0.79		470	30	45	S46	1.75
	330	25	30	S33	1.33		150	25	25	S32	0.88		470	35	30	S53	1.66
	330	25	40	S35	1.40		150	30	20	S41	0.85		470	35	35	S54	1.69
	330	30	25	S42	1.29		150	35	20	S51	0.86		560	25	50	S37	1.90
	330	30	30	S43	1.37		180	22	30	S23	0.96		560	30	40	S45	1.84
	330	35	20	S51	1.28	350	180	22	35	S24	0.98		560	30	45	S46	1.91
	330	35	25	S52	1.31	"	180	22	40	S25	1.02		560	30	50	S47	1.97
	390	22	45	S26	1.52		180	25	25	S32	0.97		560	35	30	S53	1.81
	390	25	35	S34	1.48		180	25	30	S33	0.99		560	35	35	S54	1.85
	390	25	45	S36	1.56		180	30	20	S41	0.93		560	35	40	S55	1.88
	390	30	30	S43	1.49		180	35	20	S51	0.94		680	22	60	S29	2.21
	390	30	35	S44	1.52		220	22	30	S23	1.06		680	30	45	S46	2.10
	390	35	25	S52	1.43		220	22	35	S24	1.08		680	30	50	S47	2.18
	470	22	50	S27	1.72		220	22	45	S26	1.14		680	35	35	S54	2.04
	470	25	40	S35	1.67		220	25	25	S32	1.07		680	35	40	S55	2.07
	470	25	50	S37	1.83		220	25	30	S33	1.09		680	35	45	S56	2.14
	470	30	30	S43	1.64		220	25	35	S34	1.11		820	30	50	S47	
	470	30 35	40 25	S45 S52	1.69		220 220	30	20 25	S41 S42	1.03		820 820	35 35	40 45	S55	2.28
	470 470	35	30	S52 S53	1.57 1.66		220	35	20	S42 S51	1.06		820	35	50	S56 S57	2.34
	560	22	55	S28	1.94		270	22	35	S24	1.20		1000	30	60	S49	2.72
	560	25	45	S28 S36	1.94		270	22	40	S24 S25	1.24		1000	35	45	S49 S56	2.72
	560	30	35	S44	1.82		270	22	45	S26	1.24		1000	35	50	S57	2.61
	560	30	45	S46	1.91		270	22	50	S27	1.30		1200	35	55	S58	2.96
	560	35	30	S53	1.81		270	25	30	S33	1.21	L	1200	- 55			2.50
	560	35	35	S54	1.85		270	25	35	S34	1.23						
	ated rinnle cu						_,,,		_ 55								

[•] The standard ratings follow the next page.

LAT, LTT LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS



Standard Ratings

Rated	Rated	Case	(mm)		Rated ripple	Rated	Rated	Case	(mm)		Rated ripple	Rated	Rated	Case	(mm)		Rated ripple
voltage	capacitance	D	L	Casing Symbol	current	voltage	capacitance	D	L	Casing Symbol	current	voltage	capacitance	D	L	Casing Symbol	current
(V)	(μF)	22	20	-	(Arms)	(V)	(μF)	30	30	-	(Arms)	(V)	(μF)	22	40		(Arms)
	56 68	22	20	S21 S21	0.53 0.58		330 330	30	35	S43 S44	1.53	ŀ	180 180	22	40	S25 S26	1.17
	68	25	20	S31	0.66		330	35	25	S52	1.51		180	25	30	S33	1.19
	82	22	20	S21	0.64		330	35	30	S53	1.56		180	25	35	S34	1.16
	82	22	25	S22	0.71		390	22	55	S28	1.86	ŀ	180	30	25	S42	1.10
	82	25	20	S31	0.68		390	25	45	S36	1.79	ŀ	180	30	30	S43	1.14
	82	30	20	S41	0.72		390	25	50	S37	1.85		180	35	20	S51	1.08
	100	22	20	S21	0.70		390	30	35	S44	1.75		180	35	25	S52	1.12
	100	22	25	S22	0.79		390	30	40	S45	1.77		220	22	45	S26	1.32
	100	25	20	S31	0.75		390	35	30	S53	1.69		220	22	50	S27	1.35
	100	30	20	S41	0.80		390	35	35	S54	1.76		220	25	35	S34	1.28
	120	22	25	S22	0.86		470	25	50	S37	2.04		220	25	40	S35	1.31
	120	22	30	S23	0.90		470	30	40	S45	1.94	ŀ	220	25	45	S36	1.35
	120	25	20	S31	0.82		470	30	45	S46	2.01	ŀ	220	30	25	S42	1.22
	120	25	25	S32	0.88	400	470	35	30	S53	1.86		220	30	30	S43	1.27
	120	30	20	S41	0.87	-50	470	35	35	S54	1.93		220	35	25	S52	1.23
	120	35	20	S51	0.89		560	25	60	S39	2.46		270	22	50	S27	1.50
	150	22	30	S23	0.99		560	30	45	S46	2.40		270	25	40	S35	1.45
	150	22	35	S24	1.03		560	30	50	S47	2.19		270	25	45	S36	1.49
	150	25	25	S32	0.99		560	35	35	S54	2.11		270	25	50	S37	1.54
	150	25	30	S33	1.01		560	35	40	S55	2.16		270	30	30	S43	1.43
	150	30	20	S41	0.98		680	30	50	S47	2.50	ŀ	270	30	35	S44	1.45
	150	35	20	S51	0.99		680	35	40	S55	2.39		270	35	25	S52	1.37
	180	22	30	S23	1.10		680	35	45	S56	2.53		270	35	30	S53	1.44
	180	22	35	S24	1.13		680	35	50	S57	2.73		330	22	60	S29	1.78
	180	22	40	S25	1.17		820	30	60	S49	2.94	450	330	25	50	S37	1.76
400	180	25	25	S32	1.09		820	35	45	S56	2.70	100	330	30	35	S44	1.61
	180	25	30	S33	1.11		820	35	50	S57	3.00		330	30	40	S45	1.62
	180	30	20	S41	1.07		1000	35	55	S58	3.43		330	30	45	S46	1.68
	180	30	25	S42	1.10		56	22	20	S21	0.53	ŀ	330	35	30	S53	1.60
	180	35	20	S51	1.08		56	25	20	S31	0.60		330	35	35	S54	1.62
	220	22	35	S24	1.25		68	22	20	S21	0.58		390	25	55	S38	1.98
	220	22	40	S25	1.29		68	22	25	S22	0.65	ŀ	390	30	40	S45	1.77
	220	22	45	S26	1.32		68	25	20	S31	0.66		390	30	45	S46	1.83
	220	25	30	S33	1.23		82	22	25	S22	0.71		390	30	50	S47	2.07
	220	25	35	S34	1.28		82	25	20	S31	0.68		390	35	35	S54	1.76
	220	30	25	S42	1.22		82	30	20	S41	0.72		390	35	40	S55	2.00
	220	30	30	S43	1.25		100	22	25	S22	0.72		470	30	45	S46	2.00
	220	35	20	S51	1.20		100	22	30	S23	0.79		470	30	50	S47	2.13
	220	35	25	S52	1.23		100	25	25	S32	0.82		470	35	35	S54	1.93
	270	22	40	S25	1.43	450	100	30	20	S41	0.80		470	35	40	S55	2.20
	270	22	45	S26	1.46	150	120	22	30	S23	0.90	1	470	35	45	S56	2.27
	270	22	50	S27	1.50		120	22	35	S24	0.90		560	30	45	S46	2.19
	270	25	35	S34	1.42		120	25	25	S32	0.92		560	35	35	S54	2.19
	270	25	40	S35	1.45		120	25	30	S33	0.93	l	560	35	40	S55	2.40
	270	30	25	S42	1.35		120	30	20	S41	0.93	ŀ	560	35	45	S56	2.40
	270	30	30	S43	1.39		120	35	20	S51	0.89		560	35	50	S57	2.40
	270	35	25	S52	1.37		150	22	35	S24	1.03		680	30	60	S49	2.50
	330	22	45	S26	1.61		150	22	40	S25	1.05	1	680	35	45	S56	2.59
	330	22	50	S27	1.65		150	25	30	S33	1.03	1	680	35	50	S57	2.59
	330	25	40	S35	1.61		150	30	25	S33 S42	1.00		820	35	60	S57 S59	3.07
	330	25	40	S35 S36	1.65		150	35	20	S42 S51	0.99		020	33	00	339	3.07
	ated ripple cu				1.00		130	33		301	0.55						

Standard Ratings

voltage capacitance	Rated	Rated	Case	(mm)	Co-!	Rated ripple	Rated	Rated	Case	(mm)	Continu	Rated ripple
22	voltage	capacitance	D	L	Casing Symbol	current	voltage	capacitance	D	L	Casing Symbol	current
27			22	20	S21				25	45	S36	
Solution												
Section Sect												
180 22 25 822 0.49		39				0.44				40		
100 100		39	22			0.49				20	S51	
150 150												
Section Sect		47	22									
Section Sect		47	25	20	S31	0.55	i	180	22	45	S26	1.19
Section Sect		56	22	20	S21	0.53		180	22	50	S27	1.22
Section Sect		56	22	25	S22	0.59		180	25	40	S35	1.19
180 30 30 343 1.14		56	22	30	S23	0.61		180	25	45	S36	1.22
Fig. 18		56	25	20	S31	0.57		180	25	50	S37	1.30
68 22 35 S24		68	22	25	S22	0.65		180	30	30	S43	1.14
68 25 20 S31 0.62 68 25 25 832 0.68 180 35 30 S53 1.15 68 25 30 S33 0.70 68 30 20 841 0.66 220 22 55 528 1.40 82 22 25 S22 0.71 82 22 30 S23 0.74 220 25 55 528 1.40 82 22 30 S23 0.74 220 25 55 50 1.33 82 25 35 S34 0.77 220 30 35 544 1.31 82 25 35 S34 0.72 220 35 25 552 1.22 100 22 30 S23 0.82 100 22 35 582 1.22 100 22 35 S24 0.84 1.62 270 <td></td> <td>68</td> <td>22</td> <td>30</td> <td>S23</td> <td>0.68</td> <td></td> <td>180</td> <td>30</td> <td>35</td> <td>S44</td> <td>1.16</td>		68	22	30	S23	0.68		180	30	35	S44	1.16
68 25 25 S32 0.68 68 25 30 S33 0.70 68 30 20 S41 0.66 220 22 55 S28 1.40 82 22 25 S22 0.71 30 220 25 45 336 1.35 82 22 30 S23 0.74 30 35 S41 1.31 82 22 40 S25 0.79 30 30 35 S41 1.31 82 25 35 S34 0.79 220 30 50 S47 1.42 200 82 30 20 S41 0.79 220 35 25 552 1.23 100 22 35 S24 0.82 100 22 35 32 0.82 1.20 220 35 40 855 1.36 100 25 25 S32 0.81 <td></td> <td>68</td> <td>22</td> <td>35</td> <td>S24</td> <td>0.70</td> <td></td> <td>180</td> <td>30</td> <td>45</td> <td>S46</td> <td>1.24</td>		68	22	35	S24	0.70		180	30	45	S46	1.24
Section Sect		68	25	20	S31	0.62		180	35	25	S52	1.12
68 30 20 S41 0.66 82 22 25 S22 0.71 82 22 30 S23 0.74 82 22 40 S25 0.79 82 25 25 S32 0.73 82 25 25 S32 0.73 82 25 35 S34 0.79 82 25 30 S23 0.82 82 25 35 S34 0.79 82 25 30 S23 0.82 100 22 35 S24 0.84 100 22 35 S24 0.84 100 25 25 S32 0.81 100 25 40 S35 0.89 100 30 20 S41 0.80 100 30 25 S42 0.82 100 30 30 S43 0.87 100 35 20 S51 0.81 120 22 40 S25 0.95 120 25 30 S33 0.92 120 30 35 S44 0.95 120 30 35 S44 0.95 120 35 30 S53 0.94 150 22 45 S26 1.09 150 25 35 S34 1.05 150 25 35 S34 1.05 220 35 35 S34 1.05 220 30 35 S44 1.31 220 30 35 S44 1.32 220 30 35 S44 1.32 220 30 35 S44 1.32 220 35 30 S53 1.22 220 3		68	25	25	S32	0.68	İ	180	35	30	S53	1.15
S2		68	25	30	S33	0.70		220	22	55	S28	1.40
82 22 30 \$23 0.74 82 22 40 \$25 0.79 82 25 25 \$32 0.73 82 25 30 \$33 0.77 82 25 35 \$34 0.79 500 82 30 20 \$41 0.72 100 22 30 \$23 0.82 100 22 35 \$24 0.84 100 22 35 \$24 0.84 100 22 45 \$26 0.89 100 25 40 \$35 0.89 100 25 40 \$35 0.89 100 30 25 \$42 0.82 100 30 25 \$42 0.82 100 30 25 \$42 0.82 100 30 30 \$43 0.87 100 30 <td< td=""><td></td><td>68</td><td>30</td><td>20</td><td>S41</td><td>0.66</td><td></td><td>220</td><td>25</td><td>45</td><td>S36</td><td>1.35</td></td<>		68	30	20	S41	0.66		220	25	45	S36	1.35
82 22 40 \$25 0.79 82 25 25 \$32 0.73 82 25 30 \$33 0.77 82 25 35 \$34 0.79 500 82 30 20 \$41 0.72 100 22 35 \$24 0.82 100 22 35 \$24 0.82 100 22 45 \$26 0.89 100 25 25 \$32 0.81 100 25 40 \$35 0.84 100 25 40 \$35 0.89 100 25 40 \$35 0.89 100 30 25 \$42 0.82 100 30 25 \$42 0.82 100 30 25 \$42 0.82 100 35 20 \$51 0.81 120 22 <t< td=""><td></td><td>82</td><td>22</td><td>25</td><td>S22</td><td>0.71</td><td></td><td>220</td><td>25</td><td>50</td><td>S37</td><td>1.39</td></t<>		82	22	25	S22	0.71		220	25	50	S37	1.39
Sec		82	22	30	S23	0.74	İ	220	30	35	S44	1.31
Secondary Seco		82		40					30			
Section Sect		82	25	25	S32	0.73		220	30	50	S47	1.42
Soo		82	25	30	S33	0.77		220	35	25	S52	1.23
500 82 30 20 \$41 0.72 100 22 30 \$23 0.82 100 22 35 \$24 0.84 100 22 45 \$26 0.89 100 25 25 \$32 0.81 100 25 30 \$33 0.85 100 25 40 \$35 0.89 100 25 40 \$35 0.89 100 30 20 \$41 0.80 100 30 20 \$41 0.80 100 30 25 \$42 0.82 100 30 30 \$43 0.87 120 22 35 \$24 0.92 120 22 35 \$24 0.92 120 22 40 \$25 0.95 120 25 30 \$33 0.92 120 25		82	25	35	S34	0.79		220	35	30	S53	1.27
100 22 35 \$24 0.84 100 22 45 \$26 0.89 100 25 25 \$32 0.81 100 25 30 \$33 0.85 100 25 40 \$35 0.89 100 30 20 \$41 0.80 100 30 25 \$42 0.82 100 30 25 \$42 0.82 100 30 30 \$43 0.87 100 35 20 \$51 0.81 120 22 35 \$24 0.92 120 22 35 \$24 0.92 120 22 40 \$25 0.95 120 22 40 \$25 0.95 120 25 30 \$33 0.92 120 25 35 \$34 0.95 120 30 35	500						500					
100 22 45 \$26 0.89 100 25 25 \$32 0.81 100 25 30 \$33 0.85 100 25 40 \$35 0.89 100 30 20 \$41 0.80 100 30 25 \$42 0.82 100 30 25 \$42 0.82 100 35 20 \$51 0.81 120 22 35 \$24 0.92 120 22 35 \$24 0.92 120 22 40 \$25 0.95 120 22 40 \$25 0.95 120 25 30 \$33 0.92 120 25 35 \$34 0.95 120 25 40 \$35 0.97 120 25 40 \$35 0.97 120 30 35 \$44 0.97 120 35 20 \$51 0.89		100	22	30	S23	0.82		270	22	60	S29	1.61
100 25 25 S32 0.81 100 25 30 S33 0.85 100 25 40 S35 0.89 100 30 20 S41 0.80 100 30 25 S42 0.82 100 30 30 S43 0.87 100 35 20 S51 0.81 120 22 35 S24 0.92 120 22 35 S24 0.92 120 22 40 S25 0.95 120 25 30 S33 0.92 120 25 30 S33 0.92 120 25 30 S35 0.94 120 25 40 S35 0.97 120 30 35 S44 0.97 120 30 35 S44 0.97 120 35 30		100	22	35	S24	0.84		270	25	50	S37	1.54
100 25 30 \$33 0.85 100 25 40 \$35 0.89 100 30 20 \$41 0.80 100 30 25 \$42 0.82 100 30 30 \$43 0.87 100 35 20 \$51 0.81 120 22 35 \$24 0.92 120 22 35 \$24 0.92 120 22 40 \$25 0.95 120 22 40 \$25 0.95 120 25 30 \$33 0.92 120 25 30 \$33 0.92 120 25 30 \$33 0.92 120 25 40 \$35 0.97 120 30 25 \$42 0.90 120 30 35 \$44 0.97 120 35 30		100	22	45	S26	0.89	İ	270	30	40	S45	1.47
100 25 40 \$35 0.89 100 30 20 \$41 0.80 100 30 25 \$42 0.82 100 30 30 \$43 0.87 100 35 20 \$51 0.81 120 22 35 \$24 0.92 120 22 40 \$25 0.95 120 22 50 \$27 1.00 120 25 30 \$33 0.92 120 25 30 \$33 0.92 120 25 40 \$35 0.97 120 25 40 \$35 0.97 120 30 35 \$44 0.97 120 30 35 \$44 0.97 120 35 30 \$53 0.94 120 35 30 \$53 0.94 120 35 30 \$55 1.86 120 30 35 \$44 0.97		100	25	25	S32	0.81		270	30	45	S46	1.52
100 30 20 S41 0.80 100 30 25 S42 0.82 100 30 30 S43 0.87 100 35 20 S51 0.81 120 22 35 S24 0.92 120 22 40 S25 0.95 120 22 50 S27 1.00 120 25 30 S33 0.92 120 25 30 S33 0.92 120 25 35 S34 0.95 120 25 35 S34 0.95 120 25 35 S34 0.95 120 30 25 542 0.90 120 30 35 S44 0.97 120 35 20 S51 0.89 120 35 30 S53 0.94 120 35 30 353 0.94 120 35 30 551 0.89		100	25	30	S33	0.85		270	30	50	S47	1.58
100 30 25 S42 0.82 100 30 30 S43 0.87 100 35 20 S51 0.81 120 22 35 S24 0.92 120 22 40 S25 0.95 120 22 50 S27 1.00 120 25 30 S33 0.92 120 25 35 S34 0.95 120 25 40 S35 0.97 120 30 25 S42 0.90 120 30 35 S44 0.97 120 35 20 S51 0.89 120 35 30 S53 0.94		100	25	40	S35	0.89		270	35	30	S53	1.41
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120 35 30 \$53 0.94 150 22 40 \$25 1.07 150 22 45 \$26 1.09 150 25 35 \$34 1.05 470 35 50 \$57 2.25 560 35 50 \$57 2.25 560 35 55 \$58 2.33 680 35 60 \$59 2.66		120	30	35	S44	0.97		470	30	55	S48	2.09
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150 25 35 \$34 1.05 680 35 60 \$59 2.66		150	22	40	S25	1.07		560	35	50	S57	2.25
		150	22	45	S26	1.09		560	35	55	S58	2.33
150 25 40 \$35 1.08		150	25	35	S34	1.05		680	35	60	S59	2.66
		150	25	40	S35	1.08						*

(Note) Rated ripple current : 105°C , 120Hz

105℃

105℃

LAZ, LTZ LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS



High-Reliability, High-Ripple, Long Life Capacitors



- · High-reliability, high-ripple, long life capacitors.
- Guarantees 3000 hours at 105°C.
- Best suited to On-Board-Charger for EV, PHEV.



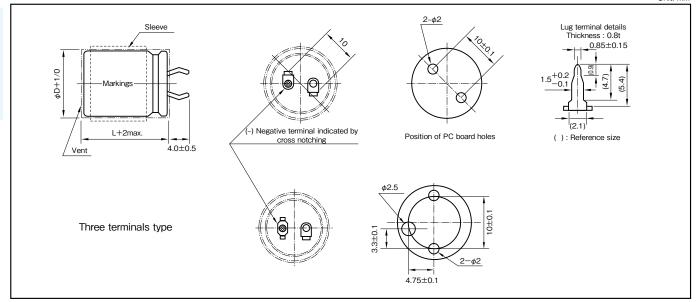


Marking color: White print on a black sleeve

Specifications

Item			Р	erformance									
Category temperature range (°C)		-40 t	o +105 (-2	5 to +105 a	at 160V or m	ore)							
Tolerance at rated capacitance (%)				±20					(20	°C,120Hz)			
Leakage current (μΑ) (max.)		3√CV (after 5 minu	tes) C : Rate	d capacitan	ce (μF) ; V :	Rated voltag	ge (V)			(20°C)			
Tongent of less angle	Rated vo	Itage (V)	16	25	35	50	63 to 100	160 to 250	350 to 500	1			
Tangent of loss angle	tanδ (max.)	0.50	0.40	0.35	0.30	0.20	0.15	0.20				
(tanδ)		(20°C,											
Characteristics at high	Rated voltage (V) 16 to 100 160 to 500												
and low temperature	Impedance ratio	Z-25°C/Z+20°C		4				4					
and low temperature	(max.)	Z-40°C/Z+20°C		15						(120Hz)			
	Test	time			3000 hours]			
Endurance (105°C)	Leakage	current			The initial sp	pecified valu	e or less						
(Applied ripple current)	Percentage of ca	pacitance change			Within ±20°	% of initial v	alue						
	Tangent of the	ne loss angle			200% or les	s of the init	al specified	value					
	Test	time			1000 hours]			
	Leakage	current			The initial sp	pecified valu	e or less						
Shelf life (105°C)	Percentage of capacitance change Within ±15% of initial value												
	Tangent of the	ial specified	value										
	Tangent of the loss angle 150% or less of the initial specified value Voltage application treatment: According to JIS C5101-4 4.1												
Applicable standards			JIS C5101-	1, -4 (IEC 60	0384-1, -4)								

Outline Drawing Unit: mm



Part numbering system series LAZ, standard terminal type :400V470µF S54 I A7 400 471 Μ В Rated voltage Rated capacitance Capacitance Optional Series code tolerance symbol symbol symbol symbol symbol series LTZ, three terminals type :400V470 μF 400 471 В LTZ Μ S54 Rated voltage Rated capacitance Capacitance Casing Optional Series code tolerance symbol symbol symbol symbol

Coefficient of Frequency for Rated Ripple Current

Frequency (Hz) Rated voltage (V)	50	120	1k	10k	30k
100 or less	0.95	1	1.10	1.15	1.15
160 to 250	0.81	1	1.32	1.45	1.50
350 or more	0.77	1	1.30	1.41	1.43

FLNA®

Standard Ratings

		ard Ratin		()	1		<u> </u>		0	()	1	<u> </u>	<u> </u>		0	()		
																		Rated ripple current
16000 22 25 322 1.80 320 321 1.38 3000 25 25 5324 2.28 3000 25 25 5324 3.28 3000 25 25 5324 3.28 3000 25 25 5324 3.28 3000 25 25 332 3.28 3000 25 25 332 3.28 3000 25 25 332 3.28 3000 25 25 332 3.28 3000 25 34 3.28 3000 25 34 3.28 3000 35 34 3.28	(V)	(μF)	D	L	Symbol	(Arms)			D	L	Symbol	(Arms)		(μF)	D	L	Symbol	(Arms)
1800 22 20 321 1.48		4700	22	20	S21	1.23		27000	35	25	S52	3.80		10000	30	25	S42	2.48
6800 22 25 522 176 1800 25 26 50 531 1.53		5600		20	S21	1.35		27000	35	30	S53	3.82		10000	35	20	S51	2.40
16800 25 20 831 1.85 200 25 27 27 27 27 200 25 27 27 27 27 200 25 27 27 27 200 25 27 27 27 200 25 27 27 27 200 27 27 27 27 200 27 27 27 27 200 28 20 28 31 1.86 200 20 20 20 20 31 1.86 200 20 20 20 20 31 1.86 200 20 20 20 20 31 1.86 200 20 20 20 20 31 1.86 200 20 20 20 20 31 1.86 200 20 20 20 20 20 20		6800				1.48					S27	4.00		12000		35		2.59
Record 22 22 52 522 1.76																		2.63
Record 26 20 831 1.68 1.69 1.60 1.6																		2.69
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18000 30 30 S43 3.00 18000 35 20 S51 2.91 18000 35 20 S51 2.91 18000 35 25 S52 3.10 22000 22 40 S25 3.20 22000 22 45 S26 3.29 22000 25 35 S34 3.25 22000 25 40 S35 3.36 22000 25 45 S36 3.40 22000 30 30 S43 3.32 22000 30 35 S44 3.39 22000 35 25 S52 3.43 22000 25 40 S35 3.40 22000 35 25 S52 3.43 22000 35 25 S52 3.43 22000 25 40 S35 3.70 27000 25 40 S35 3.72 27000 25 45 S36 3.77 27000 25 45 S36 3.77 27000 25 50 S37 3.81 27000 30 30 S43 3.67 27000 30 30 S43 3.67 27000 30 30 S43 3.67 27000 30 30 S43 3.67 27000 30 30 S44 3.76 3000 30 30 S43 3.67 27000 30 30 S44 3.76 3000 30 35 S44 3.76 3000 30 35 S44 3.76 3000 30 35 S44 3.76 3000 35 35 S45 S46 3.67 3000 35 35 S40 S55 S40 3000 30 30 S43 3.67 3000 30 35 S44 3.76 3000 35 35 S40 S55 S40 3000 30 35 35 S54 S56 3000 30 30 S43 3.67 3000 30 35 35 S54 S56 3000 30 35 35 S54 3000 30 35 35 S54 3000 30 35 35 S54 3000 30 35 35 S54 3000 30 35 35 S54 3000 35 35 S54 3000 35 35 S54 3000 35 35 S54 3000 35 35 S54 3000 35 35 S55 3000 35 35 S54 3000 35 35 S54 3000 35 35 S54 3000 35 35 S54 3000 35 35 S54 3000 35 35 S54 3000 35 35 S54 3000 35 35 S54 3000 35 35 S54 3000 35 35 S54 3000 35 35 S54 3000 35 35 S54 3000 35 35 S54 3000 35 35 S54 3000 35 35 S54 3000 35 35 3000 35 35 3000 35 35 3000 35 35 3000 35 35 3000 35 35 3000 35 35		18000	25	40	S35	3.04		5600	22	25	S22	1.69		22000	25	50	S37	3.91
18000 35 20 S51 2.91 18000 35 25 S52 3.10 22000 22 40 S25 3.20 22000 22 45 S26 3.29 22000 25 35 S34 3.25 22000 25 40 S35 3.36 22000 30 30 S43 3.32 22000 30 35 S54 3.39 22000 30 35 S54 3.39 22000 30 35 S54 3.39 22000 30 35 S54 3.39 22000 30 35 S54 3.39 22000 30 30 S43 3.32 22000 35 S52 S52 3.43 22000 35 S54 3.39 22000 35 S54 3.39 22000 30 35 S54 3.39 22000 30 35 S54 S56 4.78 22000 30 45 S46 4.77 27000 25 50 S37 4.34 27000 35 35 S54 4.38 27000 25 S52 3.43 27000 25 S52 3.43 27000 25 S52 3.43 27000 25 S52 3.70 27000 25 S56 3.77 27000 25 50 S37 3.81 27000 30 30 S43 3.67 27000 30 30 S43 3.67 27000 30 30 S44 3.76 10000 25 S52 S32 2.32 30000 35 40 S55 5.44 3.39 30000 35 40 S55 5.44 3.39 30000 35 40 S55 5.44 3.39 30000 35 40 S55 5.44 3.39 30000 35 40 S55 5.44 3.39 30000 35 40 S55 5.44 3.39 30000 35 40 S55 5.44 3.39 30000 35 40 S55 5.44 3.39 30000 35 40 S55 5.44 3.39 30000 35 40 S55 5.44 3.39 30000 35 40 S55 5.44 3.39 30000 35 40 S55 5.44 3.39 30000 35 40 S55 5.44 3.39 30000 35 40 S55 5.44 3.30 30000 30 50 S47 5.55 300000 30 50 S47 5.55 3000000 30 50 S47 5.55 3000000 30 50 S47 5.55 300000 30 50 S47 5.55 30000000 30 50 S47 5.55 30000000000000000000000000000000000		18000	30	25	S42	2.91		5600	25	20	S31	1.61		22000	30	35	S44	3.79
18000 35 25 S52 3.10 22000 22 40 S25 3.20 22000 22 45 S26 3.29 22000 25 35 S34 3.25 22000 25 40 S35 3.36 22000 25 45 S36 3.40 22000 25 45 S36 3.40 22000 30 30 S43 3.32 22000 30 30 S43 3.32 22000 30 35 S44 3.39 22000 30 35 S44 3.39 22000 35 25 S52 3.43 22000 35 25 S52 3.43 22000 35 25 S52 3.43 27000 22 45 S26 3.65 27000 22 45 S26 3.65 27000		18000	30	30	S43	3.00		5600	30	20	S41	1.74		22000	30	40	S45	3.91
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																		5.48
27000 30 40 \$45 3.83 1 10000 25 35 \$34 2.44 47000 35 50 \$57 6.43 (Note) Rated ripple current : 105°C , 120Hz	(NL					ა.გვ		10000	25	<i>ა</i> 5	534	2.44		47000	35	50	55/	6.43

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS LAZ, LTZ

[•] The standard ratings follow the next page.

LAZ, LTZ LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS



Standard Ratings

	iard Ratir		/ \	1					/ \	1					/ \	1	
Rated voltage	Rated capacitance	Case		Casing	Rated ripple current	Rated voltage	Rated capacitance	Case		Casing	Rated ripple current	Rated voltage	Rated capacitance	Case		Casing	Rated ripple current
(V)	(μF)	D	L	Symbol	(Arms)	(V)	(μF)	D	L	Symbol	(Arms)	(V)	(μF)	D	L	Symbol	(Arms)
	2200	22	20	S21	1.08		12000	35	25	S52	3.14		4700	22	45	S26	2.56
	2700	22	20	S21	1.20		12000	35	30	S53	3.20		4700	25	30	S33	2.39
	3300	22	20	S21	1.33		15000	25	45	S36	3.58		4700	25	35	S34	2.50
	3300	22	25	S22	1.43		15000	25	50	S37	3.64		4700	30	25	S42	2.44
	3300	25	20	S31	1.39		15000	30	35	S44	3.58		4700	30	30	S43	2.58
	3900	22	25	S22	1.55		15000	30	40	S45	3.67		4700	35	20	S51	2.51
	3900	22	30	S23	1.65		15000	30	45	S46	3.74		4700	35	25	S52	2.67
	3900	25	20	S31	1.51		15000	35	30	S53	3.58		5600	22	40	S25	2.70
	3900	30	20	S41	1.65		15000	35	35	S54	3.69		5600	22	45	S26	2.79
	4700	22	25	S22	1.71		18000	25	50	S37	3.99		5600	22	50	S27	2.89
	4700	22	30	S23	1.81		18000	30	40	S45	4.02		5600	25	35	S34	2.73
	4700	25	20	S31	1.66		18000	30	45	S46	4.10		5600	25	40	S35	2.81
	4700	25	25	S32	1.78	35	18000	35	30	S53	3.92		5600	30	25	S42	2.66
	4700	30	20	S41	1.82		18000	35	35	S54	4.04		5600	30	30	S43	2.82
	5600	22	30	S23	1.98		18000	35	40	S55	4.16		5600	30	35	S44	2.95
	5600	22	35	S24	2.02		22000	30	45	S46	4.53		5600	35	25	S52	2.91
	5600	25	25	S32	1.94		22000	30	50	S47	4.71		6800	22	45	S26	3.08
	5600	25	30	S33	2.04		22000	35	35	S54	4.47		6800	22	50	S27	3.18
	5600	30	20	S41	1.98		22000	35	40	S55	4.60		6800	25	40	S35	3.10
	5600	30	25	S42	2.12		22000	35	50	S57	4.92		6800	25	45	S36	3.24
	5600	35	20	S51	2.16		27000	30	50	S47	5.22		6800	25	50	S37	3.37
	6800	22	35	S24	2.23		27000	35	40	S55	5.09		6800	30	30	S43	3.10
	6800	22	40	S25	2.28		27000	35	45	S56	5.24		6800	30	35	S44	3.25
	6800	25	25	S32	2.14		33000	35	45	S56	5.80		6800	30	40	S45	3.39
	6800	25	30	S33	2.25		33000	35	50	S57	6.03		6800	35	25	S52	3.21
	6800	25	35	S34	2.31		1200	22	20	S21	0.99		6800	35	30	S53	3.31
	6800	30	25	S42	2.34		1500	22	20	S21	1.11	50	8200	22	50	S27	3.50
35	6800	35	20	S51	2.38		1800	22	20	S21	1.22		8200	25	40	S35	3.40
	8200	22	35	S24	2.44		1800	22	25	S22	1.31		8200	25	45	S36	3.56
	8200	22	40	S25	2.50		1800	25	20	S31	1.29		8200	30	35	S44	3.57
	8200	22	50	S27	2.67		2200	22	25	S22	1.45		8200	30	40	S45	3.72
	8200	25	30	S33	2.47		2200	25	20	S31	1.43		8200	30	45	S46	3.89
	8200	25	35	S34	2.54		2700	22	25	S22	1.60		8200	35	30	S53	3.63
	8200	25	40	S35	2.60		2700	22	30	S23	1.70		8200	35	35	S54	3.66
	8200	30	25	S42	2.45		2700	25	20	S31	1.58		10000	25	45	S36	3.93
	8200	30	30	S43	2.56		2700	25	25	S32	1.70		10000	25	50	S37	4.09
	8200	35	20	S51	2.61		2700	30	20	S41	1.73		10000	30	40	S45	3.90
	8200	35	25	S52	2.78		3300	22	30	S23	1.88		10000	30	45	S46	4.00
	10000	22	40	S25	2.76		3300	22	35	S24	1.98		10000	30	50	S47	4.27
	10000	22	45	S26	2.83	50	3300	25	25	S32	1.88		10000	35	30	S53	4.01
	10000	25	35	S34	2.80		3300	25	30	S33	2.00		10000	35	35	S54	4.05
	10000	25	40	S35	2.87		3300	30	20	S41	1.91		10000	35	40	S55	4.07
	10000	25	45	S36	2.92		3300	35	20	S51	2.10		12000	30	45	S46	4.30
	10000	30	30	S43	2.83		3900	22	30	S23	2.04		12000	30	50	S47	4.68
	10000	30	35	S44	2.92		3900	22	35	S24	2.15		12000	35	35	S54	4.43
	10000	35	25	S52	3.07		3900	22	40	S25	2.15		12000	35	40	S55	4.45
	12000	22	45	S26	3.09		3900	25	25	S32	2.25		12000	35	45	S56	4.46
		22	50	S26 S27	3.09				30		2.04			30	50	S47	4.50
	12000						3900	25		S33			15000				
	12000	25	40	S35	3.15		3900	25	35	S34	2.28		15000	35	40	S55	4.98
	12000	25	45	S36	3.20		3900	30	20	S41	2.08		15000	35	45	S56	5.03
	12000	25	50	S37	3.26		3900	30	25	S42	2.22		18000	35	45	S56	5.51
	12000	30	30	S43	3.10		3900	35	20	S51	2.28		18000	35	50	S57	5.73
	12000	30	35	S44	3.20		4700	22	35	S24	2.36		22000	35	50	S57	6.33
	12000	30	40	S45	3.28		4700	22	40	S25	2.47						
(Note) R	ated ripple cu	urrent : 1	05℃,1	120Hz													

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS LAZ, LTZ

Rated	Rated	Case	(mm)	Casing	Rated ripple	Rated	Rated	Case	(mm)	Casing	Rated ripple	Rated	Rated	Case	(mm)	Casing	Rated ripp
oltage (V)	capacitance (µF)	D	L	Symbol	current (Arms)	voltage (V)	capacitance (µF)	D	L	Symbol	current (Arms)	voltage (V)	capacitance (µF)	D	L	Symbol	current (Arms)
	820	22	20	S21	0.96		4700	35	30	S53	2.83		2200	22	40	S25	2.02
	1000	22	20	S21	1.06		5600	25	45	S36	3.04		2200	22	45	S26	2.09
	1200	22	20	S21	1.11		5600	25	50	S37	3.14		2200	25	30	S33	1.96
	1200	22	25	S22	1.25		5600	30	35	S44	3.06		2200	25	35	S34	2.01
	1200	25	20	S31	1.16		5600	30	40	S45	3.17		2200	30	25	S42	2.00
	1500	22	25	S22	1.40		5600	30	45	S46	3.28		2200	30	30	S43	2.10
	1500	25	20	S31	1.29		5600	35	30	S53	3.09		2200	35	20	S51	2.04
	1800	22	25	S22	1.46		5600	35	35	S54	3.24		2200	35	25	S52	2.17
		22												22			2.17
	1800		30	S23	1.60		6800	25	50	S37	3.46		2700		40	S25	-
	1800	25	20	S31	1.42		6800	30	40	S45	3.49		2700	22	45	S26	2.32
	1800	25	25	S32	1.52		6800	30	45	S46	3.61		2700	25	35	S34	2.23
	1800	30	20	S41	1.47		6800	30	50	S47	3.73		2700	25	40	S35	2.32
	2200	22	30	S23	1.68		6800	35	30	S53	3.40		2700	25	45	S36	2.43
	2200	22	35	S24	1.73	63	6800	35	35	S54	3.57		2700	30	25	S42	2.22
	2200	25	25	S32	1.68		6800	35	40	S55	3.71		2700	30	30	S43	2.33
	2200	25	30	S33	1.75		8200	30	45	S46	3.97		2700	30	35	S44	2.43
	2200	30	20	S41	1.63		8200	30	50	S47	4.10		2700	35	25	S52	2.40
	2200	35	20	S51	1.85		8200	35	35	S54	3.92		3300	22	45	S26	2.56
	2700	22	30	S23	1.86		8200	35	40	S55	4.07		3300	22	50	S27	2.67
	2700	22	35	S24	1.92		8200	35	45	S56	4.16	İ	3300	25	35	S34	2.46
	2700	25	25	S32	1.86		10000	30	50	S47	4.52		3300	25	40	S35	2.57
	2700	25	30	S33	1.94		10000	35	40	S55	4.50		3300	25	50	S37	2.76
	2700	25	35	S34	1.99		10000	35	45	S56	4.59		3300	30	30	S43	2.57
	2700	30	20	S41	1.81		10000	35	50	S57	4.69		3300	30	35	S44	2.69
	2700	30	25	S42	1.93		12000	35	45	S56	5.03		3300	30	40	S45	2.78
	2700	35	20	S51	2.05		12000	35	50	S57	5.14		3300	35	25	S52	2.66
63	3300	22	35	S24	2.12		15000	35	50	S57	5.74	80	3300	35	30	S53	2.71
	3300	22	40	S25	2.18		560	22	20	S21	0.85		3900	22	50	S27	2.90
	3300	22	50	S27	2.32		680	22	20	S21	0.94		3900	25	40	S35	2.79
	3300	25	30	S33	2.14		820	22	20	S21	1.03		3900	25	45	S36	2.92
	3300	25	35	S34	2.20		820	22	25	S22	1.11		3900	30	35	S44	2.92
	3300	25	40	S35	2.27		820	25	20	S31	1.07		3900	30	40	S45	3.02
	3300	30	25	S42	2.13		1000	22	25	S22	1.23		3900	30	45	S46	3.12
	3300	30	30	S43	2.24		1000	25	20	S31	1.18		3900	35	30	S53	2.95
	3300	35	20	S51	2.26		1200	22	25	S22	1.34		3900	35	35	S54	3.07
	3300	35	25	S52	2.41		1200	22	30	S23	1.39		4700	25	50	S37	3.29
	3900	22	40	S25	2.37		1200	25	20	S31	1.29		4700	30	40	S45	3.32
	3900	22	45	S26	2.42		1200	25	25	S32	1.39		4700	30	45	S46	3.43
	3900	25	35	S34	2.39		1200	30	20	S41	1.38		4700	30	50	S47	3.56
	3900	25	40	S35	2.47		1500	22	30	S23	1.55		4700	35	30	S53	3.23
	3900	25	45	S36	2.54	80	1500	22	35	S24	1.61		4700	35	35	S54	3.37
	3900	30	25	S42	2.32	-	1500	25	25	S32	1.55		4700	35	40	S55	3.50
	3900	30	30	S43	2.44		1500	25	30	S33	1.62		5600	30	45	S46	3.74
	3900	30	35	S44	2.55		1500	30	20	S41	1.55		5600	30	50	S47	3.89
			25		2.62												
	3900	35		S52			1500	35	20	S51	1.68		5600	35	35	S54	3.68
	4700	22	45	S26	2.65		1800	22	30	S23	1.70		5600	35	40	S55	3.82
	4700	22	50	S27	2.77		1800	22	35	S24	1.76		5600	35	45	S56	3.87
	4700	25	40	S35	2.71		1800	22	40	S25	1.83		6800	30	50	S47	4.03
	4700	25	45	S36	2.79		1800	25	25	S32	1.70		6800	35	40	S55	3.93
	4700	25	50	S37	2.88		1800	25	30	S33	1.77		6800	35	45	S56	4.03
	4700	30	30	S43	2.67		1800	30	20	S41	1.69		6800	35	50	S57	4.19
	4700	30	35	S44	2.80		1800	30	25	S42	1.81		8200	35	45	S56	4.32
	4700	30	40	S45	2.90		1800	35	20	S51	1.84		8200	35	50	S57	4.60
	4700	35	25	S52	2.72	I	2200	22	35	S24	1.95	I	10000	35	50	S57	5.08

[•] The standard ratings follow the next page.

LAZ, LTZ LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS



Standard Ratings

Rated	Rated	Case	(mm)	Casing	Rated ripple	Rated	Rated	Case	(mm)	Casing	Rated ripple
voltage (V)	capacitance (µF)	D	L	Symbol	current (Arms)	(V)	capacitance (µF)	D	L	Symbol	current (Arms)
	390	22	20	S21	0.83		1800	25	45	S36	2.28
	470	22	20	S21	0.91		1800	30	25	S42	2.09
	560	22	20	S21	0.99		1800	30	30	S43	2.19
	560	22	25	S22	1.07		1800	30	35	S44	2.27
	560	25	20	S31	1.04		1800	35	25	S52	2.27
	680	22	25	S22	1.18		2200	22	45	S26	2.41
	680	25	20	S31	1.14		2200	22	50	S27	2.52
	820	22	25	S22	1.29		2200	25	40	S35	2.46
	820	22	30	S23	1.35		2200	25	45	S36	2.52
	820	25	20	S31	1.26		2200	25	50	S37	2.57
	820	25	25	S32	1.35		2200	30	30	S43	2.42
	820	30	20	S41	1.32		2200	30	35	S44	2.51
	1000	22	30	S23	1.49		2200	30	40	S45	2.59
	1000	22	35	S24	1.54		2200	35	25	S52	2.51
	1000	25	25	S32	1.49		2200	35	30	S53	2.56
	1000	25	30	S33	1.56		2700	25	45	S36	2.79
	1000	30	20	S41	1.46		2700	25	50	S37	2.85
	1000	35	20	S51	1.59		2700	30	35	S44	2.78
	1200	22	30	S23	1.63		2700	30	40	S45	2.87
	1200	22	35	S24	1.69		2700	30	45	S46	2.94
100	1200	22	40	S25	1.74	100	2700	35	30	S53	2.79
	1200	25	25	S32	1.63		2700	35	35	S54	2.90
	1200	25	30	S33	1.71		3300	25	50	S37	3.15
	1200	25	35	S34	1.76		3300	30	40	S45	3.17
	1200	30	20	S41	1.60		3300	30	45	S46	3.25
	1200	30	25	S42	1.71		3300	30	50	S47	3.32
	1200	35	20	S51	1.74		3300	35	30	S53	3.09
	1500	22	35	S24	1.89		3300	35	35	S54	3.21
	1500	22	40	S25	1.95		3300	35	40	S55	3.31
	1500	22	45	S26	1.99		3900	30	45	S46	3.53
	1500	25	30	S33	1.91		3900	30	50	S47	3.61
	1500	25	35	S34	1.97		3900	35	35	S54	3.49
	1500	25	40	S35	2.03		3900	35	40	S55	3.60
	1500	30	25	S42	1.91		3900	35	45	S56	3.69
	1500	30	30	S43	2.00		4700	30	50	S47	3.96
	1500	35	20	S51	1.94		4700	35	40	S55	3.95
	1500	35	25	S52	2.07		4700	35	45	S56	4.05
	1800	22	40	S25	2.13		4700	35	50	S57	4.14
	1800	22	45	S26	2.18		5600	35	45	S56	4.42
	1800	25	35	S34	2.16		5600	35	50	S57	4.52
	1800	25	40	S35	2.22	1	6800	35	50	S57	4.98

■ R

Standard Ratings

Stand	lard Ratin	ngs															
Rated	Rated	Case	(mm)	Casing	Rated ripple	Rated	Rated	Case	(mm)	Casing	Rated ripple	Rated	Rated	Case	(mm)	Casing	Rated ripple
voltage (V)	capacitance (µF)	D	L	Symbol	current (Arms)	voltage (V)	capacitance (µF)	D	L	Symbol	current (Arms)	voltage (V)	capacitance (µF)	D	L	Symbol	current (Arms)
	180	22	20	S21	0.82		1200	35	25	S52	2.69		560	30	25	S42	1.69
	220	22	20	S21	0.90		1200	35	30	S53	2.95		560	35	20	S51	1.66
	220	25	20	S31	1.02		1500	22	60	S29	3.41		680	22	35	S24	1.90
	270	22	20	S21	1.00		1500	25	45	S36	3.25		680	22	40	S25	1.97
	270	25	20	S31	1.13		1500	25	50	S37	3.38		680	22	45	S26	2.01
	330	22	20	S21	1.10		1500	30	35	S44	3.10		680	22	50	S27	2.06
	330	22	25	S22	1.24		1500	30	40	S45	3.21		680	25	30	S33	1.91
	330	25	20	S31	1.25		1500	30	45	S46	3.57		680	25	35	S34	1.95
	390	22	25	S22	1.35		1500	35	30	S53	3.06		680	25	40	S35	2.01
	390	22	30	S23	1.41		1500	35	35	S54	3.21		680	30	25	S42	1.86
	390	25	20	S31	1.36		1800	25	55	S38	3.84		680	30	30	S43	1.97
	390	25	25	S32	1.45		1800	30	40	S45	3.52		680	35	20	S51	1.83
	390	30	20	S41	1.37		1800	30	45	S46	3.91		680	35	25	S52	1.92
	470	22	25	S22	1.48	160	1800	30 35	50 30	S47	4.07		820	22	40	S25	2.17
	470 470	22 22	30 35	S23 S24	1.50 1.58		1800 1800	35	35	S53 S54	3.35 3.52		820 820	25	45 35	S26 S34	2.14
	470	25	25	S32	1.53		1800	35	40	S55	3.94		820	25	40	S35	2.14
	470	30	20	S41	1.50		1800	35	45	S56	4.15		820	25	45	S36	2.26
	560	22	30	S23	1.68		2200	30	45	S46	4.03		820	30	25	S42	2.04
	560	22	35	S24	1.75		2200	30	50	S47	4.16		820	30	30	S43	2.17
	560	25	25	S32	1.63		2200	35	35	S54	3.89		820	30	35	S44	2.20
	560	25	30	S33	1.73		2200	35	40	S55	4.36		820	35	20	S51	2.01
	560	30	20	S41	1.63		2200	35	45	S56	4.59		820	35	25	S52	2.11
	560	35	20	S51	1.82		2200	35	50	S57	4.87		1000	22	45	S26	2.44
	680	22	35	S24	1.93		2700	30	55	S48	4.76		1000	22	50	S27	2.50
	680	22	40	S25	1.98		2700	35	50	S57	5.03		1000	25	40	S35	2.43
	680	25	30	S33	1.91		3300	35	50	S57	5.47		1000	25	45	S36	2.49
160	680	25	35	S34	1.98		3900	35	60	S59	6.39	180	1000	25	50	S37	2.66
	680	30	20	S41	1.80		180	22	20	S21	0.82		1000	30	30	S43	2.39
	680	30	25	S42	1.85		220	22	20	S21	0.91		1000	30	35	S44	2.43
	680	35	20	S51	2.01		220	25	20	S31	1.03		1000	30	40	S45	2.46
	820 820	22	35 40	S24	2.08		270	22	20 25	S21 S22	1.00		1000	35 35	25 30	S52 S53	2.33
	820	22	50	S25 S27	2.17		270 270	25	20	S31	1.13		1000 1200	22	55	S28	2.42
	820	25	30	S33	2.09		330	22	25	S22	1.25		1200	25	45	S36	2.73
	820	25	35	S34	2.17		330	22	30	S23	1.30		1200	30	35	S44	2.66
	820	25	40	S35	2.35		330	25	20	S31	1.20		1200	30	40	S45	2.69
	820	30	25	S42	2.03		330	30	20	S41	1.26		1200	30	45	S46	2.79
	820	30	30	S43	2.35		390	22	25	S22	1.35		1200	35	25	S52	2.55
	820	35	20	S51	2.20		390	22	30	S23	1.41		1200	35	30	S53	2.65
	820	35	25	S52	2.35		390	25	20	S31	1.29		1200	35	35	S54	2.70
	1000	22	45	S26	2.42	180	390	25	25	S32	1.42		1500	25	50	S37	3.12
	1000	25	35	S34	2.40	100	390	30	20	S41	1.37		1500	30	40	S45	3.01
	1000	25	40	S35	2.47		470	22	30	S23	1.55		1500	30	45	S46	3.12
	1000	25	45	S36	2.65		470	22	35	S24	1.58		1500	30	50	S47	3.23
	1000	30	30	S43	2.45		470	25	25	S32	1.56		1500	35	30	S53	2.96
	1000	30	35	S44	2.52		470	25	30	S33	1.62		1500	35	35	S54	3.02
	1000	35	25	S52	2.60		470	30	20	S41	1.50		1500	35	40	S55	3.08
	1000	35	30	S53	2.75		470	35	20	S51	1.52		1800	25	60	S39	3.83
	1200	22	50	S27	2.84		560	22	30	S23	1.69		1800	30	45	S46	3.42
	1200	25	40	S35	2.84		560	22	35	S24	1.73		1800	35	35	S54	3.31
	1200	25	45	S36	2.90		560	22	40	S25	1.79		1800	35	40	S55	3.37
	1200	25	50	S37	3.02		560	25	25	S32	1.67		1800	35	45	S56	3.47
	1200 1200	30	30 35	S43 S44	2.84		560 560	25 25	30 35	S33 S34	1.74		2200 2200	30 35	50 40	S47 S55	3.83
	1200	30	40	S44 S45	3.10		560	30	20	S34 S41	1.77		2200	35	45	S55 S56	3.73
	atad ripple or				3.10		000	ა∪	20	341	1.04		2200	აⴢ	40	330	ა.04

(Note) Rated ripple current : 105°C , 120Hz

105℃

 $[\]bullet$ The standard ratings follow the next page.

LAZ, LTZ LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS



Standard Ratings

Rated	Rated			0:	Rated ripple	Rated	Rated	Case (mm		n) Ozairan	Rated ripple	Rated	Rated	Case	(mm)	Casing	Rated ripple
voltage	capacitance	D	L	- Casing Symbol	current		capacitance (µF)	D	L	Casing Symbol	current		capacitance	D	L	- Casing Symbol	current (Arms)
(V)	(μF)			0.57	(Arms)	(V)				000	(Arms)	(V)	(μF)			051	
180	2200 2700	35 30	50 60	S57 S49	3.87 4.64		1000	25 25	45 50	\$36 \$37	2.49		330 390	35 22	20 30	S51 S23	1.30
	2700	35	45	S56	4.04		1000	30	30	S43	2.39		390	22	35	S23	1.52
	2700	35	50	S57	4.29		1000	30	35	S44	2.40		390	22	40	S25	1.57
	3300	35	55	S58	4.92		1000	30	40	S45	2.46		390	22	45	S26	1.60
	150	22	20	S21	0.76		1000	30	45	S46	2.55		390	25	25	S32	1.38
	180	22	20	S21	0.82		1000	35	25	S52	2.29		390	25	30	S33	1.41
	220	22	20	S21	0.91		1000	35	30	S53	2.40		390	25	35	S34	1.61
	220	25	20	S31	1.03		1200	22	60	S29	2.93		390	30	20	S41	1.37
	270	22	20	S21	1.00		1200	25	50	S37	2.82	i	390	30	25	S42	1.47
	270	22	25	S22	1.17		1200	30	35	S44	2.63		390	35	20	S51	1.41
	270	25	20	S31	1.09		1200	30	40	S45	2.69		470	22	35	S24	1.58
	270	30	20	S41	1.14		1200	30	45	S46	2.79		470	22	40	S25	1.64
	330	22	25	S22	1.29	200	1200	30	50	S47	2.89	i	470	22	50	S27	1.72
	330	22	30	S23	1.30		1200	35	30	S53	2.63		470	25	30	S33	1.61
	330	25	20	S31	1.18		1200	35	35	S54	2.65		470	25	35	S34	1.63
	330	25	25	S32	1.30		1200	35	40	S55	2.76		470	25	40	S35	1.73
	390	22	25	S22	1.35		1500	25	60	S39	3.49		470	30	25	S42	1.61
	390	22	30	S23	1.40		1500	30	40	S45	3.01		470	30	30	S43	1.65
	390	25	25	S32	1.37		1500	30	45	S46	3.12		470	35	20	S51	1.55
	390	30	20	S41	1.37		1500	30	50	S47	3.23		470	35	25	S52	1.65
	470	22	30	S23	1.53		1500	35	35	S54	2.97		560	22	40	S25	1.79
	470	22	35	S24	1.61		1500	35	40	S55	3.45		560	22	45	S26	1.82
	470	22	40	S25	1.75		1500	35	45	S56	3.65		560	25	35	S34	1.77
200	470	25	25	S32	1.50		1800	30	50	S47	3.54	250	560	25	40	S35	1.82
	470	25	30	S33	1.56		1800	35	40	S55	3.59		560	25	45	S36	1.87
	470	30	20	S41	1.50		1800	35	45	S56	4.00		560	30	25	S42	1.69
	470	30	25	S42	1.60		1800	35	50	S57	4.16		560	30	30	S43	1.80
	470	35	20	S51	1.67		2200	30	60	S49	4.19		560	30	35	S44	1.85
	560	22	35	S24	1.73		2200	35	45	S56	4.13		560	35	25	S52	1.80
	560	22	45	S26	1.82		2200	35	50	S57	4.60		560	35	30	S53	1.85
	560	25	30	S33	1.70		2700	35	50	S57	5.09		680	22	45	S26	2.01
	560	25	35	S34	1.77		3300	35	60	S59	6.03		680	22	50	S27	2.06
	560	30	25	S42	1.75	250	120	22	20	S21	0.67		680	25	40	S35	2.01
	560	35	20	S51	1.82		150	22	20	S21	0.75		680	25	45	S36	2.06
	680	22	40	S25	1.97		150	25	20	S31	0.92		680	25	50	S37	2.20
	680	22	50	S27	2.06		180	22	20	S21	0.82		680	30	30	S43	1.98
	680	25	30	S33	1.87		180	22	25	S22	1.00		680	30	35	S44	2.04
	680	25	35	S34	1.95		180	25	20	S31	1.01		680	30	40	S45	2.20
	680	25	40	S35	2.01		220	22	25	S22	1.11		680	35	25	S52	1.98
	680	30	25	S42	1.92		220	22	30	S23	1.20		680	35	30	S53	2.04
	680	30	30	S43	1.97		220	25	20	S31	1.02		820	22	55	S28	2.34
	680	35	20	S51	1.92		220	25	25	S32	1.12		820	25	45	S36	2.26
	680	35	25	S52	1.96		220	30	20	S41	1.03		820	25	50	S37	2.42
	820	22	45	S26	2.21		270	22	25	S22	1.13		820	30	35	S44	2.24
	820	25	35	S34	2.14		270	22	30	S23	1.25		820	30	40	S45	2.42
	820	25	40	S35	2.20		270	22	35	S24	1.37		820	30	45	S46	2.50
	820	25	45	S36	2.26		270	25	25	S32	1.15		820	35	30	S53	2.24
	820	25	50	S37	2.41		270	30	20	S41	1.14		820	35	35	S54	2.35
	820	30	25	S42	2.04		330	22	30	S23	1.30		1000	25	50	S37	2.57
	820	30	30	S43	2.17		330	22	35	S24	1.50		1000	30	40	S45	2.67
	820	30	35	S44	2.18		330	22	40	S25	1.54		1000	30	45	S46	2.69
	820	35	25	S52	2.07		330	25	25	S32	1.27		1000	30	50	S47	2.71
	820	35	30	S53	2.18		330	25	30	S33	1.33		1000	35	30	S53	2.47
	1000	22	50	S27	2.50		330	30	20	S41	1.26		1000	35	35	S54	2.60
	1000	25	40	S35	2.43		330	30	25	S42	1.35		1000	35	40	S55	2.90
(Note) R	ated ripple cu	urrent : 1	05℃ , 1	120Hz													

105℃

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS LAZ, LTZ

Standard Ratings

	aiu naiii		(mm)		D	<u> </u>	5	Cooo	(mm)		<u> </u>	Г <u>ъ.</u> .		Cooo	(mm)		D
Rated voltage	Rated capacitance	Case	(mm)	Casing	Rated ripple current	Rated voltage	Rated capacitance	Case	(mm)	Casing	Rated ripple current	Rated voltage	Rated capacitance	Case	(mm)	Casing	Rated ripple current
(V)	(μF)	D	L	Symbol	(Arms)	(V)	(µF)	D	L	Symbol	(Arms)	(V)	(μF)	D	L	Symbol	(Arms)
250	1200	30	45	S46	2.79		390	35	25	S52	1.43		150	35	20	S51	0.99
	1200	30	50	S47	2.89		390	35	30	S53	1.51		180	22	30	S23	1.10
	1200	35	35	S54	2.85		470	22	55	S28	1.78		180	22	35	S24	1.13
	1200	35	40	S55	3.18		470	25	45	S36	1.71		180	22	45	S26	1.19
	1200	35	45	S56	3.30		470	25	50	S37	1.83		180	25	25	S32	1.09
	1500	30	55	S48	3.35		470	30	35	S44	1.67		180	25	30	S33	1.11
	1500	35	40	S55	3.28		470	30	40	S45	1.69		180	25	35	S34	1.16
	1500	35	45	S56	3.69		470	35	30	S53	1.66		180	25	40	S35	1.19
	1500	35	50	S57	3.80		470	35	35	S54	1.69		180	30	20	S41	1.07
	1800	35	50	S57	4.16		560	25	50	S37	1.90		180	30	25	S42	1.10
	2200	35	60	S59	4.93	400	560	30	40	S45	1.84		180	30	30	S43	1.17
	82	22	20	S21	0.55		560	35	30	S53	1.81		180	35	20	S51	1.08
	100	22	20	S21	0.61		560	35	35	S54	1.85		180	35	25	S52	1.12
	100	22	25	S22	0.69		680	22	60	S29	2.21	400	220	22	35	S24	1.25
	100	25	20	S31	0.69		680	30	45	S46	2.10		220	22	40	S25	1.29
	120	22	20	S21	0.67		680	30	50	S47	2.18		220	22	50	S27	1.35
	120	22	25	S22	0.75		680	35	35	S54	2.04		220	25	30	S33	1.23
	120	25	20	S31	0.72		680	35	40	S55	2.07		220	25	35	S34	1.28
	150	22	25	S22	0.84		680	35	45	S56	2.14		220	25	40	S35	1.31
	150	22	30	S23	0.88		820	30	50	S47	2.32		220	25	45	S36	1.35
	150	25	20	S31	0.79		820	35	40	S55	2.28		220	30	25	S42	1.22
	150	25	25	S32	0.88		820	35	45	S56	2.34		220	30	30	S43	1.25
	150	30	20	S41	0.85		1000	30	60	S49	2.72		220	30	35	S44	1.31
	180	22	30	S23	0.96		1000	35	50	S57	2.61		220	35	20	S51	1.20
	180	22	35	S24	0.98		1200	35	55	S58	2.96		220	35	25	S52	1.23
	180	25	25	S32	0.97		47	22	20	S21	0.48		270	22	40	S25	1.43
	180	25	30	S33	0.99		56	22	20	S21	0.53		270	22	45	S26	1.46
	180	30	20	S41	0.93		68	22	20	S21	0.58		270	25	35	S34	1.42
	180	35	20	S51	0.94		68	22	25	S22	0.65		270	25	40	S35	1.45
	220	22	30	S23	1.06		68	25	20	S31	0.66		270	25	45	S36	1.49
	220	22	35	S24	1.08		82	22	20	S21	0.64		270	25	50	S37	1.60
	220	25	25	S32	1.07		82	22	25	S22	0.71		270	30	25	S42	1.35
	220	25	30	S33	1.09		82	22	30	S23	0.74		270	30	30	S43	1.39
350	220	30	20	S41	1.03		82	25	20	S31	0.68		270	30	35	S44	1.45
	220	30	25	S42	1.06		82	25	25	S32	0.75		270	30	40	S45	1.47
	220	35	20	S51	1.04		100	22	25	S22	0.79		270	35	25	S52	1.37
	270	22	35	S24	1.20		100	22	30	S23	0.82		270	35	30	S53	1.41
	270	22	40	S25	1.24		100	25	20	S31	0.75		330	22	50	S27	1.65
	270	25	30	S33	1.21		100	25	25	S32	0.81		330	25	40	S35	1.61
	270	25	35	S34	1.23		100	30	20	S41	0.80		330	25	45	S36	1.65
	270	30	25	S42	1.17		120	22	25	S22	0.86		330	25	50	S37	1.70
	270	30	30	S43	1.24		120	22	30	S23	0.90		330	30	30	S43	1.53
	270	35	20	S51	1.15		120	22	35	S24	0.92		330	30	35	S44	1.61
	270	35	25	S52	1.19		120	25	20	S31	0.82		330	30	40	S45	1.62
	330	22	40	S25	1.37		120	25	25	S32	0.88		330	30	45	S46	1.68
	330	22	45	S26	1.40		120	25	30	S33	0.91		330	35	25	S52	1.51
	330	25	35	S34	1.36		120	30	20	S41	0.87		330	35	30	S53	1.56
	330	25	40	S35	1.40		120	30	25	S42	0.90		330	35	35	S54	1.62
	330	30	25	S42	1.29		150	22	30	S23	0.99		390	22	60	S29	1.92
	330	30	30	S43	1.37		150	22	35	S24	1.03		390	25	45	S36	1.79
	330	35	25	S52	1.31		150	22	40	S25	1.07		390	25	50	S37	1.85
	390	22	50	S27	1.56		150	25	25	S32	0.99		390	30	35	S44	1.75
	390	25	40	S35	1.52		150	25	30	S33	1.01		390	30	40	S45	1.77
	390	25	45	S36	1.56		150	25	35	S34	1.05		390	30	45	S46	1.83
	390	30	30	S43	1.49		150	30	20	S41	0.98		390	30	50	S47	1.90
	390	30	35	S44	1.52		150	30	25	S42	1.00		390	35	30	S53	1.69
(Noto) D	ated ripple cu																

 $^{{\}boldsymbol{\cdot}}$ The standard ratings follow the next page.

LAZ, LTZ LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS



Standard Ratings

Rated	Rated	Case	(mm)	Casina	Rated ripple	Rated	Rated	Case	(mm)	Cacina	Rated ripple	Rated	Rated	Case	(mm)	Cacina	Rated ripple
voltage (V)	capacitance (µF)	D	L	Casing Symbol	current (Arms)	voltage (V)	capacitance (µF)	D	L	Casing Symbol	current (Arms)	voltage (V)	capacitance (µF)	D	L	Casing Symbol	current (Arms)
	390	35	35	S54	1.76		100	30	25	S42	0.82		220	30	35	S44	1.31
	390	35	40	S55	1.81		120	22	30	S23	0.90		220	30	40	S45	1.33
	470	25	55	S38	2.18		120	22	35	S24	0.92		220	35	25	S52	1.23
	470	30	40	S45	1.94		120	22	40	S25	0.95		220	35	30	S53	1.29
	470	30	45	S46	2.01		120	22	45	S26	0.97		270	22	50	S27	1.50
	470	30	50	S47	2.05		120	25	25	S32	0.88		270	25	40	S35	1.45
	470	35	35	S54	1.93		120	25	30	S33	0.93		270	25	45	S36	1.49
	470	35	40	S55	1.98		120	25	35	S34	0.95		270	30	30	S43	1.43
	470	35	45	S56	2.04		120	30	20	S41	0.87		270	30	35	S44	1.45
400	560	30	45	S46	2.19		120	30	25	S42	0.90		270	30	40	S45	1.47
400	560	30	50	S47	2.27		120	35	20	S51	0.89		270	30	45	S46	1.52
	560	35	35	S54	2.11		150	22	35	S24	1.03		270	35	25	S52	1.37
	560	35	40	S55	2.16		150	22	45	S26	1.09		270	35	30	S53	1.44
	560	35	45	S56	2.30		150	22	50	S27	1.12		270	35	35	S54	1.46
	560	35	50	S57	2.48		150	25	30	S33	1.03		330	25	50	S37	1.76
	680	30	55	S48	2.59		150	25	35	S34	1.05		330	30	35	S44	1.61
	680	35	40	S55	2.39		150	25	40	S35	1.07		330	30	40	S45	1.62
	680	35	45	S56	2.53		150	30	25	S42	1.00		330	30	50	S47	1.90
	820	35	50	S57	3.00		150	30	30	S43	1.05	450	330	35	30	S53	1.60
	1000	35	55	S58	3.43	450	150	35	20	S51	0.99		330	35	35	S54	1.62
	56	22	20	S21	0.53		150	35	25	S52	1.02		390	25	55	S38	1.98
	56	22	25	S22	0.59		180	22	40	S25	1.17		390	30	40	S45	1.77
	68	22	20	S21	0.58		180	22	50	S27	1.22		390	30	45	S46	1.83
	68	22	25	S22	0.65		180	25	30	S33	1.13		390	35	35	S54	1.76
	68	22	30	S23	0.68		180	25	35	S34	1.16		390	35	40	S55	2.00
	68	25	20	S31	0.66		180	25	40	S35	1.19		470	30	45	S46	2.01
	68	25	25	S32	0.68		180	25	45	S36	1.24		470	30	50	S47	2.13
	82	22	25	S22	0.71		180	30	25	S42	1.10		470	35	35	S54	1.93
	82	22	30	S23	0.74		180	30	30	S43	1.14		470	35	40	S55	2.20
450	82	22	35	S24	0.76		180	30	35	S44	1.19		470	35	45	S56	2.27
	82	25	20	S31	0.68		180	35	20	S51	1.08		560	30	45	S46	2.19
	82	25	25	S32	0.73		180	35	25	S52	1.12		560	30	50	S47	2.27
	100	22	25	S22	0.79		220	22	45	S26	1.32		560	35	35	S54	2.11
	100	22	30	S23	0.82		220	25	35	S34	1.28		560	35	40	S55	2.40
	100	22	35	S24	0.84		220	25	40	S35	1.31		560	35	45	S56	2.48
	100	22	40	S25	0.87		220	25	45	S36	1.35		680	35	50	S57	2.61
	100	25	25	S32	0.81		220	25	50	S37	1.46		820	35	60	S59	3.07
	100	25	30	S33	0.86		220	30	25	S42	1.22						
	100	30	20	S41	0.80		220	30	30	S43	1.27						

(Note) Rated ripple current : 105° C , 120Hz

Rated ripple

current (Arms)

0.99

1.02

1.19

1.22

1.19 1.22

1.14 1.16

1.12

1.15

1.40

1.35

1.39 1.31

1.33

1.23

1.27

1.54

1.47

1.52

1.41

1.46

1.88

1.68

1.71

1.62

1.66

1.77

1.81

1.86

2.23

2.04

2.06

2.25

2.66

Standard Ratings

Rated	Rated	Case	(mm)	Casing	Rated ripple	Rated	Rated	Case	(mm)	Casing
voltage (V)	capacitance (µF)	D	L	Symbol	current (Arms)	(V)	capacitance (µF)	D	L	Symbol
	39	22	20	S21	0.44		150	35	20	S51
	47	22	20	S21	0.48		150	35	25	S52
	47	25	20	S31	0.55		180	22	45	S26
	56	22	20	S21	0.53		180	22	50	S27
	56	22	25	S22	0.59		180	25	40	S35
	56	25	20	S31	0.57		180	25	45	S36
	68	22	25	S22	0.65		180	30	30	S43
	68	22	30	S23	0.68		180	30	35	S44
	68	25	20	S31	0.62	İ	180	35	25	S52
	68	25	25	S32	0.68	İ	180	35	30	S53
	68	30	20	S41	0.66		220	22	55	S28
	82	22	25	S22	0.71		220	25	45	S36
	82	22	30	S23	0.74	İ	220	25	50	S37
	82	25	25	S32	0.73	İ	220	30	35	S44
	82	25	30	S33	0.77		220	30	40	S45
	82	30	20	S41	0.72		220	35	25	S52
	100	22	30	S23	0.82	İ	220	35	30	S53
500	100	22	35	S24	0.84	500	270	25	50	S37
500	100	25	25	S32	0.81		270	30	40	S45
	100	25	30	S33	0.85		270	30	45	S46
	100	30	20	S41	0.80		270	35	30	S53
	100	30	25	S42	0.82		270	35	35	S54
	100	35	20	S51	0.81		330	25	60	S39
	120	22	35	S24	0.92		330	30	45	S46
	120	22	40	S25	0.95		330	30	50	S47
	120	25	30	S33	0.92		330	35	35	S54
	120	25	35	S34	0.95		330	35	40	S55
	120	30	25	S42	0.90		390	30	50	S47
	120	30	30	S43	0.93		390	35	40	S55
	120	35	20	S51	0.89		390	35	45	S56
	150	22	40	S25	1.07		470	30	60	S49
	150	22	45	S26	1.09		470	35	45	S56
	150	25	35	S34	1.05		470	35	50	S57
	150	25	40	S35	1.08		560	35	50	S57
	150	30	25	S42	1.00		680	35	60	S59
	150	30	30	S43	1.02					

(Note) Rated ripple current : 105°C , 120Hz

105℃

105℃

LAX, LTX LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS



Ultra Long Life, High-Reliability Capacitors

- · Ultra Long Life, high-reliability capacitors.
- Guarantees 5000 hours at 105°C.
- Best suited to On-Coard-Charger for EV, PHEV.



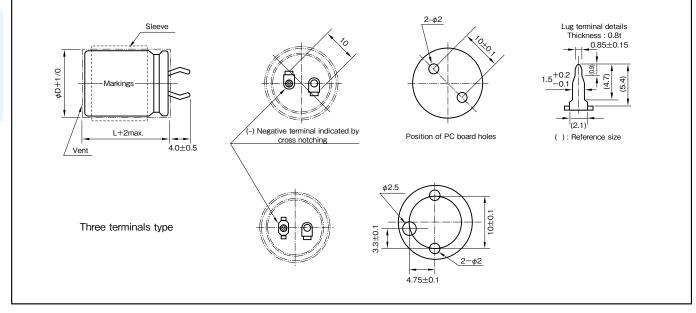


Marking color: White print on a black sleeve

Specifications

Item			Performance							
Category temperature range (°C)			-25 to +105							
Tolerance at rated capacitance (%)			±20		(20°C,120Hz)					
Leakage current (μΑ) (max.)		3√CV (after 5 minutes	s) C : Rated capacitance (μF) ; V : Rated vol	tage (V)	(20°C)					
Toward of loss and	Rated voltage	(V)	160 to 250	350 to 500						
Tangent of loss angle (tanō) Characteristics at high and low temperature	tanδ (max.)	0.15	0.20						
(tano)		·			(20°C,120Hz)					
Characteristics at high	Percentage of capacitance change (%)	−25°C	Within ±30% of the va	alue at 20°C						
	Impedance ratio (max.)	Z-25°C/Z+20°C	4							
and low temperature					(120Hz)					
	Test time		5000 hours							
Endurance (105°C)	Leakage curr	ent	The initial specified va	lue or less						
(Applied ripple current)	Percentage of capacita	nce change	Within ±20% of initial	value						
	Tangent of the los	ss angle	200% or less of the in	itial specified value						
	Test time		1000 hours							
	Leakage curr	ent	The initial specified va	lue or less						
Shelf life (105°C)	Percentage of capacita	nce change	Within ±15% of initial	alue or less I value Itage (V) 350 to 500 0.20 (20°C, (1) (20°C)						
	Tangent of the los	s angle	150% or less of the in							
	Voltage application treatment :	According to JIS C510	1-4 4.1							
Applicable standards		JIS C5101-1, -4 (IEC 60384-1, -4)								

Outline Drawing Unit: mm



Part numbering system series LAX, standard terminal type :200V680µF LAX 200 681 Μ S34 В Optional symbol Rated voltage Rated capacitance Capacitance Casing Series code series LTX, three terminals type :400V330µF 400 331 S53 В Rated voltage Rated capacitance Capacitance Casing Optional Series code

Coefficient of Frequency for Rated Ripple Current

Frequency (Hz) Rated voltage (V)	50	120	1k	10k	30k
160 to 250	0.81	1	1.32	1.45	1.50
350 or more	0.77	1	1.30	1.41	1.43

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS LAX, LTX

Standard Ratings

Stand	lard Ratin	igs															
Rated	Rated	Case	(mm)	Casing	Rated ripple	Rated	Rated	Case	(mm)	Casing	Rated ripple	Rated	Rated	Case	(mm)	Casing	Rated ripple
voltage (V)	capacitance (μF)	D	L	Symbol	current (Arms)	voltage (V)	capacitance (μF)	D	L	Symbol	current (Arms)	voltage (V)	capacitance (µF)	D	L	Symbol	current (Arms)
	220	22	20	S21	0.90		1000	35	25	S52	2.60		680	22	35	S24	1.90
	270	22	20	S21	1.00		1000	35	35	S54	2.89		680	22	40	S25	1.97
	270	22	25	S22	1.12		1200	22	50	S27	2.84		680	25	30	S33	1.91
	270	25	20	S31	1.13		1200	25	45	S36	2.90		680	25	35	S34	1.95
	330	22	25	S22	1.24	İ	1200	30	30	S43	2.84		680	30	25	S42	1.86
	330	22	30	S23	1.29	İ	1200	30	35	S44	2.96		680	30	30	S43	1.97
	330	25	20	S31	1.25	İ	1200	30	50	S47	3.33		680	35	20	S51	1.83
	390	22	25	S22	1.35		1200	35	25	S52	2.69		820	22	40	S25	2.17
	390	22	35	S24	1.43	İ	1200	35	30	S53	2.95		820	22	45	S26	2.21
	390	25	20	S31	1.36		1500	25	50	S37	3.38		820	25	35	S34	2.14
	390	25	25	S32	1.45		1500	30	40	S45	3.21		820	25	40	S35	2.20
	470	22	25	S22	1.48		1500	35	30	S53	3.06		820	30	25	S42	2.04
	470	22	30	S23	1.50	160	1500	35	35	S54	3.21		820	30	30	S43	2.17
	470	22	40	S25	1.63	İ	1500	35	40	S55	3.60		820	35	20	S51	2.01
	470	25	25	S32	1.53	i	1800	25	60	S39	3.97		820	35	25	S52	2.11
	470	25	30	S33	1.55		1800	30	45	S46	3.91		1000	22	45	S26	2.44
	470	30	20	S41	1.50		1800	35	35	S54	3.52		1000	22	50	S27	2.50
	560	22	30	S23	1.68		1800	35	50	S57	4.31		1000	25	40	S35	2.43
	560	22	35	S24	1.75		2200	30	50	S47	4.16		1000	25	45	S36	2.49
	560	22	45	S26	1.81		2200	35	40	S55	4.36		1000	30	30	S43	2.39
	560	25	25	S32	1.63	i	2700	30	60	S49	4.92		1000	30	35	S44	2.43
	560	25	30	S33	1.73	i	2700	35	50	S57	5.03		1000	35	25	S52	2.33
	560	25	35	S34	1.76		3300	35	55	S58	5.68		1000	35	30	S53	2.42
	560	30	20	S41	1.63		3900	35	60	S59	6.39	180	1200	22	55	S28	2.85
160	560	30	25	S42	1.68		180	22	20	S21	0.82	100	1200	25	45	S36	2.73
	560	35	20	S51	1.82	l	220	22	20	S21	0.91		1200	25	50	S37	2.92
	680	22	35	S24	1.93		270	22	20	S21	1.00		1200	30	35	S44	2.66
	680	22	50	S27	2.05		270	22	25	S22	1.13		1200	30	40	S45	2.69
	680	25	30	S33	1.91	ŀ	270	25	20	S31	1.14		1200	35	25	S52	2.55
	680	25	35	S34	1.98	ŀ	330	22	25	S22	1.25		1200	35	30	S53	2.65
	680	25	40	S35	2.00		330	25	20	S31	1.20		1500	25	50	S37	3.12
	680	30	25	S42	1.85		390	22	25	S22	1.35		1500	30	40	S45	3.01
	680	30	30	S43	1.96	ŀ	390	22	30	S23	1.41		1500	30	45	S46	3.12
		35							20								
	680		20	S51	2.01		390	25		S31	1.29		1500	35	30	S53	2.96
	820 820	22 25	40 35	S25 S34	2.17		390 390	25 30	25 20	S32 S41	1.42		1500 1800	35 25	35 60	S54 S39	3.02
						180					1.37						3.83
	820	25	45	S36	2.40		470	22	30	S23	1.55		1800	30	45	S46	3.42
	820	30	25	S42	2.03		470	22	35	S24	1.58		1800	30	50	S47	3.54
	820	30	30	S43	2.35		470	25	25	S32	1.56		1800	35	35	S54	3.31
	820	30	35	S44	2.45		470	25	30	S33	1.62		1800	35	40	S55	3.37
	820	35	20	S51	2.20		470	30	20	S41	1.50		2200	30	50	S47	3.83
	820	35	25	S52	2.35		560	22	30	S23	1.69		2200	35	40	S55	3.73
	820	35	30	S53	2.49		560	22	35	S24	1.73		2200	35	45	S56	3.84
	1000	22	45	S26	2.42		560	25	25	S32	1.67		2700	30	60	S49	4.64
	1000	25	35	S34	2.40		560	25	30	S33	1.74		2700	35	45	S56	4.25
	1000	25	40	S35	2.47		560	30	20	S41	1.64		2700	35	50	S57	4.29
	1000	30	30	S43	2.45		560	30	25	S42	1.69		3300	35	55	S58	4.92
	1000	30	40	S45	2.58		560	35	20	S51	1.66						

(Note) Rated ripple current : 105° C , 120Hz

105℃

[•] The standard ratings follow the next page.

LAX, LTX LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS ELNA



Standard Ratings

	lard Ratin		, .					-	, ,	1			T		, .		т
Rated voltage	Rated capacitance	Case	(mm)	Casing	Rated ripple current	Rated	Rated capacitance	Case	(mm)	Casing	Rated ripple current	Rated	Rated capacitance	Case	(mm)	Casing	Rated ripple current
(V)	(μF)	D	L	Symbol	(Arms)	(V)	(μF)	D	L	Symbol	(Arms)	(V)	(μF)	D	L	Symbol	(Arms)
	180	22	20	S21	0.82		1000	22	55	S28	2.59		390	25	30	S33	1.41
	180	22	25	S22	0.92		1000	25	45	S36	2.49		390	25	40	S35	1.65
	220	22	20	S21	0.91		1000	30	35	S44	2.40		390	30	25	S42	1.47
	220	25	20	S31	1.03		1000	30	50	S47	2.64		390	35	20	S51	1.41
	270	22	25	S22	1.17		1000	35	30	S53	2.40		470	22	40	S25	1.64
	270	22	30	S23	1.29		1000	35	40	S55	2.52		470	25	30	S33	1.61
	270	25	20	S31	1.09		1200	25	55	S38	3.02		470	25	35		1.63
	270	25	25	S32	1.18		1200	30	40	S45	2.69		470	25	50		1.83
	330	22	25	S22	1.29		1200	35	30	S53	2.63		470	30	25		1.61
	330	22	30	S23	1.30		1200	35	35	S54	2.65		470	30	30		1.65
	330	22	35	S24	1.48		1200	35	45	S56	2.84		470	30	35		1.67
	330	25	25	S32	1.30	200	1500	25	60	S39	3.49		470	35	20		1.55
	330	25	30	S33	1.31		1500	30	45	S46	3.12		470	35	25		1.65
	330	30	20 30	S41	1.26		1500	35	35 40	S54	2.97		470	35	30		1.66
	390	22 22		S23	1.40		1500	35 35	50	S55	3.45		560	22 25	45		1.82
	390		40	S25	1.65		1500			S57	3.80		560		35		1.77
	390	25 30	25	S32	1.37		1800	30	50 40	S47	3.54		560	25 30	40		1.82
	390 390	30	20 25	S41	1.37		1800 1800	35 35		S55	3.59 4.00		560 560	30	30 40		1.80
	470	22	30	S42 S23	1.53		2200	30	45 60	S56 S49	4.00		560	35	25		1.80
	470	22	35	S24	1.61		2200	35	45	S56	4.13		560	35	35		1.94
	470	22	45	S26	1.79		2200	35	50	S57	4.60		680	22	50		2.06
	470	25	25	S32	1.79		2700	35	55	S58	5.28		680	25	40		2.00
	470	25	30	S33	1.56		3300	35	60	S59	6.03		680	25	45		2.06
	470	25	35	S34	1.62		120	22	20	S21	0.67		680	30	30		1.98
	470	30	20	S41	1.50		150	22	20	S21	0.75		680	30	35		2.04
	470	30	25	S42	1.60		150	22	25	S22	0.73	250	680	30	45		2.27
200	470	30	30	S43	1.64		150	25	20	S31	0.92		680	35	25		1.98
	470	35	20	S51	1.67		180	22	20	S21	0.82		680	35	30		2.04
	560	22	35	S24	1.73		180	22	25	S22	1.00		680	35	40		2.40
	560	22	40	S25	1.79		180	22	30	S23	1.09		820	22	60		2.42
	560	25	30	S33	1.70		180	25	20	S31	1.01		820	25	45		2.26
	560	25	35	S34	1.77		180	25	25	S32	1.09		820	25	50		2.42
	560	25	40	S35	1.82		220	22	25	S22	1.11		820	30	35		2.24
	560	30	25	S42	1.75		220	22	35	S24	1.24		820	30	40		2.42
	560	30	35	S44	1.82		220	25	20	S31	1.02		820	30	50	S47	2.65
	560	35	20	S51	1.82		270	22	25	S22	1.13		820	35	30	S53	2.24
	680	22	40	S25	1.97		270	22	30	S23	1.25	1	820	35	35	S54	2.35
	680	25	35	S34	1.95	_	270	22	40	S25	1.40		1000	25	55	S38	2.66
	680	25	50	S37	2.20	250	270	25	25	S32	1.15		1000	30	40	S45	2.67
	680	30	25	S42	1.92		270	25	30	S33	1.28	ĺ	1000	30	45	S46	2.69
	680	30	30	S43	1.97		270	30	20	S41	1.14		1000	35	30	S53	2.47
	680	30	40	S45	2.03		270	30	25	S42	1.17		1000	35	35	S54	2.60
	680	35	25	S52	1.96		330	22	30	S23	1.30		1000	35	45	S56	3.01
	680	35	30	S53	2.00		330	22	35	S24	1.50		1200	30	45	S46	2.79
	820	22	45	S26	2.21		330	22	45	S26	1.57		1200	30	50	S47	2.89
	820	22	50	S27	2.27		330	25	25	S32	1.27		1200	35	35	S54	2.85
	820	25	40	S35	2.20		330	25	30	S33	1.33		1200	35	40	S55	3.18
	820	30	30	S43	2.17		330	25	35	S34	1.57		1500	30	55	S48	3.35
	820	30	35	S44	2.18		330	30	20	S41	1.26	İ	1500	35	45	S56	3.69
	820	30	45	S46	2.31		330	30	30	S43	1.37		1800	35	50	S57	4.16
	820	35	25	S52	2.07		330	35	20	S51	1.30		2200	35	60	S59	4.93
	820	35	30	S53	2.18		390	22	35	S24	1.52						
	820	35	35	S54	2.19		390	22	50	S27	1.65					Symbol S33 S35 S42 S51 S25 S33 S34 S37 S42 S43 S44 S51 S52 S53 S26 S34 S45 S52 S54 S27 S35 S43 S44 S46 S53 S54 S45 S46 S53 S54 S56 S46 S47 S55 S48 S56 S48 S56 S48 S56 S48 S56	
(Note) R	ated ripple cu	urrent : 1	05°C , 1	120Hz													

Standard Ratings

Stand	lard Ratin	igs_															
Rated	Rated	Case	(mm)	Casing	Rated ripple	Rated	Rated	Case	(mm)	Casing	Rated ripple	Rated	Rated	Case	(mm)	Casing	Rated ripple
voltage (V)	capacitance (µF)	D	L	Symbol	current (Arms)	voltage (V)	capacitance (μF)	D	L	Symbol	current (Arms)	voltage (V)	capacitance (µF)	D	L	Symbol	current (Arms)
	82	22	20	S21	0.55		470	25	50	S37	1.83		180	22	35	S24	1.13
	100	22	20	S21	0.61		470	30	35	S44	1.67		180	25	30	S33	1.11
	100	25	20	S31	0.69		470	30	40	S45	1.69		180	25	45	S36	1.22
	120	22	20	S21	0.67		470	35	30	S53	1.66		180	30	25	S42	1.10
	120	22	25	S22	0.75		470	35	35	S54	1.69		180	30	35	S44	1.19
	120	25	20	S31	0.72		560	25	50	S37	1.90		180	35	20	S51	1.08
	150	22	25	S22	0.84		560	30	40	S45	1.84		220	22	40	S25	1.29
	150	22	30	S23	0.88		560	35	30	S53	1.81		220	25	30	S33	1.23
	150	25	20	S31	0.79		560	35	35	S54	1.85		220	25	35	S34	1.28
	150	25	25	S32	0.88	l	680	22	60	S29	2.21		220	25	50	S37	1.44
	150	30	20	S41	0.85	350	680	30	45	S46	2.10		220	30	25	S42	1.22
	180	22	25	S22	0.92		680	30	50	S47	2.18		220	30	30	S43	1.25
	180	22	30	S23	0.96		680	35	35	S54	2.04		220	30	40	S45	1.33
	180	25	25	S32	0.97		680	35	40	S55	2.07		220	35	20	S51	1.20
	180	25	30	S33	0.99		820	30	50	S47	2.32		220	35	25	S52	1.23
	180	30	20	S41	0.93		820	35	40	S55	2.28		220	35	30	S53	1.27
	180	35	20	S51	0.94		820	35	45	S56	2.34		270	22	45	S26	1.46
	220	22	30	S23	1.06		1000	30	60	S49	2.72		270	25	35	S34	1.42
	220	22	35	S24	1.08		1000	35	50	S57	2.61		270	25	40	S35	1.45
	220	25	25	S32	1.07		1200	35	55	S58	2.96		270	30	30	S43	1.39
	220	25	30	S33	1.09		56	22	20	S21	0.53		270	35	25	S52	1.37
	220	30	20	S41	1.03		56	22	25	S22	0.59		270	35	35	S54	1.46
	220	30	25	\$42	1.06		68	22	20	S21	0.58		330	22	55	S28	1.71
	220	35	20	S51	1.04		68	22	30	S23	0.68	400	330	25	40	S35	1.61
350	270	22	35	S24	1.20		82	22	20	S21	0.64		330	25	45	S36	1.65
	270	22	40	S25	1.24		82	22	25	S22	0.71		330	30	35	S44	1.61
	270	25	30	S33	1.21		82	22	35	S24	0.76		330	30	50	S47	1.74
	270	25	35	S34	1.23		82	25	20	S31	0.68		330	35	25	S52	1.51
	270	30	25	S42	1.17		82	25	25	S32	0.75		330	35	30	S53	1.56
	270	30	30	S43	1.24		100	22	25	S22	0.79		330	35	40	S55	1.66
	270	35	20	S51	1.15		100	25	20	S31	0.75		390	25	50	S37	1.85
	270	35	25	S52	1.19		100	25	30	S33	0.73		390	25	55	S38	1.98
	330	22	40	S25	1.19		100	30	25	S42	0.82		390	30	40	S45	1.77
		22								S22	0.86						
	330		45	S26	1.40	400	120	22	25				390	35	30	S53	1.69
	330 330	25 25	35 40	S34 S35	1.36		120 120	22	30 40	S23 S25	0.90 0.95		390 390	35 35	35 45	S54 S56	1.76 1.86
	330	30	25	S42	1.29		120	25	25	S32	0.88		470	25	60	S39	2.25
	330	30	30	S43	1.37		120	25	35	S34	0.94		470	30	45	S46	2.01
	330	35	25	S52	1.31		120	30	20	S41	0.87		470	35	35	S54	1.93
	390	22	50	S27	1.56		150	22	30	S23	0.99		470	35	50	S57	2.06
	390	25	40	S35	1.52		150	22	35	S24	1.03		560	30	50	S47	2.27
	390	25	45	S36	1.56		150	22	50	S27	1.11		560	35	40	S55	2.16
	390	30	30	S43	1.49		150	25	25	S32	0.99		680	30	55	S48	2.59
	390	30	35	S44	1.52		150	25	30	S33	1.01		680	35	45	S56	2.53
	390	35	25	S52	1.43		150	25	40	S35	1.08		680	35	50	S57	2.73
	390	35	30	S53	1.51		150	30	20	S41	0.98		820	35	50	S57	3.00
	470	22	55	S28	1.78		150	30	30	S43	1.07		1000	35	60	S59	3.55
	470	25	45	S36	1.71		150	35	20	S51	0.99						

(Note) Rated ripple current : 105°C , 120Hz

105℃

[•] The standard ratings follow the next page.

LAX, LTX LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS ELNA



Standard Ratings

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Rated	Rated	Case	(mm)	Casing	Rated ripple	Rated	Rated	Case	(mm)	Casing	Rated ripple	Rated	Rated	Case	(mm)	Casing	Rated ripple
voitage (V)	capacitance (µF)	D	L	Symbol	current (Arms)	(V)	capacitance (µF)	D	L	Symbol	current (Arms)	voitage (V)	capacitance (µF)	D	L	Symbol	current (Arms)
	56	22	20	S21	0.53		220	25	40	S35	1.31	-	100	22	35	S24	0.84
	56	25	20	S31	0.60		220	30	30	S43	1.27		100	25	25	S32	0.81
		22						30						25			
	68		20	S21	0.58		220		35	S44	1.31		100		30	S33	0.85
	68	22	25	S22	0.65		220	30	45	S46	1.37		100	30	20	S41	0.80
	68	22	30	S23	0.68		220	35	25	S52	1.23		100	30	25	S42	0.82
	68	25	20	S31	0.66		220	35	30	S53	1.29		100	35	20	S51	0.81
	82	22	25	S22	0.71		220	35	35	S54	1.32		120	22	35	S24	0.92
	82	22	30	S23	0.74		270	22	50	S27	1.50		120	22	40	S25	0.95
	82	22	35	S24	0.76		270	25	40	S35	1.45		120	25	30	S33	0.92
	82	25	20	S31	0.68		270	25	45	S36	1.49		120	25	35	S34	0.95
	82	25	25	S32	0.73		270	30	35	S44	1.45		120	30	25	S42	0.90
	82	25	30	S33	0.77		270	30	40	S45	1.47		120	30	30	S43	0.93
İ	82	30	20	S41	0.72	İ	270	30	50	S47	1.58		120	35	20	S51	0.89
	82	30	25	S42	0.74	İ	270	35	25	S52	1.37		150	22	40	S25	1.07
	100	22	25	S22	0.79		270	35	30	S53	1.44		150	22	45	S26	1.09
	100	22	30	S23	0.82		270	35	40	S55	1.50		150	25	35	S34	1.05
	100	22	40	S25	0.82		330	25	50	S37	1.76		150	25	40	S35	1.03
	100	25	25	S32	0.81		330	30	40	S45	1.62		150	30	25	S42	1.00
	100	25	35	S34	0.88	450	330	30	45	S46	1.68		150	30	30	S43	1.02
	100	30	20	S41	0.80		330	35	30	S53	1.60		150	35	25	S52	1.02
	120	22	30	S23	0.90		330	35	35	S54	1.62		180	22	45	S26	1.19
	120	22	35	S24	0.92		330	35	45	S56	1.71		180	22	50	S27	1.22
	120	22	50	S27	1.00		390	25	55	S38	1.98		180	25	40	S35	1.19
	120	25	25	S32	0.88		390	30	40	S45	1.77		180	25	45	S36	1.22
	120	25	30	S33	0.93		390	30	45	S46	1.83		180	30	30	S43	1.14
	120	25	40	S35	0.97		390	30	50	S47	2.07		180	30	35	S44	1.16
450	120	30	20	S41	0.87	İ	390	35	35	S54	1.76	500	180	35	25	S52	1.12
	120	30	25	S42	0.90		390	35	40	S55	2.00		180	35	30	S53	1.15
	120	30	30	S43	0.95	İ	390	35	50	S57	2.08		220	22	55	S28	1.40
	120	35	20	S51	0.89		470	30	50	S47	2.13		220	25	45	S36	1.35
	150	22	35	S24	1.03		470	35	40	S55	2.20		220	25	50	S37	1.39
	150	22	40	S25	1.05		470	35	45	S56	2.27		220	30	35	S44	1.31
	150	25	30	S33	1.03		560	30	55	S48	2.35		220	30	40	S45	1.33
	150	25	35	S34	1.05		560	35	45	S56	2.48		220	35	30	S53	1.27
	150	25	45	S36	1.11		560	35	50	S57	2.50		270	25	50	S37	1.54
	150	30	25	S42	1.00		680	35	50	S57	2.61		270	30	40	S45	1.47
	150	30	30	S43	1.05		820	35	60	S59	3.07		270	30	45	S46	1.52
	150	30	35	S44	1.08		39	22	20	S21	0.44		270	35	30	S53	1.41
	150	35	20	S51	0.99		47	22	20	S21	0.48		270	35	35	S54	1.46
	180	22	40	S25	1.17		47	25	20	S31	0.55		330	25	60	S39	1.88
	180	22	45	S26	1.19		56	22	25	S22	0.59		330	30	45	S46	1.68
	180	25	35	S34	1.16		56	25	20	S31	0.57		330	30	50	S47	1.71
	180	25	50	S37	1.30		68	22	25	S22	0.65		330	35	35	S54	1.62
	180	30	25	S42	1.10		68	22	30	S23	0.68		330	35	40	S55	1.66
	180	30	30	S43	1.14	500	68	25	20	S31	0.62	1	390	30	50	S47	1.77
	180	30	40	S45	1.20		68	25	25	S32	0.68		390	35	40	S55	1.81
	180	35	20	S51	1.08		68	30	20	S41	0.66		390	35	45	S56	1.86
	180	35	25	S52			82	22	30	S23	0.74		470	30	60	S49	2.23
					1.12												
	180	35	30	S53	1.15		82	25	25	S32	0.73		470	35	45	S56	2.04
	220	22	45	S26	1.32		82	25	30	S33	0.77		470	35	50	S57	2.06
	220	22	50	S27	1.35		82	30	20	S41	0.72		560	35	55	S58	2.33
	220	25	35	S34	1.28		100	22	30	S23	0.82		680	35	60	S59	2.66
(Note) R	ated ripple cu	urrent : 1	05°C , 1	120Hz													

105℃

LJ6, LJ2 LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS



Large-Capacitance, Long-Life, High-Reliability Capacitors

- · Large-capacitornce, Long-life, High-reliability capacitors.
- Guarantees 5000 hours at 105°C.



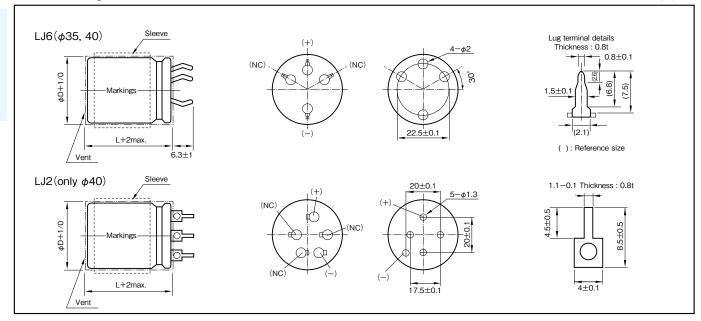


Marking color: White print on a black sleeve

Specifications

Item			Performance		
Category temperature range (°C)			−25~+105		
Tolerance at rated capacitance (%)			±20	(20℃,	120Hz)
Leakage current (μA) (max.)	0.02CV or 5m	nA whichever is large	er (after 5 minutes) C : Rated capacitance (μF) ; V : Rated voltage (V)		(20°C)
Toward of loss and	Rated voltage	e (V)	200 to 500		
Tangent of loss angle	tanδ (max.	.)	0.15		
(tanδ)				(20°C,	120Hz)
Characteristics at high	Percentage of capacitance change (%)	−25°C	Within ±30% of the value at 20℃		
•	Impedance ratio (max.)	Z-25°C/Z+20°C	4		
and low temperature					(120Hz)
	Test time		5000 hours		
Endurance (105°C)	Leakage curr	rent	The initial specified value or less		
(Applied ripple current)	Percentage of capacita	ance change	Within ±20% of initial value		
	Tangent of the los	ss angle	200% or less of the initial specified value		ľ
	Test time		1000 hours		
	Leakage curi	rent	The initial specified value or less		
Shelf life (105℃)	Percentage of capacita	ance change	Within ±15% of initial value		
	Tangent of the los	ss angle	150% or less of the initial specified value		
	Voltage application treatment : Acc	cording to JIS C5101	-4 4.1		i
Applicable standards		JIS	C5101-1, -4 (IEC 60384-1, -4)		

Outline Drawing Unit: mm



Part nun	nbe	ring syst	em	(example	: 350V15	00μF))	
LJ6	_	350	٧	152	М	S5D	#	В
Series code		Rated voltage symbol		Rated capacitance symbol	Capacitance tolerance symbol	Casing symbol		Optional symbol

Coefficient of Frequency for Rated Ripple Current

Frequency (Hz) Rated voltage (V)	50	120	1k	10k	30k
200 to 250	0.87	1	1.11	1.18	1.20
315 to 500	0.80	1	1 14	1 19	1.20

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS LJ6, LJ2

Standard Ratings

Rated	l voltage(V)		200			250			315			350	
Case	ltem asing	Rated capacitance	ESR	Rated ripple current	Rated capacitance	ESR	Rated ripple current	Rated capacitance	ESR	Rated ripple current	Rated capacitance	ESR	Rated ripple current
$\phi D \times L(mm)$	symbol	(μF)	(Ω max.)	(Arms)	(μF)	(Ω max.)	(Arms)	(μF)	(Ω max.)	(Arms)	(μF)	(Ω max.)	(Arms)
35×40	S55	-	_	_	-	ı	_	820	0.24	2.23	-	_	_
35×45	S56	_	_	_	_	_	_	1000	0.20	2.62	_	_	_
35×50	S57	2200	0.090	4.05	_	ı	_	1200	0.17	3.03	820	0.24	2.10
35×55	S58	-	_	_	1500	0.13	3.17	_	ı	-	_	_	_
35×60	S59	2700	0.073	4.77	1800	0.11	3.69	1500	0.13	3.55	1000	0.20	2.46
35×70	S5B	_	_	_	2200	0.09	4.31	1800	0.11	4.07	1200	0.17	2.84
35×80	S5C	3300	0.060	5.56	2700	0.07	5.24	_	ı	ı	_	_	_
35×90	S5D	_	_	_	_	_	_	_	-	_	1500	0.13	3.34
35×100	S5E	3900	0.051	6.64	_	_	_	_	_	_	1800	0.11	3.82
40×45	S66	2200	0.090	4.40	_	ı	_	_	ı	_	_	_	_
40×50	S67	_	_	_	1800	0.11	3.77	1200	0.17	3.11	1000	0.20	2.50
40×60	S69	2700	0.073	5.17	2200	0.09	4.43	1500	0.13	3.67	1200	0.17	2.90
40×70	S6B	3300	0.060	6.02	2700	0.07	5.42	1800	0.11	4.21	1500	0.13	3.40
40×80	S6C	3900	0.051	7.00	_	_	_	_	_	_	1800	0.11	3.95

Rated	voltage(V)		400			450			500	
Case	ltem asing	Rated capacitance	ESR	Rated ripple current	Rated capacitance	ESR	Rated ripple current	Rated capacitance	ESR	Rated ripple current
$\phi D \times L(mm)$	symbol	(μF)	(Ω max.)	(Arms)	(μF)	(Ω max.)	(Arms)	(μF)	(Ω max.)	(Arms)
35×45	S56	_	_	_	_	_	_	390	0.51	1.65
35×50	S57	_	_	_	560	0.36	2.16	_	_	_
35×55	S58	820	0.24	2.49	_	_	_	_	_	
35×60	S59	-	ı	_	680	0.29	2.53	560	0.36	2.22
35×65	A65	_	-	_	820	0.24	2.94	_	_	_
35×70	S5B	_	-	-	_	_	_	680	0.29	2.57
35×75	A75	1200	0.17	3.55	-	_	_	-	ı	-
35×80	S5C	_	-	_	1000	0.20	3.41	_	_	_
35×100	S5E	_	-	-	1200	0.17	3.90	_	_	-
35×105	AA5	1500	0.13	4.15	ı	_	_		l	_
40×50	S67	_	_	-	680	0.29	2.45	560	0.36	2.15
40×55	S68	_	-	-	820	0.24	2.84	_	_	_
40×60	S69	1000	0.20	3.10	1000	0.20	3.33	680	0.29	2.51
40×70	S6B	_	ı	_	_	_	_	820	0.24	3.05
40×75	B75	1200	0.17	3.65	_	_	_	_	_	_
40×80	S6C	1500	0.13	4.30	1200	0.17	3.65	_	-	_

(Note) Rated ripple current : $105^{\circ}\!C$, 120Hz ; ESR. : $20^{\circ}\!C$, 120Hz

LARGE

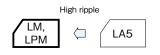
105℃



For-Inverter, High-Ripple Capacitors



- Withstands high-ripple current generated by the voltage doubler rectifier system.
- Guarantees 2000 hours at 85℃.



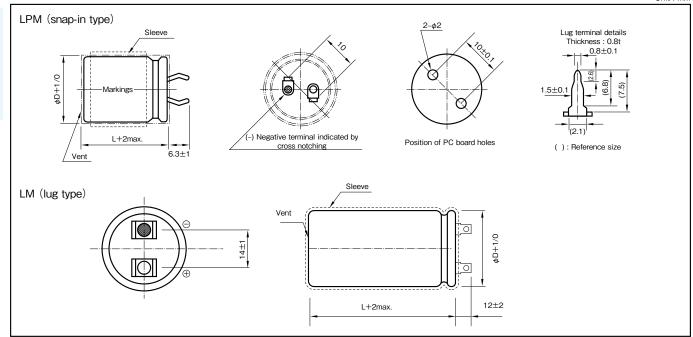


Marking color: White print on a black sleeve

Specifications

Item			Performance	
Category temperature range (°C)			-25 to +85	
Tolerance at rated capacitance (%)			±10	(20°C,120Hz)
Leakage current (μA) (max.)	0.01CV or 5	mA whichever is large	er (after 5 minutes) C : Rated capacitance (µF) ; V : Rated voltage (V)	(20°C)
Tangent of less angle	Rated voltage (\	/)	250, 400	
Tangent of loss angle	tanδ (max.)		0.05	
(tanδ)		·		(20°C,120Hz)
Characteristics at high	Rated voltage (V)	250, 400	
	Impedance ratio (max.) Z	-25°C/Z+20°C	4	
and low temperature				(120Hz)
	Test time		2000 hours	
Endurance (85°C)	Leakage current		The initial specified value or less	
(Applied ripple current)	Percentage of capacitanc	e change	Within ±20% of initial value	
	Tangent of the loss a	ingle	200% or less of the initial specified value	
	Test time		500 hours	
	Leakage current		The initial specified value or less	
Shelf life (85°C)	Percentage of capacitanc	e change	Within ±15% of initial value	
	Tangent of the loss a	ingle	150% or less of the initial specified value	
	Voltage application treatment : Ac	cording to JIS C5101	-4 4.1	
Applicable standards		JIS	C5101-1, -4 (IEC 60384-1, -4)	

Outline Drawing Unit: mm



Part numbering system (example: 250V440µF)

LM -	- 250 \	/ 441	К	S6E #	: B
Series code	Rated voltage symbol	Rated capacitance symbol	Capacitance tolerance symbol	Casing symbol	Optional symbol

Coefficient of Frequency for Rated Ripple Current

Frequency (Hz) Rated voltage (V)	50	120	400	1k	10k
250, 400	0.80	1	1.32	1 46	1.61

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS LM, LPM

LM series Standard Ratings

250V											
Rated capacitance	Case	(mm)	Casing	ESR	Rated ripple current						
(μF)	φD L		symbol	(Ω max.)	(Arms)						
200	40	100	S6E	0.33	3.80						
220	40	100	S6E	0.30	4.00						
330	40	100	S6E	0.20	4.85						
360	40	100	S6E	0.18	5.10						
390	40	100	S6E	0.17	5.30						
420	40	100	S6E	0.16	5.50						
440	40	100	S6E	0.15	5.60						

		40	0V		
Rated capacitance	Case	(mm)	Casing	ESR	Rated ripple current
(μF)	φD L		symbol	(Ω max.)	(Arms)
90	35	80	S5C	0.74	3.00
90	40	80	S6C	0.74	3.00
100	35	90	S5D	0.66	3.20
100	40	90	S6D	0.66	3.20
440	35	100	S5E	0.60	3.30
110	40	100	S6E	0.60	3.30
150	35	100	S5E	0.44	3.90
150	40	100	S6E	0.44	3.90
165	40	100	S6E	0.40	4.10
220	40	100	S6E	0.30	4.10

(Note) Rated ripple current : 85°C , 120Hz ; ESR. : 20°C , 120Hz

LPM series Standard Ratings

		25	0V		
Rated capacitance	Case	(mm)	Casing	ESR	Rated ripple current
(μF)	φD	L	symbol	(Ω max.)	(Arms)
100	35 40		S55	0.66	1.90
110	35	40	S55	0.60	2.00
165	35	45	S56	0.40	2.45
180	35	50	S57	0.37	2.58
195	35	50	S57	0.34	2.68
210	35	50	S57	0.32	2.78
220	35	50	S57	0.30	2.80

	400V												
Rated capacitance	Case	(mm)	Casing	ESR	Rated ripple current								
(μF)	φD L		symbol	(Ω max.)	(Arms)								
45	35	50	S57	1.47	1.50								
55	35	40	S55	1.21	1.70								
75	35	50	S57	0.88	1.98								
82	35	50	S57	0.81	2.00								

(Note) Rated ripple current : 85°C , 120Hz ; ESR. : 20°C , 120Hz

105℃

LYX LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS



Screw Terminal, Long Life, High Temperature Capacitors



- · Screw Terminal, Long Life, High Temperature capacitors.
- Guarantees 5000 hours at 105°C.



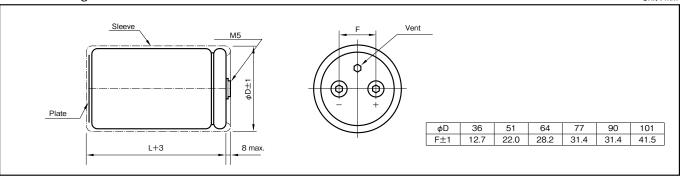


Marking color: Silver print on a black sleeve

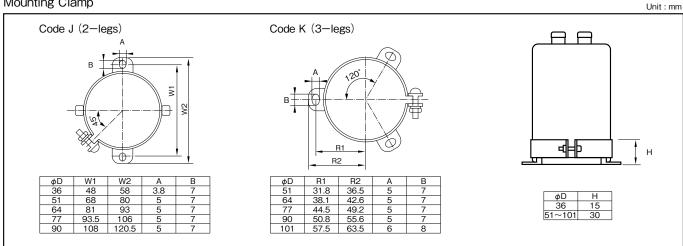
Specifications

Item		Performance								
Category temperature range (°C)		-40 to +105								
Tolerance at rated capacitance (%)		±20	(20°C,120Hz)							
Leakage current (μA) (max.)	0.01CV or 5mA whichever is larg	ter (after 5 minutes) C : Rated capacitance (μF) ; V : Rated voltage (V)	(20°C)							
Tangent of loss angle (tanδ)		0.20								
Endurance (105°C) (Applied ripple current)	Test time Leakage current Percentage of capacitance change Tangent of the loss angle	5000 hours The initial specified value or less Within ±20% of initial value 200% or less of the initial specified value								
Shelf life (105°C)	Test time Leakage current Percentage of capacitance change Tangent of the loss angle Voltage application treatment : According to JIS C5	1000 hours The initial specified value or less Within ±20% of initial value 200% or less of the initial specified value								
Applicable standards		JIS C5101-1, -4 (IEC 60384-1, -4)								

Outline Drawing Unit: mm



Mounting Clamp



Coefficient of Frequency for Bated Bipple Current

									Occiniolorit of Fre	quoiloy	ioi i iatoc	i i lippio (Janon	
Part numbering system (example : 400V3300μF)					Frequency (Hz) Rated voltage (V)	50	120	300	1k	10k				
LYX	_	400	V	332	М	DD0	В	m l	350 to 450	0.80	1	1.10	1.30	1.40
								1						

Series code

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS

Standard Ratings

		3	50V			400V						
Rated capacitance	Case	(mm)	Casing	ESR	Rated ripple current	Rated capacitance	Case	(mm)	Casing	ESR	Rated ripple current	
(μF)	φD	L	symbol	(mΩ max.)	(mArms)	(μF)	φD	L	symbol	(mΩ max.)	(mArms)	
1000	51	75	C75	259	3.9	1000	51	75	C75	215	3.9	
1200	51	75	C75	215	4.2	1200	51	96	C96	179	4.6	
1500	51	96	C96	172	5.2	1500	51	115	CB5	143	5.6	
1800	51	96	C96	143	5.7	1800	51	130	CD0	119	6.4	
2200	51	130	CD0	117	7.1	2200	64	96	D96	98	6.9	
2700	64	96	D96	96	7.7	2700	64	115	DB5	80	8.2	
3300	64	115	DB5	78	9.1	3300	64	130	DD0	65	9.5	
3900	64	130	DD0	66	10.4	3900	64	155	DF5	55	11.1	
4700	64	155	DF5	55	12.2	3900	77	115	EB5	55	10.4	
4700	77	115	EB5	55	11.5	4700	64	195	DJ5	46	13.4	
5600	64	195	DJ5	46	14.6	4700	77	130	ED0	46	12.0	
3000	77	130	ED0	46	13.1	5600	64	195	DJ5	39	14.6	
6800	77	155	EF5	38	15.5	5600	77	155	EF5	39	14.0	
8200	90	157	FF7	31	18.1	6800	90	157	FF7	32	16.5	
10000	90	157	FF7	26	19.9	8200	90	157	FF7	26	18.1	
12000	90	196	FJ6	22	23.8	10000	90	196	FJ6	22	21.7	
15000	90	236	FN6	17	28.8	12000	90	236	FN6	18	25.8	

		4:	50V			
Rated capacitance	Case	(mm)	Casing	ESR	Rated ripple current	
(μF)	φD	L	symbol	(mΩ max.)	(mArms)	
1000	51	96	C96	215	4.2	
1200	51	115	CB5	179	5.0	
1500	51	130	CD0	143	5.9	
1800	64	96	D96	119	6.3	
2200	64	115	DB5	98	7.4	
2700	64	130	DD0	80	8.6	
2700	77	115	EB5	80	8.7	
3300	64	155	DF5	65	10.2	
3300	77	130	ED0	65	10.1	
3900	64	195	DJ5	55	12.3	
4700	77	155	EF5	46	12.9	
5600	77	195	EJ5	38	15.4	
5600	90	157	FF7	38	14.9	
6800	90	196	FJ6	32	18.0	
8200	90	196	FJ6	27	19.8	
10000	90	236	FN6	22	23.6	

(Note) Rated ripple current : $105^{\circ}\!C$, 120Hz ; ESR. : $20^{\circ}\!C$, 120Hz

105℃



Screw Terminal, Long Life Capacitors



- · Screw Terminal, Long Life capacitors.
- Guarantees 20000 hours at 85°C.



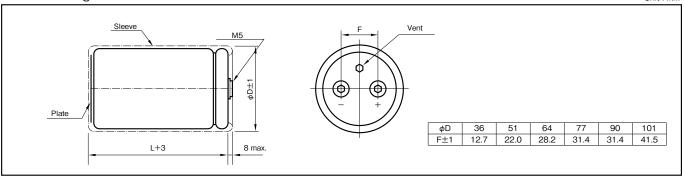


Marking color: Silver print on a black sleeve

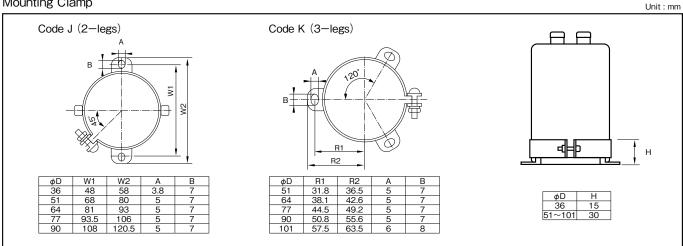
Specifications

Item		Performance	
Category temperature range (°C)		-40 to +85	
Tolerance at rated capacitance (%)		±20	(20°C,120Hz)
Leakage current (μA) (max.)	0.01CV or 5mA whichever is larg	ter (after 5 minutes) C : Rated capacitance (μF) ; V : Rated voltage (V)	(20°C)
Tangent of loss angle (tanδ)		0.20	(20°C,120Hz)
Endurance (85°C) (Applied ripple current)	Test time Leakage current Percentage of capacitance change Tangent of the loss angle	20000 hours The initial specified value or less Within ±20% of initial value 200% or less of the initial specified value	
Shelf life (85°C)	Test time Leakage current Percentage of capacitance change Tangent of the loss angle Voltage application treatment : According to JIS C5	1000 hours The initial specified value or less Within ±20% of initial value 200% or less of the initial specified value	
Applicable standards		JIS C5101-1, -4 (IEC 60384-1, -4)	

Outline Drawing Unit: mm



Mounting Clamp



Coefficient of Frequency for Bated Ripple Current

						Coefficient of Fre	quency	ioi naiec	i Libbie i	Juneni	
Part numbering system (example : 450V4700μF)					Frequency (Hz) Rated voltage (V)	50	120	300	1k	10k	
LYL — 450 V	/ 472	M	EF5	В		350 to 450	0.80	1	1.10	1.30	1.40

Series code



LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS LYL

Standard Ratings

		3	50V			400V					
Rated capacitance	Case	(mm)	Casing	ESR	Rated ripple current	Rated capacitance	Case	(mm)	Casing	ESR	Rated ripple current
(μF)	φD	L	symbol	(mΩ max.)	(mArms)	(μF)	φD	L	symbol	(mΩ max.)	(mArms)
1000	51	75	C75	259	3.9	1000	51	75	C75	215	3.9
1200	51	75	C75	215	4.2	1200	51	96	C96	179	4.6
1500	51	96	C96	172	5.2	1500	51	115	CB5	143	5.6
1800	51	96	C96	143	5.7	1800	51	130	CD0	119	6.4
2200	51	130	CD0	117	7.1	2200	64	96	D96	98	6.9
2700	64	96	D96	96	7.7	2700	64	115	DB5	80	8.2
3300	64	115	DB5	78	9.1	3300	64	130	DD0	65	9.5
3900	64	130	DD0	66	10.4	3900	64	155	DF5	55	11.1
4700	64	155	DF5	55	12.2	3900	77	115	EB5	55	10.4
4700	77	115	EB5	55	11.5	4700	64	195	DJ5	46	13.4
5600	64	195	DJ5	46	14.6	4700	77	130	ED0	46	12.0
3000	77	130	ED0	46	13.1	5600	64	195	DJ5	39	14.6
6800	77	155	EF5	38	15.5	5600	77	155	EF5	39	14.0
8200	90	157	FF7	31	18.1	6800	90	157	FF7	32	16.5
10000	90	157	FF7	26	19.9	8200	90	157	FF7	26	18.1
12000	90	196	FJ6	22	23.8	10000	90	196	FJ6	22	21.7
15000	90	236	FN6	17	28.8	12000	90	236	FN6	18	25.8

		4:	50V		
Rated capacitance	Case	(mm)	Casing	ESR	Rated ripple current
(μF)	φD	L	symbol	(mΩ max.)	(mArms)
1000	51	96	C96	215	4.2
1200	51	115	CB5	179	5.0
1500	51	130	CD0	143	5.9
1800	64	96	D96	119	6.3
2200	64	115	DB5	98	7.4
2700	64	130	DD0	80	8.6
2700	77	115	EB5	80	8.7
3300	64	155	DF5	65	10.2
3300	77	130	ED0	65	10.1
3900	64	195	DJ5	55	12.3
4700	77	155	EF5	46	12.9
5600	77	195	EJ5	38	15.4
3600	90	157	FF7	38	14.9
6800	90	196	FJ6	32	18.0
8200	90	196	FJ6	27	19.8
10000	90	236	FN6	22	23.6

(Note) Rated ripple current : $85^{\circ}\!\text{C}$, 120Hz ; ESR. : $20^{\circ}\!\text{C}$, 120Hz

LY6 LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS



Screw Terminal, Miniaturized, High Ripple Capacitors

- · Screw Terminal, Miniaturized, High Ripple capacitors.
- Guarantees 5000 hours at 85°C.



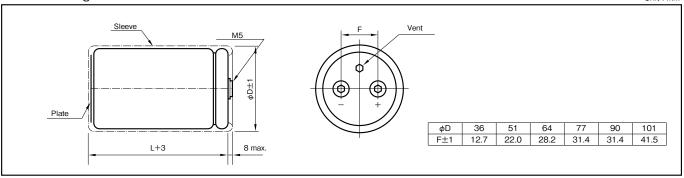


Marking color : Silver print on a black sleeve

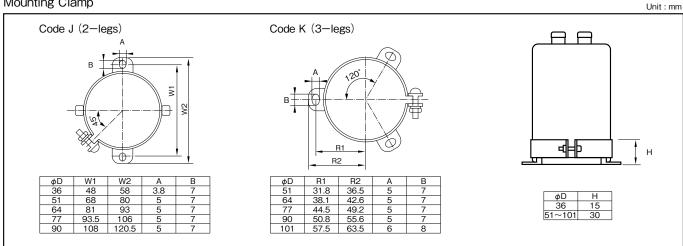
Specifications

Item		Performance							
Category temperature range (°C)		-25 to +85							
Tolerance at rated capacitance (%)		±20		(20	0°C,120Hz)				
Leakage current (μA) (max.)	0.01CV or 5mA whichever is larger (after 5 minutes) C : Rated capacitance (µF); V : Rated voltage (V) (20°C								
Tangent of loss angle	Rated voltage (V)	400, 450	500, 550	600					
tanδ)	tanδ (max.)	0.15	0.20	0.25					
(tailo)	-			(20	0°C,120Hz)				
	Test time	5000	hours						
Endurance (85°C)	Leakage current	The in	nitial specified value or less						
(Applied ripple current)	Percentage of capacitance change	Within							
	Tangent of the loss angle	200%	or less of the initial specified va	lue					
	Test time	1000	hours						
	Leakage current	The ii	nitial specified value or less						
Shelf life (85°C)	Percentage of capacitance change	Withi	n ±20% of initial value						
	Tangent of the loss angle	200%	or less of the initial specified va	lue					
	Voltage application treatment : According to JIS C5	101-4 4.1							
Applicable standards		JIS C5101-1, -4 (IEC 60384-	-1, -4)						

Outline Drawing Unit: mm



Mounting Clamp



Coefficient of Frequency for Bated Bipple Current

									Occiniolorit of Fre	quoiloy	ioi i iatoc	i i lippio (Janon	
Part nur	nberi	ng sys	tem	(example	: 400V1	2000μF	:)		Frequency (Hz) Rated voltage (V)	50	120	300	1k	10k
LY6	_	400	V	123	M	FF7	В	Г	400 to 600	0.80	1	1.10	1.30	1.40
								1						

CAT.No.2019/2020E

Series code

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS LY6

Standard Ratings

8200

10000

12000

101

90

101

101

175

236

195

237

GH5

FN6

GJ5

GN7

31

26

26

22

		4	00V			450V					
Rated capacitance	Case	(mm)	Casing	ESR	Rated ripple current	Rated capacitance	Case	(mm)	Casing	ESR	Rated ripple current
(μF)	ϕD	L	symbol	(mΩ max.)	(mArms)	(μF)	φD	L	symbol	(mΩ max.)	(mArms)
2200	51	115	CB5	98	8.8	1800	51	115	CB5	119	7.6
2700	51	130	CD0	80	10.2	2200	51	130	CD0	98	8.8
3300	64	96	D96	65	11.0	2700	64	96	D96	80	9.5
3900	64	115	DB5	55	12.8	3300	64	115	DB5	65	11.2
4700	64	130	DD0	46	14.8	3900	64	130	DD0	55	12.8
5600	77	115	EB5	38	16.2	4700	77	115	EB5	46	14.1
6800	77	130	ED0	32	18.7	5600	77	130	ED0	38	16.2
8200	77	155	EF5	26	22.0	6800	77	155	EF5	32	19.1
10000	77	195	EJ5	22	26.7	8200	77	195	EJ5	26	23.0
10000	90	131	FD1	22	24.2	8200	90	131	FD1	26	21.0
12000	90	157	FF7	18	28.5	10000	90	171	FH1	22	25.7
15000	90	196	FJ6	14	34.8	12000	90	196	FJ6	18	29.7
18000	90	236	FN6	12	41.2	12000	101	175	GH5	18	29.3
22000	101	237	GN7	10	47.0	15000	90	236	FN6	14	35.9
_	_	_	_	_	_	15000	101	195	GJ5	14	24.2
_	_	_	_	_	_	18000	101	237	GN7	12	40.5

		5	00V					5	50V		
Rated capacitance	Case	(mm)	Casing	ESR	Rated ripple current	Rated capacitance	Case	(mm)	Casing	ESR	Rated ripple current
(μF)	φD	L	symbol	$(\text{ m}\Omega\text{ max.})$	(mArms)	(μF)	φD	L	symbol	(mΩ max.)	(mArms)
1200	51	115	CB5	215	6.2	1000	51	130	CD0	258	5.9
1200	64	96	D96	215	6.3	1200	64	115	DB5	215	6.8
1500	51	130	CD0	172	7.3	1500	64	130	DD0	172	8.0
1500	64	96	D96	172	7.1	1800	77	115	EB5	143	8.7
1800	64	115	DB5	143	8.3	2200	77	130	ED0	117	10.1
2200	64	130	DD0	117	9.6	2700	77	155	EF5	96	12.0
2700	77	115	EB5	96	10.7	3300	77	155	EF5	78	13.3
3300	77	130	ED0	78	12.4	3900	90	157	FF7	66	15.5
3900	77	155	EF5	66	14.4	4700	90	171	FH1	55	17.6
4700	77	171	EH1	55	16.5	5600	90	196	FJ6	46	20.3
4700	90	131	FD1	55	15.8	6800	90	236	FN6	38	24.1
5000	77	195	EJ5	46	19.0	8200	101	237	GN7	31	27.3
5600	90	157	FF7	46	18.6						*
6800	90	171	FH1	38	21.2						
9200	90	196	FJ6	31	24.5						

24.2

29.3

27.9

33.1

	600V											
Rated capacitance	Case	(mm)	Casing	ESR	Rated ripple current							
(μF)	φD	L	symbol	(mΩ max.)	(mArms)							
1000	64	130	DD0	323	5.4							
1200	77	115	EB5	269	6.1							
1500	77	130	ED0	214	7.3							
1800	77	155	EF5	179	8.9							
2200	90	131	FD1	146	9.7							
2700	90	157	FF7	120	11.6							
3300	90	171	FH1	98	13.4							
3900	90	196	FJ6	83	16.2							
4700	90	196	FJ6	69	19.5							
5600	101	220	FM0	58	22.5							

(Note) Rated ripple current : 85°C , 120Hz ; ESR. : 20°C , 120Hz

85℃

LY5 LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS



Screw Terminal, Standard Capacitors



- · Screw Terminal, Standard capacitors.
- Guarantees 2000 hours at 85°C.



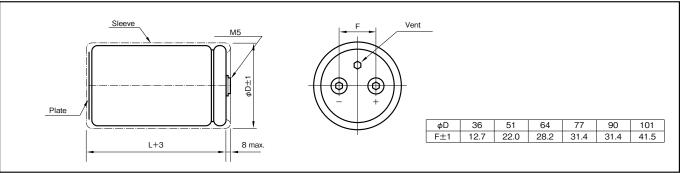


Marking color : Silver print on a black sleeve

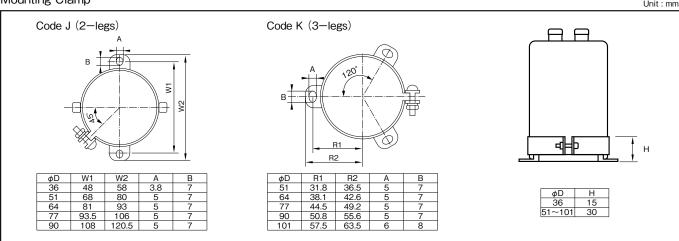
Specifications

Item	Perfo	rmance						
Category temperature range (°C)	-40 to +85	-25 to +85						
Rated voltage (V)	10 to 250	350 to 630						
Tolerance at rated capacitance (%)		±20	(20°C,120Hz)					
Leakage current (μA) (max.)	0.01CV or 5mA whichever is larger (after 5 minute	es) C : Rated capacitance (μF) ; V : Rated voltage (V)	(20°C)					
Tangent of loss angle (tanδ)	Refer to t	(20°C,120Hz)						
- (0.5°0)	Test time	2000 hours						
Endurance (85°C)	Leakage current	The initial specified value or less						
(Applied ripple current)	Percentage of capacitance change	Within ±20% of initial value						
	Tangent of the loss angle	200% or less of the initial specified value						
	Test time	1000 hours						
	Leakage current	The initial specified value or less						
Shelf life (85°C)	Percentage of capacitance change	Within ±20% of initial value						
	Tangent of the loss angle	200% or less of the initial specified value						
	Voltage application treatment : According to JIS C5101-4 4.1							
Applicable standards	JIS C5101-1,	4 (IEC 60384-1, -4)						

Outline Drawing Unit: mm



Mounting Clamp Unit: mm



Coefficient of Frequency for Rated Ripple Current

Part numbering system (example : 50V47000µF)										
LY5 — 50 V 473 M CB5 B 🗌										
Series code		Rated voltage symbol	_	Rated capacitance symbol	Capacitance tolerance symbol	Casing symbol	Optional symbol	Clamp code		

Frequency (Hz) Rated voltage (V)	50	120	300	1k	10k
10 to 50	0.95	1	1.04	1.10	1.15
63 to 160	0.95	1	1.06	1.16	1.30
200 to 500	0.80	1	1.10	1.25	1.50
600 to 630	0.80	1	1.10	1.30	1.40

ALUMINUM

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS LY5

Standard Ratings

	10V							1	6V					2	25V		
Rated capacitance	tanδ	Case	e (mm)	Casing	Rated ripple current	Rated capacitance	tanδ	Cas	e (mm)	Casing	Rated ripple current	Rated capacitance	tanδ	Case	(mm)	Casing	Rated ripple current
(μF)		φD	L	symbol	(mArms)	(μF)		φD	L	symbol	(mArms)	(μF)		φD	L	symbol	(mArms)
33,000	0.80	36	53	A53	4.3	22,000	0.60	36	53	A53	4.1	15,000	0.50	36	53	A53	3.7
39,000	0.80	36	53	A53	4.7	27,000	0.60	36	53	A53	4.5	18,000	0.50	36	53	A53	4.1
47,000	0.80	36	65	A65	5.2	33,000	0.60	36	53	A53	5.0	22,000	0.50	36	53	A53	4.5
56,000	0.80	36	83	A83	6.1	39,000	0.60	36	65	A65	5.9	27,000	0.50	36	65	A65	5.0
68,000	0.80	36	83	A83	6.7	47,000	0.60	36	83	A83	6.4	33,000	0.50	36	83	A83	5.9
82,000	0.80	36	100	AA0	7.7	56,000	0.60	36	83	A83	7.3	39,000	0.50	36	83	A83	6.7
100,000	0.80	36	101	AA1	8.8	68,000	0.60	36	100	AA0	8.4	47,000	0.50	36	100	AA0	7.7
120,000	0.80	36	121	AC1	10.0	82,000	0.80	36	100	AA0	8.3	56,000	0.60	36	100	AA0	7.9
150,000	1.00	36	121	AC1	10.8	100,000	0.80	36	121	AC1	9.5	68,000	0.60	36	121	AC1	9.2
180,000	1.00	51	96	C96	12.0	120,000	0.80	36	121	AC1	10.9	82,000	0.60	36	121	AC1	10.4
220,000	1.50	51	121	CC1	11.2	150,000	1.00	51	96	C96	11.3	100,000	0.60	51	96	C96	10.3
270,000	1.50	51	122	CC2	12.8	180,000	1.00	51	115	CB5	12.8	120,000	0.80	51	115	CB5	11.7
330,000	1.50	64	96	D96	15.3	220,000	1.00	51	130	CD0	15.3	150,000	0.80	51	130	CD0	14.1
390,000	1.50	64	115	DB5	17.3	270,000	1.00	64	96	D96	17.6	180,000	0.80	64	96	D96	15.7
470,000	2.00	64	130	DD0	16.7	330,000	1.50	64	115	DB5	16.8	220,000	1.00	64	115	DB5	16.1
560,000	2.00	77	115	EB5	19.0	390,000	1.50	64	130	DD0	18.3	270,000	1.00	64	130	DD0	18.6
680,000	2.00	77	130	ED0	21.7	470,000	1.50	77	115	EB5	21.3	330,000	1.00	64	155	DF5	21.9
820,000	2.00	77	155	EF5	24.7	560,000	1.50	77	130	ED0	23.6	390,000	1.20	77	115	EB5	22.0
_	_	_	_	_	_	680,000	1.50	77	155	EF5	27.6	470,000	1.20	77	155	EF5	25.6
_	_	_	_	_	_	820,000	2.00	90	157	FF7	27.1	560,000	1.20	90	131	FD1	27.9
_		_		_		_		_			_	680,000	1.20	90	157	FF7	32.5

		3	5V					5	0V					6	3V		
Rated capacitance	tanδ	Case	e (mm)	Casing	Rated ripple current	Rated capacitance	tanδ	Cas	e (mm)	Casing	Rated ripple current	Rated capacitance	tanδ	Case	(mm)	Casing	Rated ripple current
(μF)		φD	L	symbol	(mArms)	(μF)		φD	L	symbol	(mArms)	(μF)		ϕD	L	symbol	(mArms)
10,000	0.40	36	53	A53	3.4	5,600	0.30	36	53	A53	3.0	3,900	0.25	36	53	A53	2.7
12,000	0.40	36	53	A53	3.7	6,800	0.30	36	53	A53	3.3	4,700	0.25	36	53	A53	3.0
15,000	0.40	36	65	A65	4.2	8,200	0.30	36	53	A53	3.6	5,600	0.25	36	53	A53	3.3
18,000	0.40	36	83	A83	4.7	10,000	0.30	36	65	A65	4.0	6,800	0.25	36	65	A65	3.6
22,000	0.40	36	83	A83	5.7	12,000	0.30	36	83	A83	4.7	8,200	0.25	36	83	A83	4.3
27,000	0.40	36	100	AA0	6.3	15,000	0.30	36	83	A83	5.5	10,000	0.25	36	83	A83	4.9
33,000	0.40	36	100	AA0	7.2	18,000	0.30	36	100	AA0	6.2	12,000	0.25	36	100	AA0	5.6
39,000	0.50	36	121	AC1	8.3	22,000	0.40	36	121	AC1	6.3	15,000	0.30	36	100	AA0	5.9
47,000	0.50	51	96	C96	8.7	27,000	0.40	36	121	AC1	7.1	18,000	0.30	36	121	AC1	6.7
56,000	0.60	51	96	C96	8.6	33,000	0.40	51	96	C96	8.2	22,000	0.30	36	121	AC1	7.8
68,000	0.60	51	115	CB5	9.8	39,000	0.50	51	96	C96	8.1	27,000	0.40	51	96	C96	7.4
82,000	0.60	64	96	D96	11.6	47,000	0.50	51	115	CB5	9.3	33,000	0.40	51	96	C96	8.4
100,000	0.60	64	115	DB5	13.3	56,000	0.50	64	96	D96	10.5	39,000	0.40	51	115	CB5	9.5
120,000	0.80	64	121	DC1	14.8	68,000	0.50	64	96	D96	12.0	47,000	0.40	51	130	CD0	11.3
150,000	0.80	64	130	DD0	14.9	82,000	0.50	64	115	DB5	13.7	56,000	0.40	64	115	DB5	12.8
180,000	0.80	77	115	EB5	17.0	100,000	0.60	77	115	EB5	14.7	68,000	0.50	64	121	DC1	12.7
220,000	0.80	77	130	ED0	20.0	120,000	0.60	77	115	EB5	16.7	82,000	0.50	64	130	DD0	14.5
270,000	1.00	77	155	EF5	20.3	150,000	0.60	77	130	ED0	19.3	100,000	0.50	77	115	EB5	16.7
330,000	1.00	90	131	FD1	23.5	180,000	0.60	77	155	EF5	21.9	120,000	0.50	77	130	ED0	18.9
390,000	1.00	90	157	FF7	26.4	220,000	0.60	90	131	FD1	21.4	150,000	0.50	77	155	EF5	22.4
470,000	1.00	90	157	FF7	29.6	270,000	0.60	90	157	FF7	24.6	180,000	0.60	90	131	FD1	22.4
_	_	_	-	_	_	_	_	_	_	_	_	220,000	0.60	90	157	FF7	26.2

		8	0V					10	00V		
Rated capacitance	tanδ	Case	e (mm)	Casing	Rated ripple current	Rated capacitance	tanδ	Cas	e (mm)	Casing	Rated ripple current
(μF)		φD	L	symbol	(mArms)	(μF)		φD	L	symbol	(mArms)
3,300	0.25	36	53	A53	2.5	1,800	0.25	36	53	A53	1.9
3,900	0.25	36	53	A53	2.8	2,200	0.25	36	53	A53	2.1
4,700	0.25	36	65	A65	3.0	2,700	0.25	36	53	A53	2.3
5,600	0.25	36	83	A83	3.6	3,300	0.25	36	65	A65	2.6
6,800	0.25	36	83	A83	3.9	3,900	0.25	36	83	A83	3.0
8,200	0.25	36	83	A83	4.5	4,700	0.25	36	83	A83	3.5
10,000	0.25	36	100	AA0	5.2	5,600	0.25	36	100	AA0	3.9
12,000	0.25	36	100	AA0	5.9	6,800	0.25	36	100	AA0	4.5
15,000	0.25	36	121	AC1	6.8	8,200	0.25	36	121	AC1	5.1
18,000	0.25	36	121	AC1	7.8	10,000	0.25	36	121	AC1	5.9
22,000	0.30	51	96	C96	8.0	12,000	0.25	51	75	C75	6.4
27,000	0.30	51	96	C96	9.2	15,000	0.25	51	96	C96	7.0
33,000	0.30	51	115	CB5	10.5	18,000	0.25	51	115	CB5	8.3
39,000	0.30	51	130	CD0	12.0	22,000	0.25	51	130	CD0	10.0
47,000	0.30	64	115	DB5	13.6	27,000	0.25	64	115	DB5	11.5
56,000	0.40	64	130	DD0	13.4	33,000	0.25	64	130	DD0	11.9
68,000	0.40	77	115	EB5	15.4	39,000	0.25	77	115	EB5	13.4
82,000	0.40	77	130	ED0	17.5	47,000	0.35	77	130	ED0	14.2
100,000	0.40	77	155	EF5	20.5	56,000	0.35	77	155	EF5	16.0
120,000	0.40	90	131	FD1	22.4	68,000	0.35	90	131	FD1	18.8
150,000	0.40	90	157	FF7	26.5	82,000	0.35	90	157	FF7	20.5
_		_	_	_	_	100,000	0.35	90	171	FH1	24.0

(Note) Rated ripple current : 85° C , 120Hz

[•] The standard ratings follow the next page.

LY5 LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS



Standard Ratings

		16	0V					20	VOC					2	50V		
Rated capacitance	tanδ	Case	e (mm)	Casing	Rated ripple current	Rated capacitance	tanδ	Case	e (mm)	Casing	Rated ripple current	Rated capacitance	tan δ	Case	(mm)	Casing	Rated ripple current
(μF)		φD	L	symbol	(mArms)	(μF)		φD	L	symbol	(mArms)	(μF)		φD	L	symbol	(mArms)
3,300	0.25	36	121	AC1	5.2	2,200	0.25	36	100	AA0	3.9	1,500	0.25	36	100	AA0	3.2
4,700	0.25	51	75	C75	5.9	3,300	0.25	51	75	C75	4.9	2,200	0.25	51	75	C75	4.0
5,600	0.25	51	96	C96	7.0	4,700	0.25	51	96	C96	6.4	3,300	0.25	51	96	C96	5.4
6,800	0.25	51	96	C96	7.8	5,600	0.25	51	115	CB5	7.6	4,700	0.25	64	96	D96	7.1
10,000	0.25	64	96	D96	10.4	6,800	0.25	51	130	CD0	8.8	6,800	0.25	64	115	DB5	9.1
12,000	0.25	51	120	CC0	11.3	8,200	0.25	64	96	D96	9.4	8,200	0.25	64	115	DB5	10.0
15,000	0.25	64	130	DD0	14.3	10,000	0.25	64	96	D96	10.4	10,000	0.25	64	130	DD0	11.7
18,000	0.25	64	130	DD0	15.6	15,000	0.25	77	96	E96	14.4	15,000	0.25	77	130	ED0	15.1
22,000	0.25	77	130	ED0	18.3	18,000	0.25	77	130	ED0	16.5	18,000	0.25	77	155	EF5	17.7
33,000	0.25	90	131	FD1	23.8	22,000	0.25	77	150	EF0	19.6	22,000	0.25	90	157	FF7	20.9
39,000	0.25	90	157	FF7	27.9	33,000	0.25	90	157	FF7	25.3	_	_	_	_	_	_

		3	50V					40	VOC					4	50V		
Rated capacitance	tanδ	Case	e (mm)	Casing	Rated ripple current	Rated capacitance	tanδ	Case	e (mm)	Casing	Rated ripple current	Rated capacitance	tan δ	Case	(mm)	Casing	Rated ripple current
(μF)		φD	L	symbol	(mArms)	(μF)		φD	L	symbol	(mArms)	(μF)		φD	L	symbol	(mArms)
470	0.20	36	83	A83	2.2	470	0.20	36	83	A83	2.2	470	0.20	36	83	A83	2.2
680	0.20	36	83	A83	2.6	680	0.20	36	100	AAO	2.8	680	0.20	36	100	AA0	2.8
1,000	0.20	36	100	AA0	3.4	1,000	0.20	51	75	C75	3.5	820	0.20	51	75	C75	3.2
1,500	0.20	51	75	C75	4.3	1,200	0.20	51	75	C75	3.8	1,000	0.20	51	75	C75	3.5
1,800	0.20	51	96	C96	5.1	1,500	0.20	51	96	C96	4.7	1,200	0.20	51	96	C96	4.2
2,200	0.20	51	96	C96	5.7	1,800	0.20	51	96	C96	5.2	1,500	0.20	51	115	CB5	5.0
2,700	0.20	51	130	CD0	7.1	2,200	0.20	51	120	CC0	6.4	1,800	0.20	51	130	CD0	5.9
3,300	0.20	51	130	CD0	7.9	2,700	0.20	64	96	D96	7.0	2,200	0.20	64	96	D96	6.3
3,900	0.20	64	115	DB5	9.0	3,300	0.20	64	115	DB5	8.2	2,700	0.20	64	115	DB5	7.5
4,700	0.20	64	130	DD0	10.3	3,900	0.20	64	130	DD0	9.4	3,300	0.20	64	130	DD0	8.7
5,600	0.20	77	115	EB5	11.4	4,700	0.20	77	115	EB5	10.4	3,900	0.20	77	115	EB5	9.5
6,800	0.20	77	130	ED0	13.1	5,600	0.20	77	130	ED0	11.9	4,700	0.20	77	130	ED0	10.9
8,200	0.20	77	155	EF5	15.4	6,800	0.20	77	155	EF5	14.1	5,600	0.20	77	155	EF5	12.8
10,000	0.20	90	157	FF7	18.1	8,200	0.20	90	157	FF7	16.4	6,800	0.20	90	157	FF7	15.0
12,000	0.20	90	157	FF7	20.0	10,000	0.20	90	157	FF7	18.3	8,200	0.20	90	157	FF7	16.5
15,000	0.20	90	196	FJ6	24.5	12,000	0.20	90	196	FJ6	21.8	10,000	0.20	90	196	FJ6	20.0
18,000	0.20	90	236	FN6	28.8	15,000	0.20	90	236	FN6	26.3	12,000	0.20	90	236	FN6	23.6

		50	VOC					6	V00					6	30V		
Rated capacitance	tanδ	Cas	e (mm)	Casing	Rated ripple current	Rated capacitance	tanδ	Cas	e (mm)	Casing	Rated ripple current	Rated capacitance	tan δ	Case	(mm)	Casing	Rated ripple current
(μF)		φD	L	symbol	(mArms)	(μF)		φD	L	symbol	(mArms)	(μF)		φD	L	symbol	(mArms)
1,000	0.25	51	115	CB5	4.6	1,200	0.25	64	96	D96	7.7	1,000	0.30	64	130	DD0	6.0
1,500	0.25	64	96	D96	5.7	1,500	0.25	64	115	DB5	9.3	1,200	0.30	77	115	EB5	6.7
2,200	0.25	64	130	DD0	6.9	1,800	0.25	77	96	E96	10.1	1,500	0.30	77	130	ED0	8.1
2,700	0.25	77	115	EB5	8.1	2,200	0.25	77	115	EB5	12.0	1,800	0.30	77	155	EF5	9.8
3,300	0.25	77	130	ED0	9.6	2,700	0.25	77	130	ED0	14.0	2,200	0.30	90	131	FD1	10.7
3,900	0.25	77	130	ED0	10.8	3,300	0.25	77	155	EF5	16.4	2,700	0.30	90	157	FF7	12.8
4,700	0.25	77	155	EF5	12.1	3,300	0.25	90	131	FD1	16.4	3,300	0.30	90	171	FH1	14.7
5,600	0.25	90	157	FF7	13.8	3,900	0.25	90	131	FD1	17.8	3,900	0.30	90	196	FJ6	17.9
6,800	0.25	90	171	FH1	15.8	4,700	0.25	90	157	FF7	21.0	4,700	0.30	90	196	FJ6	21.6
8,200	0.25	77	220	EM0	17.2	5,600	0.25	90	196	FJ6	24.5	5,600	0.30	101	220	FM0	24.9
10,000	0.25	90	236	FN6	22.1												

(Note) Rated ripple current : 85°C , 120Hz

Aluminum Electrolytic Capacitors

Conductive Polymer Hybrid Aluminum Electrolytic Capacitors

Aluminum Electrolytic Capacitors With Conductive Polymer Solid Electrolyte

Chip Type Aluminum Electrolytic Capacitors

Miniature Type Aluminum Electrolytic Capacitors

Large Capacitance Aluminum Electrolytic Capacitors

Aluminum Electrolytic Capacitors for Audio





Chip Type Audio Use Capacitors



- · Audio grade surface mount product with completely new components using synthetic mica paper for the separator.
- · Both quality sense and sound field that could not be realized by the surface mount products are reproducible.

For higher grade







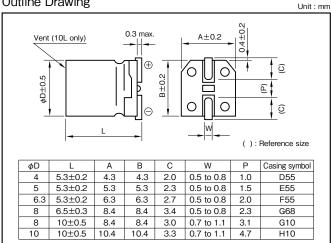


Marking color : Black print (φ4 to φ10) There are also white print on a brown sleeve ($\phi 8 \times 10L$, $\phi 10 \times 10L$)

Specifications

Item			F	Performance									
Category temperature range (°C)			-	-40 to +85									
Tolerance at rated capacitance (%)				±20				(20℃	;,120Hz)				
Leakage current (μΑ) (max.)	0.01	CV or 3 whichever is larg	ger (after 2 min	utes) C : Rated	l capacitance (μ	F); V: Rated v	oltage (V)		(20°C)				
Tangent of loss angle	Rated vol	tage (V)	6.3	10	16	25	35	50	ا ر				
	tanδ (i	max.)	0.28	0.24	0.20	0.14	0.12	0.10					
(tanδ)								(20℃	,120Hz)				
	Rated vol	tage (V)	6.3	10	16	25	35	50					
Characteristics at high	Impedance ratio (max.)	Z-25°C/Z+20°C	3	3	2	2	2	2					
and low temperature	impedance ratio (max.)	Z-40°C/Z+20°C	8	5	4	3	3	3					
									(120Hz)				
	Test	time		2000) hours								
Endurance (85°C)	Leakage	current		The i	initial specified	value or less							
(Applied ripple current)	Percentage of cap	acitance change		Withi	in ±20% of initi	al value							
	Tangent of the loss angle 200% or less of the initial specified value												
Shelf life (85°C)	Test time: 1000h	Test time: 1000hours; other items are same as the endurance. Voltage application treatment: According to JIS C5101-4 4.1											
Applicable standards			JIS C5101-1,	-18 (IEC 60384	4-1, -18)								

Outline Drawing



- · Soldering conditions are described on page 15.
- Land pattern size are described on page 13.
- The taping specifications are described on page 16.

Standard Ratings

Coefficient of	Frequency	for Rated	Ripple	Current

	,			
Frequency (Hz) Rated voltage (V)	50	120	1k	10k • 100k
6.3 to 16	0.80	1	1.15	1.25
25 to 35	0.80	1	1.25	1.40
50	0.80	1	1.35	1.50

RVO -	_	16	٧	470	М	F55	P2U —	
Series code		Rated voltage symbol		Rated capacitance symbol	Capacitance tolerance symbol	Casing symbol		Taping symbol
φ8×10 (exa	amp	le : 16V330	ΟμΓ	=)				
RVO -	_	16	٧	331	М	G10	Y1 U —	
Series code		Rated voltage symbol		Rated capacitance symbol	Capacitance tolerance symbol	Casing symbol		Taping
φ10×10 (ε	exar	nple : 16V4	170)μF)				
RVO -		16	٧	471	М	H10	E U —	
		Rated voltage		Rated capacitance	Capacitance	Casing		Taping

^{*} Please inquire sleeve type P/N.

Otario	uaiu na	111160											
R	lated voltage (V)	6	.3	1	0	1	6	2	25	3	35	5	50
Rated	Item	Case	Rated ripple current	Case	Rated ripple current	Case	Rated ripple current	Case	Rated ripple current	Case	Rated ripple current	Case	Rated ripple current
capacitar	nce (µF)	φD×L (mm)	(mArms)	ϕ D×L (mm)	(mArms)	ϕ D×L (mm)	(mArms)	φD×L (mm)	(mArms)	φD×L (mm)	(mArms)	φD×L (mm)	(mArms)
	0.33	_	_	_	_	_	_	_	_	_	_	4×5.3	6
	0.47	_	_	_	_	_	_	_	_	_	_	4×5.3	7
	1	_	_	_	_	_	_	_	_	_	_	4×5.3	10
	2.2	_	_	_	_	_	_	_	_	_	_	4×5.3	15
	3.3	_	_	_	_	_	_	_	_	4×5.3	17	4×5.3	19
	4.7	l	_	_		4×5.3	18	4×5.3	19	4×5.3	20	5×5.3	26
	10	_	_	4×5.3	23	4×5.3	26	5×5.3	32	5×5.3	34	6.3×5.3	44
	22	4×5.3	31	5×5.3	40	5×5.3	44	6.3×5.3	55	6.3×5.3	59	8×6.5	124
	33	5×5.3	44	5×5.3	49	6.3×5.3	63	6.3×5.3	67	8×6.5	124	8×6.5	124
	47	5×5.3	53	6.3×5.3	68	6.3×5.3	76	8×6.5	124	8×6.5	124	8×10	200
1	00	6.3×5.3	90	6.3×5.3	99	8×6.5	124	8×6.5	137	8×10	200	10×10	366
2	20	8×6.5	149	8×6.5	149	8×10	200	8×10	235	10×10	366	_	_
3	30	8×6.5	160	8×10	226	8×10	245	10×10	366		_		_
4	70	8×10	251	10×10	366	10×10	366	_	_	_	_	_	_
10	000	10×10	423				_	1	_		_		

(Note) Rated ripple current: 85°C, 120Hz.





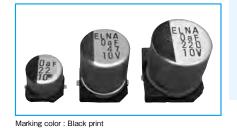
VERTICAL CHIP TYPE ALUMINUM ELECTROLYTIC CAPACITORS FOR AUDIO

Chip Type,For Audio,High Grade(SILMIC) Capacitors



- · Silk fiber paper products used surface mount device.
- Completely new audio products for the high-grade paper using silk fiber paper.
- ·Silk "flexibility" to reduce the vibration energy of the music, in the sense of high-frequency peak, a significant decrease in roughness of the midrange and bass increase.

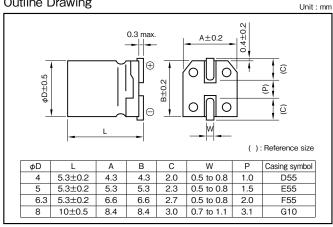




Specifications

<u> </u>												
Item			Performance									
Category temperature range (°C)			-40 to +85									
Tolerance at rated capacitance (%)			±20		(20°C,1	120Hz)						
Leakage current (μΑ) (max.)			/ or 3 whichever is larger (a ed capacitance (μF) , V : Ra			(20°C)						
	Rated vo	Itage (V)	10	16	50	1						
Tangent of loss angle	tanδ (max.)	0.32	0.26	0.12	1						
(tanδ)				(20℃,1	120Hz)							
	Rated vo	Itage (V)	10	16	50							
Characteristics at high and	Impedance ratio (max.)	Z-25°C/Z+20°C	3	2	2	1 1						
low temperature	impedance ratio (max.)	Z-40°C/Z+20°C	8	4	4]						
					(1	120Hz)						
	Test	time	2000) hours		1						
	Leakage		The i	nitial specified value or less		1						
Endurance (85°C)	Percentage of cap		Withi	n ±20% of initial value		1						
	Tangent of the	e loss angle	200%	6 or less of the initial specified	value]						
Shelf life (85°C)	Test time : 500ho	Test time: 500hours; other items are same as the endurance. Voltage application treatment: According to JIS C5101-4 4.1										
Applicable standards		JI	S C5101-1, -18 (IEC 6038-	4-1, -18)								

Outline Drawing



Coefficient of Frequency for Rated Ripple Current

Frequency (Hz) Rated voltage (V)	50	120	1k	10k·100k
10 to 16	0.80	1	1.15	1.25
50	0.80	1	1.35	1.50

Part number	Part numbering system (example : 16V10μF)									
RVF —	16	٧	100	М	E55	U —				
Series code	Rated voltage symbol		Rated capacitance symbol	Capacitance tolerance symbol	Casing symbol		Taping symbol			

- · Soldering conditions are described on page 15.
- Land pattern size are described on page 13.
- The taping specifications are described on page 16.

Standard Ratings

Rated voltage (V)	1	0	1	6	5	60
Rated (µF)		Rated ripple current (mArms)	Case φD×L (mm)	Rated ripple current (mArms)	Case φD×L (mm)	Rated ripple current (mArms)
1	_	_	_	_	4×5.3	7
2.2	_	_	_	_	5×5.3	11
3.3	_			_	6.3×5.3	16
4.7	_	_	4×5.3	10	6.3×5.3	19
10	5×5.3	15	5×5.3	16	8×10	41
22	6.3×5.3	25	6.3×5.3	28	_	_
33	6.3×5.3	31	8×10	50	-	_
47	8×10	54	8×10	60		_
100	8×10	79	8×10	87	_	_

(Note) Rated ripple current : 85°C, 120Hz.





Chip Type, For Audio, High Grade Capacitors

- New developed Al-Foil and Electrolyte for Audio grade allow lower distortion.
- · New range of bright and smooth sound is achieved in SMD area.
- Guarantees 2000 hours 105℃.

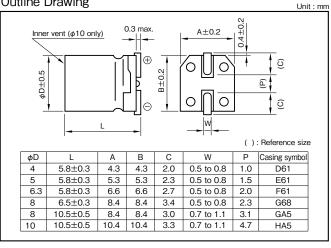
High temperature, Long life RVMRVG



Marking color: Black print

Specifications					Marking	color : Black prir	nt		
Item			ſ	Performance					
Category temperature range (°C)			_	-55 to +105					
Tolerance at rated capacitance (%)		±20						(20℃	C,120Hz)
Leakage current (μA) (max.)				never is larger (a nnce (μF), V: Ra					(20°C)
Toward of loss and	Rated vo	Itage (V)	6.3	10	16	25	35	50	\neg
Tangent of loss angle	tanδ (max.)	0.28	0.24	0.20	0.16	0.13	0.12	7
(tanδ)								(20℃	C,120Hz)
	Rated vo	tage (V)	6.3	10	16	25	35	50	$\overline{}$
Characteristics at high and	Impedance ratio (may)	Z-25°C/Z+20°C	2	2	2	2	2	2	7
low temperature	Impedance ratio (max.)	Z-55°C/Z+20°C	8	4	4	3	3	3	
									(120Hz)
	Test	time		2000) hours				\neg
Factoria (105°0)	Leakage	current		The i	initial specified	value or less			٦
Endurance (105°C)	Percentage of cap	acitance change		Withi	in ±30% of initi	al value			٦
	Tangent of th	e loss angle		3009	% or less of the	initial specified	value]
Shelf life (105°C)	Test time: 1000h	ours ; other items are sar	me as the endur	ance. Voltage	application trea	tment : Accordi	ng to JIS C510	1-4 4.1	
Applicable standards			JIS C5101-1,	-18 (IEC 6038	4-1, -18)				-

Outline Drawing



Coefficient of Frequency for Rated Ripple Current

Rated v	Frequency (Hz)	50	120	1k	10k • 100k
	6.3 to 16	0.80	1	1.15	1.25
	25 to 35	0.80	1	1.25	1.40
50	1 to 3.3μF	0.50	1	1.35	1.50
30	4.7μF or more	0.70	1	1.35	1.50

Part num	ıbe	ering sy	ste	m (exan	nple : 6.3V	220µF	=)	
RVM -	_	6	٧	221	М	GA5	P U—	R2
Series code		Rated voltage symbol		Rated capacitance symbol	Capacitance tolerance symbol	Casing symbol	-	Taping symbol

- · Soldering conditions are described on page 15.
- Land pattern size are described on page 13.
- The taping specifications are described on page 16.

Standard Ratings

Rated voltage	ge (V) (6.3	1	0	1	6	2	25	3	35	5	50
Rated I	tem Case	Rated ripple current	Case	Rated ripple current	Case	Rated ripple current	Case	Rated ripple current	Case	Rated ripple current	Case	Rated ripple current
capacitance (µF)	φD×L (mm)	(mArms)	φD×L (mm)	(mArms)	φD×L (mm)	(mArms)	φD×L (mm)	(mArms)	φD×L (mm)	(mArms)	φD×L (mm)	(mArms)
1	_	_	_	_	_	_	_	_	_	_	4×5.8	7
2.2	_	_	-	_	_	_	_	_	_	_	4×5.8	10
3.3	_	_	_	_	_	_	_	_	_	_	4×5.8	12
4.7	_	_	_	_	4×5.8	11	4×5.8	13	4×5.8	14	5×5.8	17
10	_	_	4×5.8	15	4×5.8	17	5×5.8	21	5×5.8	24	6.3×5.8	29
22	4×5.8	21	5×5.8	26	5×5.8	28	6.3×5.8	37	6.3×5.8	41	8×6.5	52
33	5×5.8	29	5×5.8	32	6.3×5.8	41	6.3×5.8	45	8×6.5	62	8×10.5	75
47	5×5.8	35	6.3×5.8	44	6.3×5.8	48	8×6.5	66	8×10.5	86	8×10.5	90
100	0.075.0	60	0,40,5	79	8×6.5	86	01405	110	10710 5	1.45	10//10 5	151
100	6.3×5.8	60	8×6.5	/9	8×10.5	101	8×10.5	113	10×10.5	145	10×10.5	151
000	0 × 1 0 5	107	0740.5	137	8×10.5	150	101/105	104	10710 5	010		
220	8×10.5	127	8×10.5	13/	10×10.5	174	10×10.5	194	10×10.5	216	_	_
330	8×10.5	156	10×10.5	194	10×10.5	213	_	_	_	_	_	_
470	10×10.5	215	10×10.5	232	10×10.5	254	_	_	_	_	_	_

(Note) Rated ripple current : 105°C, 120Hz.



VERTICAL CHIP TYPE ALUMINUM ELECTROLYTIC CAPACITORS FOR AUDIO

Chip Type Audio Use Capacitors



- New developed Al-Foil and Electrolyte for Audio grade allow lower
- New range of bright and smooth sound is achieved in SMD area.



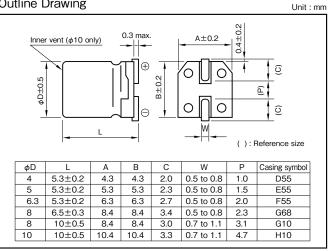
Marking color: Black print

Specifications

distortion.

Item			Pe	rformance				
Category temperature range (°C)				10 to +85				
Tolerance at rated capacitance (%)				±20			(20°C,1	20Hz)
Leakage current (μA) (max.)	C	.01CV or 3 whichever is	larger (after 2 minu	es) C : Rated capac	citance (μF) ; V : Rat	ed voltage (V)		(20°C)
Tangent of less angle	Rated vol	tage (V)	6.3	10	16	25	35	7
Tangent of loss angle	tanδ (i	max.)	0.28	0.24	0.20	0.16	0.14	
(tanδ)							(20°C,1	20Hz)
	Rated vol	tage (V)	6.3	10	16	25	35	$\neg \neg$
Characteristics at high	Impedance ratio (max.)	Z-25°C/Z+20°C	4	3	2	2	2	
and low temperature	impedance ratio (max.)	Z-40°C/Z+20°C	8	5	4	3	3	
							(1	20Hz)
	Test	time		2000 hour	S			7
Endurance (85°C)	Leakage	current		The initial	specified value or les	SS		7
(Applied ripple current)	Percentage of cap	acitance change		Within ±2	0% of initial value			7
	Tangent of th	e loss angle		200% or le	ess of the initial spec	ified value]
Shelf life (85°C)	Test time : 50	Ohours ; other items are s	ame as the endurar	ce. Voltage applica	ation treatment : Acc	cording to JIS C510	1-4 4.1	
Applicable standards			JIS C5101-1, -	8 (IEC 60384-1, -1	8)			

Outline Drawing



Coefficient of Frequency for Rated Ripple Current

		1-1-		
Frequency (Hz Rated voltage (V)	50	120	1k	10k • 100k
6.3 to 16	0.80	1	1.15	1.25
25 to 35	0.80	1	1.25	1.40

Part n	umbe	ring syst	tem	(example	e : 16V47	μF)		
RVG	_	16	٧	470	М	F55	U —	
Series co	de	Rated voltage symbol		Rated capacitance symbol	Capacitance tolerance symbol	Casing		Taping symbol

- · Soldering conditions are described on page 15.
- Land pattern size are described on page 13.
- •The taping specifications are described on page 16.

Standard Ratings

Rated voltage (V)	6	.3	1	0	1	6	2	25	3	35
Item	Case	Rated ripple current	Case	Rated ripple current	Case	Rated ripple current	Case	Rated ripple current	Case	Rated ripple current
Rated capacitance (µF)	φD×L (mm)	(mArms)	ϕ D×L (mm)	(mArms)	ϕ D×L (mm)	(mArms)	φD×L (mm)	(mArms)	φD×L (mm)	(mArms)
3.3	_	-	_	_	_	-	_	-	4×5.3	11
4.7	_	_	_	_	4×5.3	11	4×5.3	12	4×5.3	13
10	-	_	_	_	5×5.3	19	5×5.3	21	5×5.3	22
22	4×5.3	20	_	_	5×5.3	28	6.3×5.3	36	6.3×5.3	39
33	5×5.3	29	5×5.3	31	6.3×5.3	40	6.3×5.3	44	8×6.5	60
47	5×5.3	34	6.3×5.3	43	6.3×5.3	47	8×6.5	66	8×10	82
100	6.3×5.3	58	8×6.5	79	8×6.5	87	8×10	112	10×10	139
220	8×6.5	107	8×10	136	8×10	149	10×10	192	_	_
330	8×10	153	8×10	166	10×10	221	_	_	-	_
470	8×10	183	10×10	229	_	_	_	_	1	_

(Note) Rated ripple current : 85°C, 120Hz

85℃





ROB

■ SILMIC series Silk fiber using audio purpose capacitor

- ELNA developed new raw material for the separate paper which use a silk fibers. Therefore, this capacitor can give you high grade sound for your audio design.
- Due to the silk fiber's pliability, the capacitor makes a dream of the high quality sound.

For examples:

- To relieve the music's vibration energy.
- To decrease the peak feeling sound at high compass and rough quality sound at middle compass.
- To increase massive sound at low compass.
- · For bipolar capacitors, consult with us.



For higher grade For higher grade

ROA

Marking color: White print on a brown sleeve

Miniature High Grade Capacitors for Audio(SILMIC II)

RFS

For higher grade

ROS

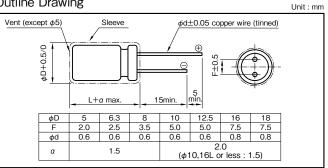
- All lead wires oxygen-free copper for extremely low distortion. (Third high frequency distortion 10kHz,0.1A,-120dB or less)

· "SILMIC II" mark on sleeve.

Specifications

Item			Perform	nance					
Category temperature range (°C)			-40 to	+85					
Tolerance at rated capacitance (%)			±2	0					(20°C,120Hz)
Leakage current (μA) (max.)	0.01CV or 3 whichever i	s larger (after	5 minutes) C	: Rated cap	acitance (μF	; V : Rated	l voltage (V)		(20°C)
Tangent of loss angle	Rated voltage (V)	6.3	10	16	25	35	50	63	100
(tanδ)	tanδ (max.)	0.20	0.17	0.13	0.10	0.10	0.08	80.0	0.08
(tailo)	0.02 is added to every 1000µF increase over 100	2 is added to every 1000μF increase over 1000μF (20°C,12							(20°C,120Hz)
	Test time		10	00 hours					
Endurance (85°C)	Leakage current		The	e initial spec	ified value or	less			
(Applied ripple current)	Percentage of capacitance change		Wit	thin ±20% o	f initial value)			
	Tangent of the loss angle		15	0% or less o	f the initial s	pecified valu	ie		
Shelf life (85°C)	Test time: 1000hours; other items are	same as the	endurance.	Voltage app	lication trea	tment : Acco	ording to JIS	C5101-4 4.	1
Applicable standards		JIS C5101-1, -4 (IEC 60384-1, -4)							

Outline Drawing



Coefficient of Frequency for Rated Ripple Current

Rated voltage (V)	Frequency (Hz)	50 · 60	120	1k	10k	100k
6.3 to 16	All CV value	0.8	1	1.1	1.2	1.2
25 to 35	≤1000	0.8	1	1.5	1.7	1.7
25 10 35	1000<	0.8	1	1.2	1.3	1.3
50 to 100	≤1000	0.8	1	1.6	1.9	1.9
50 10 100	1000<	0.8	1	12	1.3	1.3

Part number	Part numbering system (example : 25V100µF)											
RFS —	25	٧	101	М	H4	#5						
Series code	Rated voltage symbol		Rated capacitance symbol	Capacitance tolerance symbol	Casing symbol			Taping (Forming) symbol				

Case symbol

Case	Casing	Case	Casing	Case	Casing	Case	Casing
ϕ D×L (mm)	Symbol	ϕ D×L (mm)	Symbol	$\phi D \times L (mm)$	Symbol	φD×L (mm)	Symbol
5×11	E3	10×12.5	H3	12.5×20	I5	16×31.5	J7
6.3×11	F3	10×16	H4	12.5×25	16	16×35.5	J8
8×11.5	G3	10×20	H5	16×25	J6	18×35.5	K8
		·	-		-	18×40	K9

Standard Ratings

Stari	otaliualu natiligs																
	Rated voltage (V)	6.	.3	1	0	1	6	2		3	5	5		6		10	00
Rated	Item	Case	Rated ripple current	Case	Rated ripple current	Case	Rated ripple current	Case	Rated ripple current	Case	Rated ripple current	Case	Rated ripple current	Case	Rated ripple current	Case	Rated ripple current
capacita	ance (µF)	φD×L (mm)	(mArms)	φD×L (mm)	(mArms)	φD×L (mm)	(mArms)	φD×L (mm)	(mArms)	φD×L (mm)	(mArms)	φD×L (mm)	(mArms)	φD×L (mm)	(mArms)	φD×L (mm)	(mArms)
	3.3				_						_	5×11	25	5×11	30		
	5.5											6.3×11	30	3/11			
	4.7	_		_	_	_	_	5×11	25	5×11	30	5×11	35	5×11	35		
	4.7							5/11	20	5/11	30	6.3×11	40	6.3×11	40	_	
	10	_		_	_	5×11	35	5×11	35	5×11	35	8×11.5	75	8×11.5	75		
	10					5/11	33	6.3×11	60	6.3×11	55	6/11.5	75	6/11.5	75	_	
	22	_	_	5×11	50	5×11	55	5×11	60	8×11.5	95	10×12.5	130	10×16	140	_	_
	22			3/11	30	6.3×11	70	6.3×11	80	0.711.5	95	10×12.5	130 10×10	10/10	140		
	33	5×11	55	5×11	65	5×11	70	8×11.5	120	10×12.5	140	10×16	175	10×20	190	12.5×20	220
	55	3/11	55	6.3×11	70	6.3×11	90	0.711.5	120	10/12.5	140	10×10	175	10/20	130	12.5720	220
	47	5×11	65	5×11	75	8×11.5	125	8×11.5	140	10×12.5	170	10×16	210	10×20	225	12.5×25	285
	47	6.3×11	80	6.3×11	85	8^11.5	125	6/11.5	140	10/12.5	170	10/10	210	10^20	225	12.5^25	200
	100	8×11.5	135	8×11.5	145	10×12.5	215	10×16	270	10×20	295	12.5×20	380	12.5×25	415	16×25	485
	220	10×12.5	240	10×16	260	10×20	385	12.5×20	505	12.5×25	550	16×25	720	16×31.5	785	18×40	930
	330	10×16	290	10×20	350	12.5×20	545	12.5×25	675	16×25	785	16×31.5	965	16×35.5	1010	_	-
	470	10×20	390	12.5×20	455	12.5×25	710	16×25	940	16×31.5	1030	16×35.5	1210	18×35.5	1295	_	-
	1000	12.5×20	710	16×25	835	16×31.5	1315	16×35.5	1575	18×35.5	1690	18×40	1985	_	_	_	_
	2200	_	_	16×35.5	1500	18×40	2150	_	_	_	_	_	_	_	_	_	_
,	3300	_	_	18×40	1980	_	_	_	_	_	_	_	_	_	_	_	_

(Note) Rated ripple current : 85°C, 120Hz

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS FOR AUDIO ROS

■ SILMIC series Silk fiber using audio purpose capacitor

High Grade Capacitors for Audio(SILMIC)



- · All lead wires oxygen-free copper for extremely low distortion. (Third high frequency distortion 10kHz,0.1A,-120dB or less)
- "SILMIC" mark on sleeve.



Marking color: White print on a brown sleeve

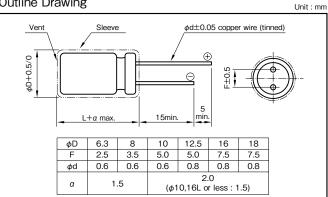
For higher grade For higher grade ROS ROA ROB

Specifications

ELNA®

Item		Performance										
Category temperature range (°C)		-	-40 to +85									
Tolerance at rated capacitance (%)			±20				(20℃	120Hz)				
Leakage current (μA) (max.)	0.01CV or 3 whichever is	0.01CV or 3 whichever is larger (after 5 minutes) C : Rated capacitance (µF); V: Rated voltage (V) (20°C)										
	Rated voltage (V)	16	25	35	50	63	100	7				
Tangent of loss angle	tanδ (max.)	tanδ (max.) 0.13 0.10 0.10 0.08 0.08 0.08										
(tanδ)	0.02 is added to every 1000μF increase over 10	0.02 is added to every 1000μF increase over 1000μF (20°C,120Hz)										
	Test time		1000) hours								
Endurance (85°C)	Leakage current		The i	initial specified	value or less							
(Applied ripple current)	Percentage of capacitance change		With	in ±20% of initi	al value							
	Tangent of the loss angle	Tangent of the loss angle 150% or less of the initial specified value										
Shelf life (85°C)	Test time: 1000hours; other items are same as the endurance. Voltage application treatment: According to JIS C5101-4 4.1											
Applicable standards	JIS C5101-1, -4 (IEC 60384-1, -4)											

Outline Drawing



Coefficient of Frequency for Rated Ripple Current

Rated voltage (V)	Frequency (Hz)	50.60	120	1k	10k	100k
16	All CV value	0.8	1	1.1	1.2	1.2
25 to 35	≤1000	0.8	1	1.5	1.7	1.7
25 10 35	1000<	0.8	1	1.2	1.3	1.3
50 to 100	≤1000	0.8	1	1.6	1.9	1.9
30 10 100	1000<	8.0	1	1.2	1.3	1.3

Part numbering system (example : 25V100µF)											
ROS —	- 25	٧	101	М	H4	#5	_				
Series code	Rated voltage symbol		Rated capacitance symbol	Capacitance tolerance symbol	Casing symbol			Taping (Forming) symbol			

Case symbol

Case	Casing	Case	Casing	Case	Casing	Case	Casing
$\phi D \times L (mm)$	Symbol	ϕ D×L (mm)	Symbol	ϕ D×L (mm)	Symbol	φD×L (mm)	Symbol
6.3×11	F3	10×16	H4	12.5×25	I6	16×35.5	J8
8×11.5	G3	10×20	H5	16×25	J6	18×35.5	K8
10×12.5	Н3	12.5×20	I5	16×31.5	J7	18×40	K9

Standard Ratings

Rated voltage (\	1	16 25		25	35		5	50	6	3	1	00
Rated Iter	n Case	Rated ripple current	Case	Rated ripple current	Case	Rated ripple current	Case	Rated ripple current	Case	Rated ripple current	Case	Rated ripple current
capacitance (µF)	φD×L (mm)	(mArms)	ϕ D×L (mm)	(mArms)	φD×L (mm)	(mArms)	φD×L (mm)	(mArms)	φD×L (mm)	(mArms)	ϕ D×L (mm)	(mArms)
10	_	_	_	_	6.3×11	55	8×11.5	75	8×11.5	75	10×16	95
22	6.3×11	70	6.3×11	80	8×11.5	95	10×12.5	130	10×16	140	10×20	155
33	6.3×11	90	8×11.5	120	10×12.5	140	10×16	175	10×20	190	12.5×20	220
47	8×11.5	125	8×11.5	140	10×12.5	170	10×16	210	10×20	225	12.5×25	285
100	10×12.5	215	10×16	270	10×20	295	12.5×20	380	12.5×25	415	16×25	485
220	10×20	385	12.5×20	505	12.5×25	550	16×25	720	16×31.5	785	18×40	930
330	12.5×20	545	12.5×25	675	16×25	785	16×31.5	965	16×35.5	1010	_	_
470	12.5×25	710	16×25	940	16×31.5	1030	16×35.5	1210	18×35.5	1295	_	_
1000	16×31.5	1315	16×35.5	1575	18×35.5	1690	18×40	1985		_	_	_
2200	18×40	2150	_	_	_	_	_	_	_	_	_	_

(Note) Rated ripple current : 85°C, 120Hz.

ROB MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS FOR AUDIO



Miniature Standard Capacitors for Audio





TONEREX

- Adopting the newly developed formation method and composite electrolytic paper for audio application has reduced distortion, achieving high-quality sound.
- · All lead wires are oxygen-free copper wires to reduce distortion.



Marking color: Gold print on a black sleeve

Specifications

Item		Performance											
Category temperature range (°C)		-40 to +85											
Tolerance at rated capacitance (%)		±20 (20°C,120Hz)											
Leakage current (μA) (max.)	0.01 CV or 4 whichever is	0.01CV or 4 whichever is larger (after 5 minutes) C : Rated capacitance (μF); V: Rated voltage (V) (20°C)											
Tangent of loss angle	Rated voltage (V)	6.3	10	16	25	35	50	63	100	1			
	tanδ (max.)	tanδ (max.) 0.24 0.20 0.16 0.14 0.12 0.10 0.09 0.08											
(tanδ)	0.02 is added to every 1000µF increase over 1000	0.02 is added to every 1000μF increase over 1000μF (20°C,120Hz)											
	Test time			1000 h	nours]			
Endurance (85°C)	Leakage current			The ini	tial specified	value or les	S						
(Applied ripple current)	Percentage of capacitance change			Within	±20% of in	itial value							
	Tangent of the loss angle 150% or less of the initial specified value												
Shelf life (85°C)	Test time: 1000hours; other items are	same as the	endurance.	Voltage app	olication trea	tment : Acco	ording to JIS	C5101-4 4.	.1				
Applicable standards	JIS C5101-1, -4 (IEC 60384-1, -4)												

Unit: mm

Outline Drawing

φd±0.05 copper wire (tinned) Vent (except φ5) Sleeve φD±0.5/0 6.3 8 10 12.5 16 18 2.0 2.5 3.5 5.0 5.0 7.5 7.5 0.6 0.6 0.6 0.6 0.8 0.8 0.8 φd 1.5 (φ10,16L or less : 1.5)

Coefficient of Frequency for Rated Ripple Current

Rated voltage (V)	Frequency (Hz)	50 · 60	120	1k	10k	100k
6.3 to 16	All CV value	0.8	1	1.1	1.2	1.2
25 to 35	≤1000	0.8	1	1.5	1.7	1.7
25 10 55	1000<	0.8	1	1.2	1.3	1.3
50 to 100	≤1000	0.8	1	1.6	1.9	1.9
30 10 100	1000<	0.8	1	1.2	1.3	1.3

Part numbering system (example : 25V100µF)										
ROB — 25 V 101 M G3 # —										
Series code	Rated voltage symbol	Rated capacitance symbol	Capacitance tolerance symbol	Casing symbol			Taping (Forming) symbol			

Case symbol

Case	Casing	Case	Casing	Case	Casing	Case	Casing
φD×L (mm)	Symbol	φD×L (mm)	Symbol	φD×L (mm)	Symbol	φD×L (mm)	Symbol
5×11	E3	10×12.5	H3	12.5×20	I5	16×31.5	J7
6.3×11	F3	10×16	H4	12.5×25	I6	16×35.5	J8
8×11.5	G3	10×20	H5	16×25	J6	18×35.5	K8
						18×40	K9

Standard Ratings

	Rated volt	age (V)	6.	.3	1	0	1	6	2	5	3	5	5	0	6	3	10	00
Rateo		Item	Case	Rated ripple current	Case	Rated ripple current	Case	Rated ripple current	Case	Rated ripple current	Case	Rated ripple current	Case	Rated ripple current	Case	Rated ripple current	Case	Rated ripple current
	citance (µF)		φD×L (mm)	(mArms)	φD×L (mm)	(mArms)	φD×L (mm)	(mArms)	φD×L (mm)	(mArms)	φD×L (mm)	(mArms)	φD×L (mm)	(mArms)	φD×L (mm)	(mArms)	φD×L (mm)	(mArms)
	1		_	_	_	_	_	_	_	_	_	_	5×11	10	_	_	5×11	15
	2.2		_	_	_	_	_	_	_	_	_	_	5×11	20	_	_	5×11	25
	3.3		_	_	_	_	_	_	_	_	_	_	5×11	25	_	_	5×11	30
	4.7		_	_	_	_	_	_	5×11	25	_	_	5×11	35	5×11	35	6.3×11	40
	10		_	_	_	_	5×11	35	5×11	40	5×11	45	5×11	50	6.3×11	60	8×11.5	70
	22		_	_	5×11	50	5×11	60	5×11	60	6.3×11	75	6.3×11	80	8×11.5	100	10×12.5	120
	33		5×11	55	5×11	65	5×11	70	6.3×11	80	6.3×11	90	8×11.5	110	8×11.5	115	10×16	160
	47		5×11	65	5×11	75	6.3×11	95	6.3×11	100	8×11.5	120	8×11.5	130	10×12.5	165	10×20	210
	100		6.3×11	110	6.3×11	120	8×11.5	150	8×11.5	165	10×12.5	210	10×16	250	10×20	285	12.5×20	340
	220		8×11.5	185	8×11.5	200	10×12.5	265	10×16	310	10×20	365	12.5×20	440	12.5×20	470	16×25	620
	330		10×12.5	265	10×12.5	290	10×16	350	10×20	410	12.5×20	500	12.5×20	540	12.5×25	620	16×31.5	820
	470		10×12.5	315	10×16	380	10×20	460	12.5×20	550	12.5×25	640	16×25	800	16×25	840	18×35.5	1000
	1000		10×20	550	12.5×20	670	12.5×25	810	16×25	1000	16×25	1050	16×31.5	1200	18×35.5	1500	_	_
	2200		12.5×25	980	16×25	1200	16×25	1350	16×35.5	1650	18×35.5	1900	_	_	_	_		_
	3300		16×25	1300	16×31.5	1600	16×35.5	1800	18×40	2100	_	_	_	_	_		_	_
	4700		16×31.5	1700	16×35.5	1900	18×35.5	2400	_	_	_	_	_	_	_	_	_	_
	6800		16×35.5	2100	18×40	2600	_	_	_	_	_	_	_	_	_	_	_	_
	10000		18×40	2800	_	_	_	_	_	_	_	_	_	_	_	_	_	_

(Note) Rated ripple current : 85°C, 120Hz

85℃

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS FOR AUDIO RFO

Miniature Capacitors for Audio (PURECAP)

- A standard capacitor utilizing a newly developed material for a high grade of audio reproduction.
- All lead wires are copper plated steel wires.
- New type miniaturized capacitor for audio, using synthetic mica paper for the separator.





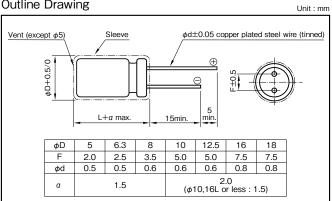
Marking color: Gold print on a black sleeve

Specifications

ELNA®

Item		Performance -40 to +85													
Category temperature range (°C)			−40 to	+85											
Tolerance at rated capacitance (%)			±2	20					(20°C,120	OHz)					
Leakage current (μA) (max.)	0.01CV or 3 whichever is	larger (after	2 minutes) (C : Rated cap	oacitance (μΙ	F) ; V : Rated	d voltage (V)		(2	20°C)					
Tangent of loss angle	Rated voltage (V)	6.3	10	16	25	35	50	63	100	ا ٦					
	tanδ (max.)														
(tanδ)	0.02 is added to every 1000µF increase over 1000														
	Test time			1000 ho	ours]					
Endurance (85°C)	Leakage current			The initi	al specified	value or less	:								
(Applied ripple current)	Percentage of capacitance change			Within ±	=20% of initi	al value				1					
	Tangent of the loss angle			150% o	r less of the	initial specif	ied value]					
Shelf life (85°C)	Test time: 1000hours; other items are	Test time: 1000hours; other items are same as the endurance. Voltage application treatment: According to JIS C5101-4 4.1													
Applicable standards		JIS C5101-1, -4 (IEC 60384-1, -4)													

Outline Drawing



Coefficient of Frequency for Rated Ripple Current

Rated voltage(V)	Frequency(Hz)	50 · 60	120	1k	10k	100k
6.3 to 16	All CV value	0.8	1	1.1	1.2	1.2
25 to 35	≤1000	0.8	1	1.5	1.7	1.7
25 10 35	1000<	0.8	1	1.2	1.3	1.3
50 to 100	≤1000	0.8	1	1.6	1.9	1.9
30 10 100	1000<	0.8	1	1.2	1.3	1.3

Part numbering system (example : 25V100μF)												
RFO — 25 V 101 M F3 P# —												
Series code Rated voltage Rated capacitance Capacitance Casing Taping (Forming) symbol symbol symbol symbol												

Case symbol

Case	Casing	Case	Casing	Case	Casing	Case	Casing
ϕ D×L (mm)	Symbol	ϕ D×L (mm)	Symbol	φD×L (mm)	Symbol	ϕ D×L (mm)	Symbol
5×11	E3	10×12.5	H3	12.5×20	I5	16×31.5	J7
6.3×11	F3	10×16	H4	12.5×25	I6	18×35.5	K8
8×11.5	G3	10×20	H5	16×25	J6		

Standard Ratings

	Rated voltage (V)	6	.3	1	0	10	6	2	5	3	5	5	0	6	3	10	00
Rated	Item	Case	Rated ripple current	Case	Rated ripple current	Case	Rated ripple current	Case	Rated ripple current	Case	Rated ripple current	Case	Rated ripple current	Case	Rated ripple current	Case	Rated ripple current
	ance (µF)	φD×L (mm)	(mArms)	φD×L (mm)	(mArms)	φD×L (mm)	(mArms)	φD×L (mm)	(mArms)	φD×L (mm)	(mArms)	φD×L (mm)	(mArms)	φD×L (mm)	(mArms)	φD×L (mm)	(mArms)
	1	_	_	_	_	_	-	_	_	-	_	5×11	15	_	_	5×11	15
	2.2	_	_	_	_	_	_	_	_	_	_	5×11	20	_	-	5×11	25
	3.3	_	_	_	_	_	_	_	_	_	_	5×11	25	_	_	5×11	30
	4.7	_	_	_	_	_	_	_	_	5×11	30	5×11	30	5×11	35	5×11	35
	10	_	_	_	_	_	_	_	_	5×11	45	5×11	45	5×11	50	6.3×11	60
	22	_	_	_	_	5×11	50	5×11	55	5×11	60	5×11	70	6.3×11	85	8×11.5	110
	33		_	5×11	55	5×11	60	5×11	70	5×11	80	6.3×11	100	6.3×11	100	10×12.5	160
	47	_	_	5×11	65	5×11	75	5×11	85	6.3×11	110	6.3×11	120	8×11.5	150	10×16	210
	100	5×11	85	5×11	95	6.3×11	120	6.3×11	140	8×11.5	190	8×11.5	210	10×12.5	260	12.5×20	380
	220	6.3×11	150	6.3×11	165	8×11.5	220	8×11.5	250	10×12.5	330	10×16	400	10×20	460	16×25	720
	330	6.3×11	180	8×11.5	240	8×11.5	270	10×12.5	370	10×16	450	10×20	540	12.5×20	650	16×25	880
	470	8×11.5	260	8×11.5	280	10×12.5	390	10×16	480	10×20	590	12.5×20	740	12.5×25	850	16×31.5	1150
	1000	10×12.5	450	10×16	540	10×20	680	12.5×20	880	12.5×25	1050	16×25	1350	16×31.5	1550	_	_
	2200	12.5×20	890	12.5×20	970	12.5×25	1200	16×25	1550	16×31.5	1750	18×35.5	2100	_	_	_	_
	3300	12.5×20	1050	12.5×25	1250	16×25	1600	16×31.5	1950	18×35.5	2250	_	_	_	_	_	_
	4700	16×25	1550	16×25	1650	16×31.5	2050	18×35.5	2500	_	_	_	_	_	_	_	_
	6800	16×25	1750	16×31.5	2050	18×35.5	2550	_	_	_	_	_	_	_	_	_	_
	10000	16×31.5	2150	18×35.5	2550	-	_	_	_	_	_	-	_	_	_	-	_
	15000	18×35.5	2700	_	_	_	_	_	_	_	_	_	_	_	_	_	_

(Note) Rated ripple current : 85°C, 120Hz

85℃

RA3 MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS FOR AUDIO



Miniature Capacitors for Audio

- With the same size as that for Series RE3 miniaturized standard capacitors, a high resolution sound quality grade has been realized.
- The newly developed audio use material makes clear sound a reality.
- All lead wires are copper plated steel wires.



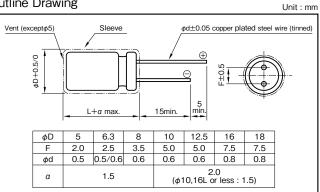


Marking color: White print on a brown sleeve

Specifications

Item			Perforn	nance											
Category temperature range (°C)			−40 to	+85											
Tolerance at rated capacitance (%)			±2	0					(20°C,120⊦	Hz)					
Leakage current (μA) (max.)	0.01CV or 3 whichever is	0.01CV or 3 whichever is larger (after 2 minutes) C: Rated capacitance (µF); V: Rated voltage (V) (20°C)													
Tangent of loss angle	Rated voltage (V)	6.3	10	16	25	35	50	63	100						
(tanδ)	tanδ (max.)	tanδ (max.) 0.28 0.24 0.20 0.16 0.14 0.12 0.11 0													
(tario)	0.02 is added to every 1000μF increase over 1000														
	Test time			2000 ho	ours										
Endurance (85°C)	Leakage current			The initi	al specified	value or less	;								
(Applied ripple current)	Percentage of capacitance change			Within ±	20% of initi	al value									
	Tangent of the loss angle			200% o	less of the	initial specif	ied value								
Shelf life (85°C)	Test time: 1000hours; other items are	Test time: 1000hours; other items are same as the endurance. Voltage application treatment: According to JIS C5101-4 4.1													
Applicable standards		JIS C5101-1, -4 (IEC 60384-1, -4)													

Outline Drawing



Coefficient of Frequency for Rated Ripple Current

Rated voltage(V)	Frequency (Hz)	50 · 60	120	1k	10k	100k
6.3 to 16	All CV value	0.8	1	1.1	1.2	1.2
25 to 35	≤1000	0.8	1	1.5	1.7	1.7
25 10 35	1000<	0.8	1	1.2	1.3	1.3
50 to 100	≤1000	0.8	1	1.6	1.9	1.9
30 10 100	1000<	8.0	1	1.2	1.3	1.3

Part numbering system (example : 25V100μF)												
RA3 — 25 V 101 M F3 #8 —												
Series code Rated voltage Rated capacitance Capacitance Casing Taping (Forming) symbol tolerance symbol symbol symbol												

Case symbol

Case	Casing	Case	Casing	Case	Casing	Case	Casing
φD×L (mm)	Symbol	φD×L (mm)	Symbol	ϕ D×L (mm)	Symbol	φD×L (mm)	Symbol
5×11	E3	10×12.5	H3	12.5×20	I5	16×31.5	J7
6.3×11	F3	10×16	H4	12.5×25	I6	18×35.5	K8
8×11.5	G3	10×20	H5	16×25	J6		_

Standard Ratings

Otanuaru Hati	1160															
Rated voltage (V)	6.	.3	1	0	1	6	2	:5	3	5	5	50	6	:3	10	00
Rated Item	Case	Rated ripple current	Case	Rated ripple current	Case	Rated ripple current	Case	Rated ripple current	Case	Rated ripple current	Case	Rated ripple current	Case	Rated ripple current	Case	Rated ripple current
	φD×L (mm)	(mArms)	φD×L (mm)	(mArms)	φD×L (mm)	(mArms)	φD×L (mm)	(mArms)	φD×L (mm)	(mArms)	φD×L (mm)	(mArms)	φD×L (mm)	(mArms)	φD×L (mm)	(mArms)
1	_	_	_	_	-	_	_	_	_	_	5×11	21	_	_	5×11	21
2.2	_	_	_	_	-	_	-	_	-	_	5×11	31	-	_	5×11	31
3.3	_	_	_	_	_	_	_	_	_	_	5×11	38	_	_	5×11	40
4.7	_	_	_	_	-	_	_	_	1	_	5×11	45	-	_	5×11	50
10	_	_	_	_	5×11	50	5×11	55	5×11	60	5×11	66	5×11	70	5×11	70
22	_	_	_	_	5×11	75	5×11	90	5×11	95	5×11	100	5×11	105	6.3×11	115
33	_	_	_	_	5×11	110	5×11	110	5×11	110	5×11	110	6.3×11	130	8×11.5	158
47	_	_	_	-	5×11	130	5×11	130	5×11	130	6.3×11	155	6.3×11	160	8×11.5	188
100	5×11	130	5×11	150	5×11	180	6.3×11	199	6.3×11	214	8×11.5	250	8×11.5	270	10×16	358
220	5×11	240	6.3×11	250	6.3×11	280	8×11.5	349	8×11.5	350	10×12.5	429	10×16	505	12.5×20	663
330	6.3×11	300	6.3×11	330	8×11.5	383	8×11.5	383	10×12.5	542	10×16	595	10×20	676	12.5×25	886
470	6.3×11	380	8×11.5	417	8×11.5	480	10×12.5	545	10×16	664	12.5×20	887	12.5×20	924	16×25	1230
1000	8×11.5	580	10×12.5	650	10×16	791	10×20	996	12.5×20	1210	12.5×25	1400	16×25	1710	18×35.5	2210
2200	10×16	939	10×20	1080	12.5×20	1350	12.5×25	1660	16×25	1950	16×31.5	2340	18×35.5	2870	_	_
3300	10×20	1230	12.5×20	1430	12.5×25	1690	16×25	2030	16×31.5	2320	18×35.5	2810	_	_	_	_
4700	12.5×20	1710	12.5×25	1780	16×25	2100	16×31.5	2650	18×35.5	2990	_	_		_	_	_
6800	12.5×25	1930	16×25	2270	16×31.5	2480	18×35.5	3290	1	_	_	_	_	_	_	_
10000	16×25	2450	16×31.5	2500	18×35.5	3130	_		1	_	_	_	_	_	_	-
15000	16×31.5	2580	18×35.5	3100	ı	_	_	ı	ı	_	_	-	ı	_	_	ı
22000	18×35.5	3150	_	_	_	_	_	_	_	_	_	_	_	_	_	_

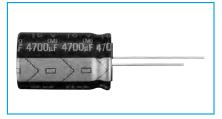
(Note) Rated ripple current : 85°C, 120Hz

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS FOR AUDIO RW5

105℃ Miniature Capacitors for Audio

- With the same size as that for Series RJ5 miniaturized standard capacitors, a high resolution sound quality grade has been realized.
- •Guarantees 1000 hours at 105°C



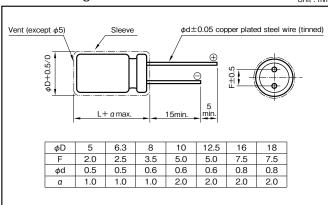


Marking color: Gold print on a black sleeve

Specifications

0,000000									
Item			Performance						
Category temperature range (°C)			-55 to +105						
Tolerance at rated capacitance (%)			±20		(20°C,120Hz)				
Leekage current (μΑ) (max.)			BCV or 4 whichever is larger (after 1 minute Rated capacitance (μF) , V : Rated voltage ((20°C)				
Tangent of loss angle	Rated vo	Itage (V)	16	25					
tanδ)	tanδ (max.)	0.24	0.20					
(tailo)	0.02CV is added to every	1000μF increase over 10	00μF		(20°C,120Hz)				
	Rated vo	Itage (V)	16	25					
Characteristics at high	Impedance ratio (may)	Z-25°C/Z+20°C	3	2					
and low temperature	Impedance ratio (max.)	Z-40°C/Z+20°C	6	4					
					(120Hz)				
	Test	time	1000 hours						
Endurance (105°C)	Leakage	current	The initial specifie	ed value or less					
(Applied ripple current)	Percentage of cap	Percentage of capacitance change Within ±20% of initial value							
	Tangent of the	e loss angle	200% or less of t	he initial specified value					
Shelf life (105°C)	Test time: 1000h	ours ; other items are sam	ne as the endurance. Voltage application t	reatment: According to JIS C5101-4 4.1					
Applicable standerds			JIS C5101-1, -4 (IEC 60384-1, -4)						

Outline Drawing



Coefficient of Frequency for Rated Ripple Current

Rated Frequency (Hz) Capacitance (μF)	50 · 60	120	1k	10k	100k
100 to 220	0.8	1	1.2	1.3	1.4
330 to 1000	0.8	1	1.2	1.2	1.3
2200 to 15000	0.8	1	1.1	1.1	1.1

Part numb	Part numbering system (example : 16V3300μF)									
RW5 — 16 V 332 M I6 # — 🗌										
Series code	Rated voltage symbol		Rated capacitance symbol	Capacitance tolerance symbol	Casing symbol		Taping (Forming) symbol			

Standard Ratings

Rated voltage (V)		16			25	
Rated Item	Case	Casing	Rated ripple current	Case	Casing	Rated ripple current
capacitance (µF)	φD×L (mm)	symbol	(mArms)	ϕ D×L (mm)	symbol	(mArms)
100	_	I	_	5×11.5	E3	125
220	6.3×11.5	F3	190	6.3×11.5	F3	200
330	6.3×11.5	F3	225	8×12	G3	310
470	8×12	G3	323	10×12.5	Н3	429
1000	10×12.5	Н3	500	10×16	H4	610
				12.5×25	16	1180
2200	10×20	H5	710	16×20	J5	1230
				18×16	K4	1200
3300	12.5×25	16	1200	16×25	J6	1440
3300	16×20	J5	1250	18×20	K5	1400
4700	16×25	J6	1500	16×25	J6	1570
4700	18×20	K5	1460	18×20	K5	1530
6800	16×25	J6	1600	16×35.5	J8	1850
0800	18×20	K5	1560	18×31.5	K7	1870
10000	16×35.5	J8	1930	18×40	K9	2000
15000	18×40	K9	2210	_	_	_

(Note) Rated ripple current : 105°C, 120Hz.

MINIATURE ALUMINUM

105℃

85℃

RBD MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS FOR AUDIO



Miniature Bipolar Capacitors for Audio

- The newly developed audio use foil and special electrolyte makes clear and far-carrying sound a reality.
- · All lead wires are copper plated steel wires.

Tone quality improvements R2B RBD



Marking color: Gold print on a black sleeve

Specifications

Item				Perforn	nance						
Category temperature range (°C)		-40 to +85									
Tolerance at rated capacitance (%)		±20 (20°C,120Hz)									
Leakage current (μA) (max.)		0.03CV + 3 (after 5 minutes) C : Rated capacitance (μF); V : Rated voltage (V) (20°C)									
(IIIdX.)											
Tangent of loss angle	Rated vo	Rated voltage (V) 6.3 10 16 25 35 50 63 100									
tangent of loss angle (tanδ)	tanδ	tanδ (max.) 0.24 0.20 0.16 0.15 0.14 0.12 0.10 0.09								0.09	
(tario)	0.02 is added to every 10	is added to every 1000μF increase over 1000μF. (20°C,120F)								(20°C,120Hz)	
	Rated vo	oltage (V)	6.3	10	16	25	35	50	63	100	
Characteristics at high	Impedance ratio	Z-25°C/Z+20°C	4	3	2	2	2	2	2	2	
and low temperature	(max.)	Z-40°C/Z+20°C	10	8	6	4	3	3	3	3	
	0.5 for -25°C, 1 for -40	°C are added to every 10	00μF increa	se over 1000	DμF.					(120Hz)	
	Test	time			2000 ho	urs (with the	polarity inve	erted every 2	50 hours)		
Endurance (85°C)	Leakage	Leakage current The initial specified value or less									
(Applied ripple current)	Percentage of ca	pacitance change	Within ±20% of initial value								
	Tangent of the	Tangent of the loss angle 150% or less of the initial specified value									
Applicable standards			JIS C510	01-1, -4 (IEC	60384-1, -4	·)					

Outline Drawing

Coefficient of Frequency for Rated Ripple Current Unit: mm

Vent (exc	Peptφ5)	L+	Sleeve		15min.	d±0.05 c	opper pla	ted steel v	wire (tinned)
	φD	5	6.3	8	10	12.5	16	18	
	F	2.0	2.5	3.5	5.0	5.0	7.5	7.5	
	φd	0.5	0.5	0.6	0.6	0.6	0.8	0.8	
	а		1.5		(φ1	2. 0,16L o		1.5)	

Rated voltage (V)	50.60	120	1k	10k • 100k
6.3 to 16	0.8	1	1.1	1.2
25 to 35	0.8	1	1.5	1.7
50 to 100	0.8	1	1.6	1.9
•				

Part numbering system (example : 10V1000µF)										
RBD — 10 V 102 M I5 # —										
Series code	Rated voltage symbol	Ra	ited capacitance symbol	Capacitance tolerance symbol	Casing symbol			Taping (Forming symbol		

Case symbol

Case ΦD×L (mm)	Casing Symbol	Case φD×L (mm)	Casing Symbol	Case φD×L (mm)	Casing Symbol	Case φD×L (mm)	Casing Symbol
5×11	E3	10×12.5	H3	12.5×20	I5	16×31.5	J7
6.3×11	F3	10×16	H4	12.5×25	I6	18×35.5	K8
8×11.5	G3	10×20	H5	16×25	J6		_

Standard Ratings

R	ated voltage (\) 6	5.3	1	0	1	6	2	25	3	35	5	0	6	i3	1	00
Rated	Iter	n Case	Rated ripple current	Case	Rated ripple current	Case	Rated ripple current	Case	Rated ripple current	Case	Rated ripple current	Case	Rated ripple current	Case	Rated ripple current	Case	Rated ripple current
capacitan	ice (µF)	φD×L (mm)	(mArms)	φD×L (mm)	(mArms)	φD×L (mm)	(mArms)	φD×L (mm)	(mArms)	φD×L (mm)	(mArms)	φD×L (mm)	(mArms)	φD×L (mm)	(mArms)	φD×L (mm)	(mArms)
	1	_	_	_	_	_	_	_	_	_	_	5×11	14	_	_	5×11	16
	2.2	_	_	_	_	_	_	_	_	_	_	5×11	21	5×11	23	5×11	24
	3.3	_	_	_	_	_	_	_	_	_	_	5×11	26	5×11	28	6.3×11	34
	4.7	_	_	_	_	_	_	5×11	28	5×11	28	5×11	31	5×11	34	6.3×11	41
	10	_	_	_	_	5×11	39	5×11	40	5×11	42	5×11	45	6.3×11	57	8×11.5	70
	22	_	_	5×11	52	5×11	58	5×11	60	6.3×11	71	6.3×11	77	8×11.5	89	10×16	136
	33	5×11	58	5×11	63	5×11	71	6.3×11	84	6.3×11	87	8×11.5	111	10×12.5	144	10×20	181
	47	5×11	69	5×11	75	6.3×11	97	6.3×11	100	8×11.5	122	10×12.5	157	10×16	188	12.5×20	248
	100	6.3×11	115	6.3×11	126	8×11.5	167	10×12.5	204	10×12.5	212	10×20	273	12.5×20	343	16×25	458
	220	8×11.5	202	8×11.5	221	10×12.5	294	10×16	332	10×20	375	12.5×25	506	16×25	645	18×35.5	837
	330	8×11.5	247	10×12.5	322	10×16	394	10×20	444	12.5×20	526	12.5×25	620	_	_	_	_
	470	10×12.5	350	10×16	420	10×20	513	12.5×20	607	12.5×25	685	16×25	861	_	_	_	_
1	000	10×20	611	12.5×20	767	12.5×25	935	16×25	1120	16×31.5	1270	_	_	_	_	_	_
2	200	12.5×25	1090	16×25	1380	16×31.5	1660	_		_	_	-	_	_		_	
3	300	16×25	1490	16×31.5	1760	-	_	_	_	_	_	-	_	_	_	_	_
4	700	16×31.5	1880	18×35.5	2280	_	_	-	_	_	_	_	_	_	_	_	_

(Note) Rated ripple current : 85°C, 120Hz

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS FOR AUDIO

Power Supply Smoothing Use, Standard Capacitors for Audio

- Best suited as power supply filters for sound quality priority audio equipment.
- Printed circuit board terminal snap-in type.



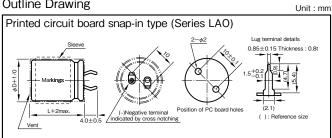


Marking color: Gold print on a black sleeve

Specifications

Item			Performance							
Category temperature range (°C)			-40 to +85							
Tolerance at rated capacitance (%)			±20				(20°C,120Hz)			
Leakage current (μA) (max.)	0	.03CV or 5mA whichever	is larger (after 5 minutes) C : F	Rated capacitanc	e (μF), V : F	ated voltage (V)	(20°C)			
Tangent of loss angle	Rated vo	oltage (V)	16, 25	35		50 to 100				
tanδ)	tanδ	(max.)	0.40	0.35		0.30				
(tailo)							(20°C,120Hz)			
	Rated vo	oltage (V)	16 to 35			50 to 100				
Characteristics at high	Impedance ratio	Z-25°C/Z+20°C	4			3				
and low temperature	(max.)	Z-40°C/Z+20°C	15			10				
							(120Hz)			
	Test	time	100	0 hours						
Endurance (85°C)	Leakage	e current	The	initial specified v	alue or less					
(Applied ripple current)	Percentage of ca	Percentage of capacitance change Within ±20% of initial value								
	Tangent of the	Tangent of the loss angle 150% or less of the initial specified value								
Shelf life (85°C)	Test time: 10	Test time: 1000hours; other items are same as the endurance. Voltage application treatment: According to JIS C5101-4 4.1								
Applicable standards			JIS C5101-1, -4 (IEC 603	884-1, -4)						

Outline Drawing



Coefficient of Frequency for Rated Ripple Current

Frequency (Hz) Rated voltage (V)	50	120	1k	10k	20k
16 to 50	0.95	1	1.10	1.15	1.15
63 to 100	0.95	1	1.16	1.30	1.33

Part numbering system (example : 63V6800µF)										
LAO	_	63	٧	682	М	S57	PX #	В		
Series code		Rated voltage symbol		Rated capacitance symbol	Capacitance tolerance symbol	Casing symbol		Optional symbol		

Standard Ratings

Rated voltage (V) 16		2	5	35		50		63		80		100			
	Item	Rated capacitance	Rated ripple current	Rated capacitance	Rated ripple current	Rated capacitance	Rated ripple current	Rated capacitance	Rated ripple current	Rated capacitance	Rated ripple current	Rated capacitance	Rated ripple current	Rated capacitance	Rated ripple current
Case φD×L (mm)	Casing	(μF)	(Arms)	(μF)	(Arms)	(μF)	(Arms)	(µF)	(Arms)	(µF)	(Arms)	(μF)	(Arms)	(μF)	(Arms)
22×20	S21	3300	1.2	_	_	_	_	_	_	_	_	_	_	_	_
22×25	S22	4700	1.5	2200	1.0	1500	0.8	1000	0.8	680	0.7	_	_	_	_
22×30	S23	_	_	3300	1.3	2200	1.3	1500	1.1	1000	0.9	680	0.7	_	_
22×35	S24	6800	2.0	4700	1.7	3300	1.7	_	_	1500	1.2	1000	1.0	680	0.8
22×40	S25	_	_	_	_	_	_	2200	1.5	_	_	_	_	_	_
22×45	S26	10000	2.7	6800	2.2	4700	2.3	_	_	2200	1.6	_	_	_	_
22×50	S27	_	_	_	_	_		3300	2.0	_	_	1500	1.3	1000	1.2
25×25	S32	_	_	3300	1.7	2200	1.7	1500	1.4	1000	1.2	680	1.0	_	_
25×30	S33	6800	2.5	4700	2.1	3300	2.2	2200	1.8	1500	1.5	1000	1.2	680	1.1
25×35	S34	10000	3.2	-			1			1			-		_
25×40	S35	_	_	6800	2.7	4700	2.8	3300	2.3	2200	1.9	1500	1.6	1000	1.4
25×45	S36	_	_	_	_	_	_	_	_	_	_	_	_	_	_
25×50	S37	_	_	10000	3.0	6800	2.6	4700	2.4	3300	2.0	2200	2.0	1500	1.8
30×25	S42	6800	2.6	4700	2.2	3300	2.3	2200	1.9	1500	1.6	1000	1.3	680	1.1
30×30	S43	10000	3.3	6800	2.7	4700	2.8	3300	2.4	2200	1.9	1500	1.6	1000	1.4
30×35	S44	_	_	_	_	_	_	_	_	_	_	_	_	_	_
30×40	S45	_	_	10000	3.1	6800	2.7	4700	2.4	3300	2.1	2200	2.1	1500	1.8
30×45	S46	_	_	_	_	_	_	_	_	_	_	_	_	_	_
30×50	S47	_	_	-	_	10000	3.4	6800	3.1	4700	2.6	3300	2.2	2200	1.8
35×25	S52	10000	3.4	6800	2.8	4700	2.9	3300	2.4	2200	2.0	1500	1.7	1000	1.5
35×30	S53	_	_	10000	3.1	6800	2.7	4700	2.5	3300	2.1	2200	2.1	1500	1.8
35×35	S54	_					_		_	_		_	_	_	_
35×40	S55	_	_	_	_	10000	3.5	6800	3.1	4700	2.6	3300	2.2	2200	1.8
35×45	S56	_		_		_	_	_	_	_	_	_	_	_	_
35×50	S57	_	_	_	_	_	_	_	_	6800	3.3	4700	2.7	_	_

(Note) Rated ripple current : 85°C, 120Hz.

1 General Description of Aluminum Electrolytic Capacitors

1-1 The Principle of Capacitor

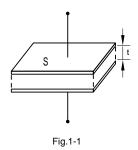
The principle of capacitor can be presented by the principle drawing as in Fig.1-1.

When a voltage is applied between the metal electrodes placed opposite on both surfaces of a dielectric, electric charge can be stored proportional to the voltage.

 $Q = C \cdot V$

Q: Quantity of electricity (C)

V: Voltage (V) C: Capacitance (F)



C. called the capacitance of capacitor, is expressed by the following expression with the electrode area S[m²], the electrode spacing t [m] and the dielectric constant of dielectric " & ":

 $C[F] = \mathcal{E}0 \cdot \mathcal{E} \cdot \frac{S}{t}$ $\mathcal{E}0$: Dielectric constant in vacuum (=8.85×10⁻¹²F/m)

The dielectric constant of an aluminum oxide film is 7 to 8. Larger capacitances can be obtained by enlarging the electrode area S or reducing t.

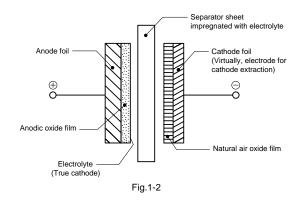
Table 1-1 shows the dielectric constants of typical dielectrics used in the capacitor. In many cases, capacitor names are determined by the dielectric material used, for example, aluminum electrolytic capacitor, tantalum capacitor, etc.

Table 1

Dielectric	Dielectric Constant	Dielectric	Dielectric Constant		
Aluminum oxide film	7 to 8	Porcelain (ceramic)	10 to 120		
Mylar	3.2	Polystyrene	2.5		
Mica	6 to 8	Tantalum oxide film	10 to 20		

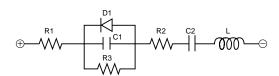
Although the aluminum electrolytic capacitor is small, it has a large capacitance. It is because the electrode area is roughened by electrochemical etching, enlarging the electrode area and also because the dielectric is very thin.

The schematic cross section of the aluminum electrolytic capacitor is as in Fig.1-2.



1-2 Equivalent Circuit of the Capacitor

The electrical equivalent circuit of the aluminum electrolytic capacitor is as presented in the following figure.



R1: Resistance of terminal and electrode

R2: Resistances of anodic oxide film and electrolyte

R3: Insulation resistance because of defective anodic oxide film

D1: Oxide semiconductor of anode foil

C1: Capacity of anode foil C2: Capacity of cathode foil

L : Inductance caused by terminals, electrodes, etc.

2 About the Life of an Aluminum Electrolytic Capacitor

2-1 Estimation of life with minimal ripple current (negligible).

Generally, the life of an aluminum electrolytic capacitor is closely related with its ambient temperature and the life will be approximately the same as the one obtained by Arrhenius' equation.

$$L = L_0 \times 2^{\left(\frac{T_0 - T}{10}\right)} \dots (1)$$

Where L: Life at temperature T L₀: Life at temperature T₀

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2-2 Estimation of life considering the ripple current.

The ripple current affects the life of a capacitor because the internal loss (ESR) generates heat. The generated heat will be:

$$P = I^2 R$$
....(2)

Where I: Ripple current (Arms)

 $R : ESR (\Omega)$

With increase in the temperature of the capacitor:

$$\Delta T = \frac{I^2 x R}{A x H} \dots (3)$$

Where ΔT : Temperature increase in the capacitor core(deg.)

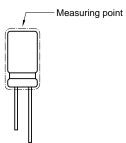
I : Ripple current (Arms)

 $R : ESR(\Omega)$

A: Surface area of the capacitor (cm²)

H: Radiation coefficient (Approx. 1.5 to 2.0 \times 10⁻³W/cm²×°C)

The above equation (3) shows that the temperature of a capacitor increases in proportion to the square of the applied ripple current and ESR, and in inverse proportion to the surface area. Therefore, the amount of the ripple current determines the heat generation, which affects the life. The value of Δ T varies depending on the capacitor types and operating conditions. The usage is generally desirable if Δ T remains less than 5°C. The measuring point for temperature increase due to ripple current is shown below;



Test results:

(1) The life equation considering the ambient temperature and the ripple current will be:

$$L = Ld \times 2^{\left(\frac{T_0 - T}{10}\right)} \times K^{\left(\frac{-\Delta T}{10}\right)} \dots (4)$$

Where Ld: Life at DC operation (h)

K : Ripple acceleration factor

(K=2, within allowable ripple current)

(K=4, if exceeding allowable ripple current)

T₀: Upper category temperature (°C)

T : Operating temperature (°C)

Δ T: Temperature increase at capacitor core (deg.)

(2) The life equation based on the life with the rated ripple current applied under the maximum guaranteed temperature will be a conversion of the above equation (4), as below:

$$L = Lr \times 2^{\left(\frac{T_{\circ} - T}{10}\right)} \times K^{\left(\frac{\Delta T_{\circ} - \Delta T}{10}\right)} \dots (5)$$

Where Lr: Life at the upper category temperature with the rated ripple current (h)

> ΔT₀: Temperature increase at capacitor core, at the upper category temperature (deg.)

(3) The life equation considering the ambient temperature and the ripple current will be a conversion of the above equation (5), as below:

$$L = Lr \times 2 \left(\frac{T_0 - T}{10} \right) \times K \left\{ 1 - \left(\frac{I}{I_0} \right)^2 \right\} \times \frac{\Delta T_0}{10} \dots (6)$$

Where I₀: Rated ripple current at the upper category temperature (Arms)

I : Applied ripple current (Arms)

(4) The life equation considering the ambient temperature, ripple current and applied voltage will be the below (7) by adding the effectiveness of the voltage deration.

(Apply to the rated voltage 200V to 500V of LA*, LT*, LJ* series)

$$L = Lr \cdot 2^{\left[\!\!\frac{T_0 - T}{10}\!\!\right]} \! \cdot K^{\left\{\!\!\frac{1 - \left[\!\!\frac{I}{I_0}\!\!\right]^{\!2}}{10}\!\!\right\} \cdot \frac{\Delta T_0}{10}} \cdot \left[\!\!\frac{Vr}{Va}\!\!\right]^{\!2.5} ...(7)$$

Vr : Rated voltage (V) Va: Applied voltage (V)

Except, when Va/Vr <0.6, fix to Va=Vr x 0.6

ΔT₀ of each category highest temperature

Aluminum	85	: 10deg
Electrolytic Capacitors	105 to 135	: 5deg
Electrolytic Capacitors	150	: 3deg
Polymer hybrid type aluminum	₍ 105	: 15deg
Electrolytic Capacitors	105 125 135	: 10deg
Electrolytic Capacitors	135	: 10deg



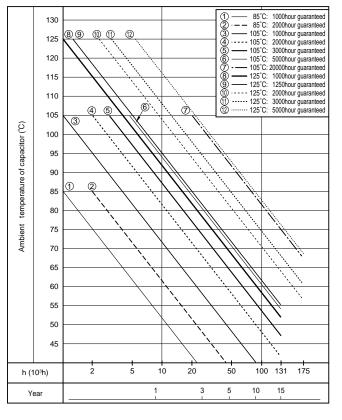
Since it is actually difficult to measure the temperature increase at the capacitor core, the following table is provided for conversion from the surface temperature increase to the core temperature increase.

Table 2-1

Case diameter	~10	12.5~16	18	20~22	25	30	35
Core / Surface	1.1	1.2	1.25	1.3	1.4	1.6	1.65

The life expectancy formula shall in principle be applied to the temperature range between the ambient temperature of $+40^{\circ}$ C and upper category temperature. The expected life time shall be about fifteen years at maximum as a guide in terms of deterioration of the sealant.

(Fig. 2-1 Life Expectancy Chart)



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2-3 Practical Examples of Life Expectancy

As practical examples of life expectancy, we introduce 250V 560 µ F in the LAT Series considering the effect of high-frequency component. Figures 2-2 to 2-4 show the simulated ripple current waveforms when the highfrequency component for switching is superimposed on the commercial frequency component.



Fig.2-2 Ripple Current Waveform of Capacitor

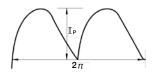


Fig.2-3 Low-frequency component

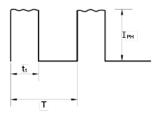


Fig.2-4 High-frequency component

Each of the above may be obtained as the effective ripple current value. Assuming that the ripple current waveform of the low-frequency component is generally approximated to the full-wave rectification waveform as shown in Fig.2-3, we obtain the effective ripple current value I_L as follows:

$$I_\text{L}\!=\!\frac{I_\text{PL}}{\sqrt{2}}\!=0.707~\text{x}~I_\text{PL}$$

Since the ripple current waveform of the high-frequency component is approximated to the rectangular as shown in Fig.2-4, the effective current value of high-frequency

component I_H is given by
$$I_{H} = \sqrt{\frac{1}{T} \int_{0}^{t_{1}} I_{PH}^{2} d_{1}} = I_{PH} \sqrt{\frac{t_{1}}{T}}$$

The reason why the ripple current affects the life is due to the heat generated by the ESR (R) of capacitor.

That is, ΔT by heat generation can be expressed by

$$\Delta T \propto I^2 x R$$
 from Expression (2).

Therefore, when ripple currents with different frequencies are handled, each current value must first be squared and then summed. That is:

$$I = \sqrt{(I_L)^2 + (I_H)^2}$$

Now, we proceed to specific examples assuming that the effective ripple current values of low-and high-frequencies have been obtained by the above methods.

Data A (Test piece and basic data)

Product name : 250V 560 μ F ϕ 30x30 L, Series LAT = 2000 hours Κ Τo = 105°C ΔT_0 = 5deg = 1.80Arms at 105°C, 120Hz Tο

To verify the effect of the high-frequency component, the expected life will be calculated for each of three highfrequency ripple current conditions.

Data B

 $I_L = 2.4$ Arms at 120Hz, T=45°C I_{H1} = 0.36Arms at 1kHz (corresponding to 15% of the commercial frequency component) I_{H2} = 0.72Arms at 10kHz (corresponding to 30% of the commercial frequency component) I_{H3} = 1.2Arms at 30kHz (corresponding to 50% of the commercial frequency component)

For Data B, the currents are converted to 120Hz by the frequency conversion factor for the cases of ignorance of the high-frequency component, and each high-frequency component condition.

$$\begin{split} I &= 2.4/1 = 2.4A \\ I_1 &= \sqrt{(2.4)^2 + (0.36/1.32)^2} \stackrel{.}{=} 2.42A \\ I_2 &= \sqrt{(2.4)^2 + (0.72/1.45)^2} \stackrel{.}{=} 2.45A \\ I_3 &= \sqrt{(2.4)^2 + (1.2/1.50)^2} \stackrel{.}{=} 2.53A \end{split}$$

Explained here is about the frequency conversion factor. As described above, the heat generation (or temperature rise = ΔT) affecting the life is proportional to the ESR of capacitor. In addition, the fundamental frequency is 120Hz in measurement of capacitor characteristics, and the ripple current is also specified with this frequency; it is thus more convenient to calculate by converting the current value to that with the same temperature rise at

The ESR of aluminum electrolytic capacitor is frequency dependent.

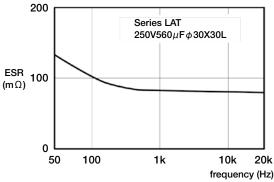


Fig.2-5 Frequency Characteristics of ESR

Figure 2-5 shows a typical example of frequency characteristics of ESR, indicating that the ESR decreases with increasing frequencies. Therefore, the high-frequency component has less effect on the heat generation of capacitor than low-frequency component.

Next, we calculate the expected life according to each condition to compare with the case with no highfrequency component.

For the case with no high-frequency component:

$$L = 2000 \times 2^{\left(\frac{105 - 45}{10}\right)_{X}} \left(1 - \left(\frac{2.4}{1.80}\right)^{2}\right) \times \frac{5}{10} = 74,658 \text{ hours}$$

For the case with high-frequency component:

$$L = 2000 \times 2^{\left(\frac{105 - 45}{10}\right)} \times 4^{\left(1 - \left(\frac{2.42}{1.80}\right)^{2}\right)} \times \frac{5}{10} \stackrel{?}{=} 73,479 \text{ hours}$$

73,479/74,658=0.984, about a 1.6% reduction in life

$$L = 2000 \times 2 \left(\frac{105 - 45}{10}\right)_{X} \left(1 - \left(\frac{2.48}{1.80}\right)^{2}\right) \times \frac{5}{10} \stackrel{.}{=} 70,822 \text{ hours}$$

70,822/74,658=0.949, about a 5.1% reduction in life

$$L = 2000 \times 2 \left(\frac{105 - 45}{10}\right)_{X} 4 \left(1 - \left(\frac{2.61}{1.80}\right)^{2}\right) \times \frac{5}{10} \\ \stackrel{.}{=} 65,105 \text{ hours}$$

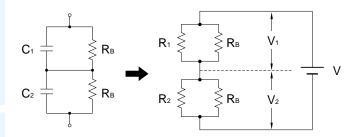
65,105/74,658=0.872, about a 12.8% reduction in life As described above, there may be cases where the effect of larger high-frequency component on the life cannot be ignored; thus high-frequency component exceeding 30% with respect to the current with funda-mental frequency should be considered.



3 To calculate Balance when connecting in series

3-1 Circuit layout

Circuit for connecting two capacitors (C1, C2) in series and equivalent circuit can be illustrated as below figure. Formula to calculate a balance resistance R_{B} of below figure is shown as follows.



Following are the preconditions of the circuit.

- ① V_2 shall be the rated voltage (= V_0). ($V_1 < V_2$)
- ② V shall be a times $V_0 \times 2$. $V = 2aV_0$ (a<1)

3-2 Formulas to calculate [R_B]

3-2-1 Following formula can be established from balanced condition.

$$V_{1} \left[\frac{1}{R_{1}} + \frac{1}{R_{B}} \right] = V_{2} \left[\frac{1}{R_{2}} + \frac{1}{R_{B}} \right]$$
 (2)

3-2-2 Following formula can be established from preconditions.

$$V_2 \le V_0 \tag{3}$$

$$V_1 = V - V_2 \tag{4}$$

$$=2aV_0-V_2$$
 (4')

3-2-3 Put formulas (1), (3) and (4') in formula (2).

$$\begin{array}{l} (2aV_0\!-\!V_2) \, \left[\frac{R_1 + R_B}{R_1 \, x \, R_B} \right] \!\! = \!\! V_2 \! \left[\frac{bR_1 + R_B}{bR_1 \, x \, R_B} \right] \\ 2abV_0(R_1\!+\!R_B) \!\! = \!\! V_2 \, \{ b(R_1\!+\!R_B) \!+\! bR_1 \!+\! R_B \} \\ 2ab(R_1\!+\!R_B) \leq 2bR_1 \!+\! (1\!+\! b)R_B \\ \end{array}$$

Accordingly, balance resistance R shall be the following formula.

$$R_{B} \leq 2bR_{1} \frac{(1-a)}{(2a-1) \times b-1}$$
 (5)

3-3 Calculation Example

Calculate the value of the balance resistance in the case of connecting two 400V 470 μ F (LC standard value : 1.88mA) capacitors in series.

$$R_1 = \frac{400(V)}{1.88(mA)} = 213(k\Omega)$$

If $a=0.8, 400(V)\times2\times0.8=640(V)$ as an impressed voltage.

If b=2, R₂=b R₁=426(k Ω), LC=0.94(mA). Balance resistance R_B will be.

$$R_B \le 2 \times 2 \times 213 (k\Omega) \frac{(1-0.8)}{(2 \times 0.8) \times 2-1} = 852 (k\Omega)$$

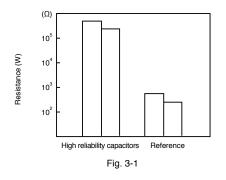
4 Regarding Recovery Voltage

- After charging and then discharging the aluminum electrolytic capacitor, and further causing short-circuit to the terminals and leave them alone, the voltage between the two terminals will rise again after some interval. Voltage caused in such case is called recovery voltage. Following is the process that causes this phenomenon:
- When the voltage is impressed on a dielectric, electrical transformation will be caused inside the dielectric due to dielectric action, and electrification will occur in positive-negative opposite to the voltage impressed on the surface of the dielectric. This phenomenon is called polarization action.
- After the voltage is impressed with this polarization action, and if the terminals are discharged till the terminal voltage reaches 0 and are left open for a while, an electric potential will arise between the two terminals and thus causes recovery voltage.
- Recovery voltage comes to a peak around 10 to 20 days after the two terminals are left open, and then gradually declines. Recovery voltage has a tendency to become bigger as the component (stand-alone base type) becomes bigger.
- If the two terminals are short-circuited after the recovery voltage is generated, a spark may scare the workers working in the assembly line, and may put low-voltage driven components (CPU, memory, etc.) in danger of being destroyed. Measures to prevent this is to discharge the accumulated electric charge with resistor of about 100 to $1k\Omega$ before using, or ship out by making the terminals in short-circuit condition by covering them with an aluminum foil at the production stage. Please consult us for adequate procedures.

5 Electrode Foil Development Technology

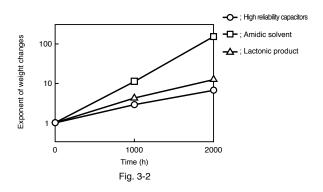
5-1 Corrosion inhibition of cathode foil

Inactive treatment is implemented to ensure long life by inhibiting natural corrosion of the cathode foil. Fig. 3-1 shows its effects with values of the polarization resistance inversely proportional to the corrosion rate using the AC impedance method (FRA). This indicates that the cathode foil used in the High reliability capacitors has the polarization resistance higher than that of the conventional capacitors owing to corrosion inhibition.



5-2 Sealing material permeability of electrolyte

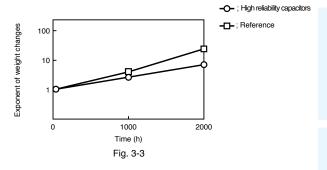
To ensure long life, a low permeable lactone solvent for the sealing material is used as the main solvent of the electrolyte of the High reliability capacitor. Fig. 3-2 shows the test results on the permeability obtained by changing the weight of the capacitors produced with different types of electrolytes at a high temperature.



5-3 Airtightness of sealing material

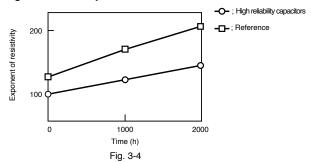
Since the electrolyte is stable for hours, the key element for capacitor's life is the sealing material. By optimizing the crosslinking density of the sealing material polymer, the sealing material of the High reliability capacitor attains its long life with electrolyte permeability less than that of the conventional capacitors.

Fig. 3-3 shows the test results on the airtightness of the sealing material obtained by changing the weight of the capacitors at a high temperature, producing capacitors with the conventional sealing material and improved one both containing the electrolyte used in the High reliability capacitor.



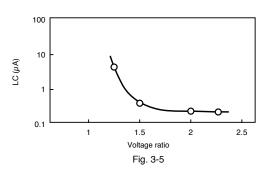
5-4 Long-time stability of electrolyte

The electrolyte used in the High reliability capacitor is stable with low initial resistivity and small secular changes at a high temperature. Fig. 3-4 shows change in resistivity at 105°C.



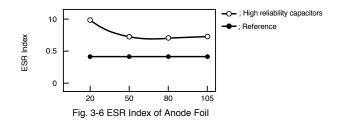
5-5 Dielectric formation voltage and leakage current characteristics of anode foil

To increase the operating life by controlling the gas generation inside capacitor because of 1.5 to 2 times the rated voltage, while that of the previous capacitor is about 1.3 times the rated voltage.



5-6 Lowered ESR of Electrode Foil

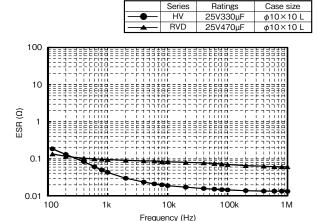
To reduce the ESR of electrolytic capacitor, we have improved our chemical conversion technology for anode foil to develop lower ESR electrode foil compared to the conventional product as shown in Fig. 3-6



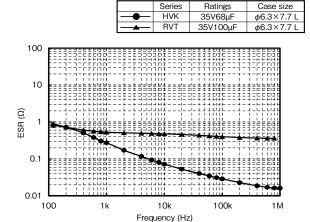
Electric Characteristics Data

1.CONDUCTIVE POLYMER HYBRID ALUMINUM ELECTROLYTIC CAPACITORS

Series HV (garanteed 105°C) Frequency characteristics at 20°C

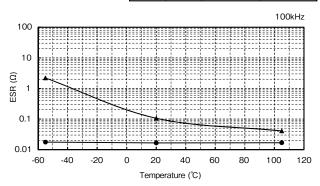


Series HVK (garanteed 125°C) Frequency characteristics at 20°C



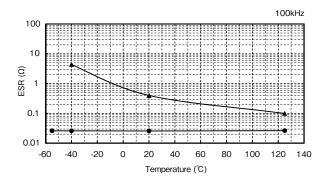
Temperature Characteristics

	Series	Ratings	Case size
-	HV	25V330µF	φ10×10 L
	RVD	25V470µF	φ10×10 L



Temperature Characteristics

	Series	Ratings	Case size
-	HVK	35V68µF	φ6.3×7.7 L
	RVT	35V100μF	φ6.3×7.7 L



	Series	Ratings	Case size	Rated ripple current (100kHz)		
-	HV	25V220μF	φ8×10 L	2300mArms		
	RVD	25V220μF	φ8×10 L	600mArms		
Capacitance change (%)	5 0 -5 10 15 220 225 30 0	2000 4000	6000 80	000 10000		
tan õ	0.4 0.3 0.2 0.1 0	2000 4000	6000 80	000 10000		
Leakege Current (µA)	30 25 20 15 10 5 0	2000 4000	6000 80	10000		
		LIIE	; i iiiie (i i)			

Endurance (Applied ripple current) at 125°C

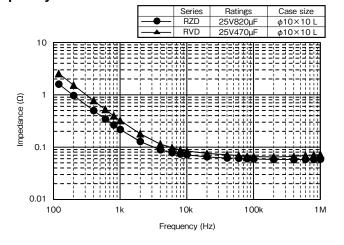
	Series	Ratings	Ca	se size	Rated ripple or	urrent (100kHz)
-	HVK	35V270µ		0×10 L	2000mArms	
	RVT	35V220µ	μF φ1	- φ10×10 L		nArms
Capacitance change (%)		000 2000	0 3000	4000	5000	6000
0.6 0.5 0.4 0.3 0.2 0.1		000 2000		4000	5000	6000
15 20 15 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		000 2000		4000	5000	6000
			Life Time	(h)		

Notice: The measurement values are not guaranteed values, but measurements.

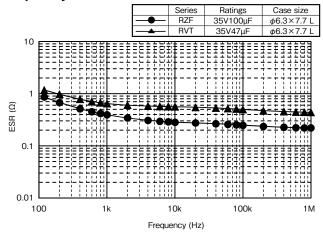
2.CHIP TYPE ALUMINUM ELECTROLYTIC CAPACITORS

Series RZD (garanteed 105°C) Frequency characteristics at 20°C

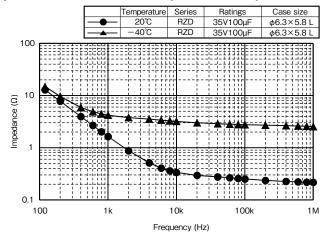
ELNA®



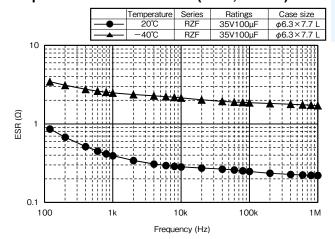
Series RZF (garanteed 125°C) Frequency characteristics at 20°C



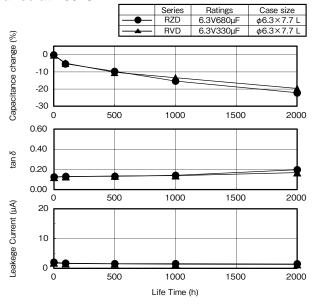
Temperature Characteristics (20°C, -40°C)



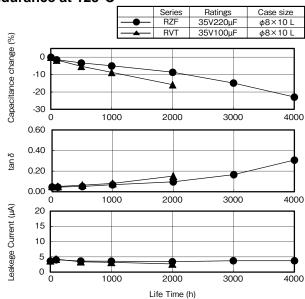
Temperature Characteristics (20°C, -40°C)



Endurance at 105°C



Endurance at 125°C



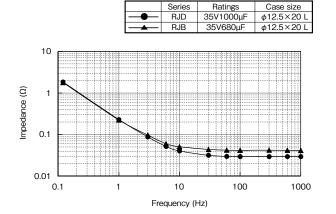
Notice: The measurement values are not guaranteed values, but measurements.

TECHNICAL DATA MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

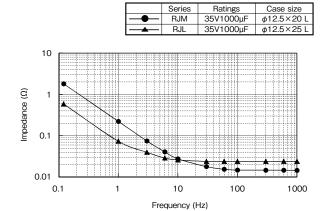


3.MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS (1)

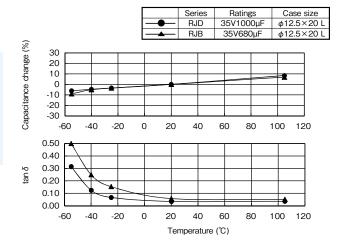
Series RJD (garanteed 105°C) Frequency characteristics at 20°C



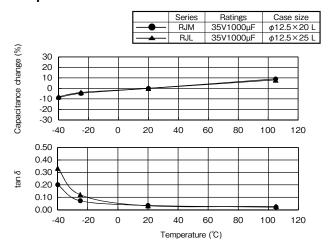
Series RJM (garanteed 105°C) Frequency characteristics at 20°C



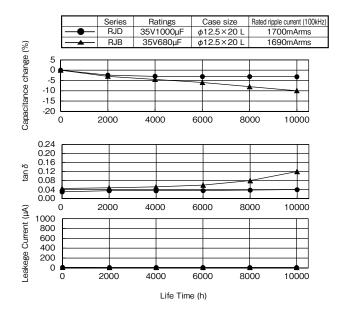
Temperature Characteristics



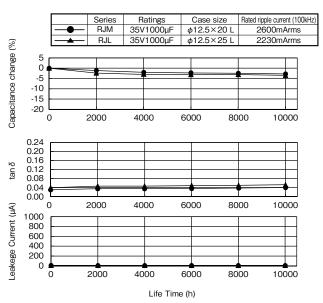
Temperature Characteristics



Endurance (Applied ripple current) at 105°C



Endurance (Applied ripple current) at 105°C

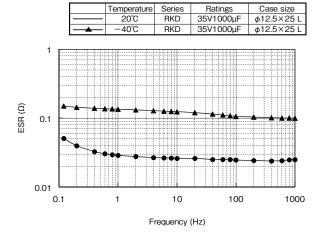


Notice: The measurement values are not guaranteed values, but measurements.

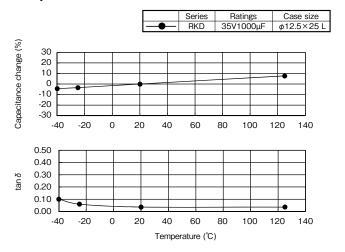


4.MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS (2)

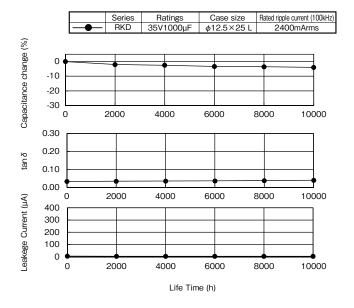
Series RKD (garanteed 125°C) Frequency characteristics at 20°C



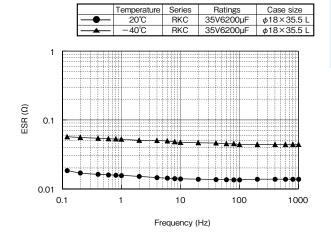
Temperature Characteristics



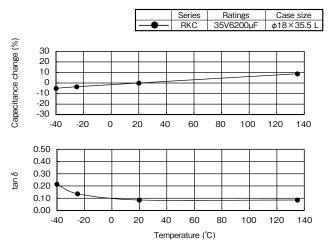
Endurance (Applied ripple current) at 125°C



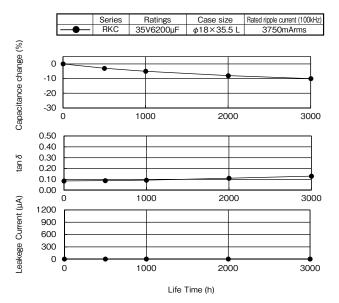
Series RKC (garanteed 135°C) Frequency characteristics at 20°C



Temperature Characteristics



Endurance (Applied ripple current) at 135°C

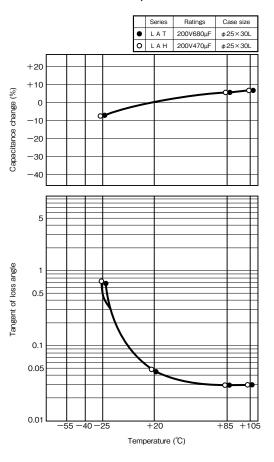


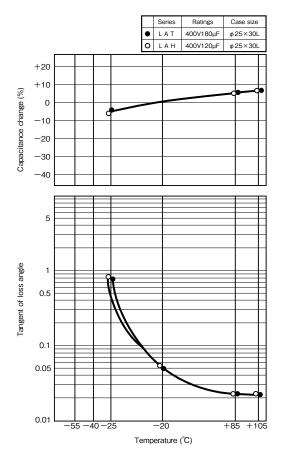
Notice: The measurement values are not guaranteed values, but measurements.

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5.LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS

Temperature characteristics, Series LAT • LAH





Endurance (Applied ripple current) at 105°C of Series LAT • LAH

φ22×35L

Case size Rated Ripple current (120Hz)

1.93Arms

Series

LAT 160V680μF

Ratings

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		0	LAH	160V560µF	φ22×40L	1.62Arms
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Tangent of loss angle	0.05					
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Leakage current (µA) Tangent c	50					
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	0.01 50 10 5			1000 20	000 30 Time (h)	000 4000 5000

		0	LAH	20	0V1800μF	φ35×50L	2.7	70Arms
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Tangent c	0.05	9						
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	0.01 50 10 5			100	00 2:	0000 3	000 41	000 5000

Series

Ratings

φ35×50L

LAT 200V2700uF

Case size Rated Ripple current (120Hz)

5.09Arms

Notice: The measurement values are not guaranteed values, but measurements.



ELNA®

Electric Double Layer Capacitors "DYNACAP"

List of Contents

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■ Type List for DYNACAP

★ : New series☆ : Upgrade

	Category	Series		ry temp. ge ℃ Min.	Max.operating voltage V.DC	Capacitance range F	Color of sleeve	Page	Applications	Remarks
	Reflow soldering type	DVN	+70	- 25	5.5	0.047 to 0.33	Brown	241		
	Reflow soldering type	DVL	+ 85	- 40	5.5	0.047 to 0.22	Brown	242	Ideal for industrial, smart meter, backing up of RTC's for surveillance camera, momentary power assistance of a better rate of the start of the star	
	Reflow soldering type	DVS	+ 85	- 25	3.6	0.047 to 0.33	Brown	243	of a battery etc.	
	Standard type	DB	+70	- 25	5.5	0.047 to 1.5	Indigo	244		
	Low profile Low ESR type	DBN	+ 70	- 25	5.5	0.047 to 1.5	Indigo	245	Ideal for backing up of CMOS's, IC's of camera, microcomputers, RAM's, RTC's and the like used in	
	Low profile High temperature type	DBJ	+ 85	- 10	5.5	0.047 to 1	Black	246	audio, general electronic device, and others.	
	Low profile Low ESR High temperature	DBS	+ 85	- 25	3.6	0.047 to 1	Black	247	Ideal for backing up of CMOS's, IC's of camera, microcomputers, RAM's, RTC's and the like used in audio, smart meter, general electronic device, and others.	
	Miniaturized Standard type	DX	+ 70	- 25	5.5	0.047 to 1.5	Indigo	248		
	Miniaturized Low ESR type	DXN	+ 70	- 25	5.5	0.047 to 1.5	Indigo	249		
sckup	Miniaturized High temperature type	DXJ	+ 85	- 10	5.5	0.047 to 1	Black	250	Ideal for backing up of CMOS's, IC's of camera, microcomputers, RAM's, RTC's and the like used in audio, general electronic device, and others.	
memory backup	Miniaturized Low ESR High temperature type	DXS	+ 85	- 25	3.6	0.047 to 1	Black	251		
For	High temperature type	DH	+ 85	- 25	5.5	0.047 to 1	Indigo	252	Ideal for backing up of RTC's for smart meter, outdoor equipment, industrial, momentary power assistance of a battery, automotive etc.	
	Wide temperature range type	DHL	+ 85	- 40	5.5	0.047 to 1	Indigo	253	Ideal for backing up of CMOS IC's,	
	High temperature long life type	DHC	+ 85	- 25	5.5	0.047 to 1	Black	254	microcomputers, RAM's, RTC's for smart meter. outdoor equipment, auto motive and industrial.	
		DC (614)	+70	- 25	2.5	0.2				
		DCK (614)	+ 60	- 10	3.3	0.2			Ideal for backing up of pager, solar watches, solar	
	Coin type	DC (621)	+ 70	- 25	2.5	0.33	Silver	255	calculators, solar remote control units, camaras and the like.	
		DCK (621)	+ 60	- 10	3.3	0.4				
		DSK (414)	+70	- 10	3.3	0.07		256		
		DS (614)	+70	- 25	2.5	0.2				
	Reflow soldering	DSK (614)	+ 60	- 10	3.3	0.2	Silver		Mountable on board with best suited for mainly memory and time functions as well as memory	
	Coin type	DS (621)	+ 70	- 25	2.5	0.33	1	257	backup for PDA and DSC.	
		DSK (621)	+ 60	- 10	3.3	0.33				
	Standard type	DZ	+70	- 25	2.5 / 2.7	1 to 200	Black		Ideal for power supplies of LED displays, personal	
	Large capacitance type	DZH	+ 60	- 25	2.5	22 to 300	Black	258	wireless items, backup for power supplies, and the storage battery of solar battery.	
٧er	High power type	DZN	+70	- 25	2.5 / 2.7	1 to 200	Blue	260	Ideal for actuator of moters and electromagnetic coil drives.	
For power	High power Low temperature type	DU	+ 65	- 40	2.7	1 to 50	Brown	262	Ideal for actuator of moters and electromagnetic coil drives.	
Щ	High power High voltage tolerance Low temperature type	DUK	+ 65	- 40	3.0	1 to 50	Brown	263	Ideal for actuator of moters and electromagnetic coil drives.	*
	Packed type	DZP	+ 70	- 25	5.0	0.47 to 4.7	Blue	264	Ideal for power supplies of LED displays, personal wireless items, backup for power supplies, and the storage battery of solar battery.	

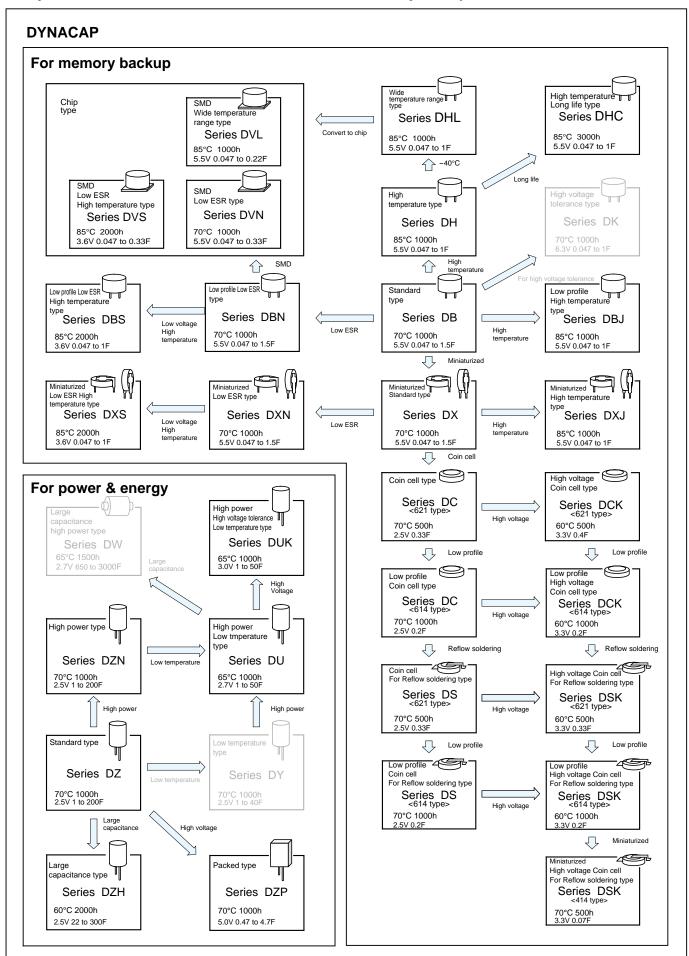
Some of the series listed in the below table have been removed from the catalogue. Please select from the new series for a designing your (new) application.

	Category	Series		ry temp. ge °C	Max.operating voltage	Capacitance range	Color	Applications	Substitute series to	
	,		Max.	Min.	V.DC	F	sleeve	pp	recommend	
For memory backup	High voltage tolerance type	DK	+ 70	- 25	6.3	0.047 to 1	Indigo	Ideal for backing up of Li-battery-backed equipment such as cameras, video, medical and telephone sets.	_	
For energy	Low temperature type	DY	+ 70	- 40	2.5	1 to 40	Brown	Ideal for power supplies of LED displays, personal wireless items, backup for power supplies, and the storage battery of solar battery.	DU	
For energy	Large capacitance High power type	DW	+ 65	- 40	2.7	650 to 3000	Black	Ideal for boost charge, such as energy regeneration, and a large current discharge use.	_	





■ Systematized Classification of Electric Double Layer Capacitors





■ Product Symbol System for Electric Double Layer Capacitors

			((- (
① Series code	② Max operating Voltage symbol	 4 Rated Capacitance symbol	⑤ Casing symbol	6 Plating symbol	⑤ Casing symbol	⑦ Optional symbol	8 Terminal symbol	9 Taping lead-forming symbol

1Series code

Please refer to the page of each series.

2 Max operating voltage symbol

Example

Max.operating voltage (V)	Voltage symbol
2.5	2R5
2.7	2R7
3.0	3
3.3	3R3
3.6	3R6
5.0	5
5.5	5R5
6.3	6R3

3Shape symbol

Please refer to the page of each series.

4 Rated capacitance symbol

Example

Capacitance (F)	Capacitance symbol	Capacitance (F)	Capacitance symbol
0.047	473	10	106
0.07	703	15	156
0.1	104	20	206
0.2	204	22	226
0.22	224	25	256
0.33	334	30	306
0.4	404	33	336
0.47	474	40	406
0.68	684	50	506
0.9	904	100	107
1	105	200	207
1.5	155	300	307
2.7	275		
3.3	335		
4.7	475		
5.6	565		
6.8	685		

5 Casing symbol

Please refer to the page of each series.

6 Plating symbol

Example

Symbol	Contents
U	Sn 100% plating or Sn+Cu plating
Т	Sn 100% plating

7Optional symbol

Example (For Automotive)

Symbol	Contents
Q	Based on AEC-Q200
М	Based on AEC-Q200

®Terminal symbol

Please refer to the page of each series.

9 Taping, Lead-forming symbol

DZ,DZH,DZN,DU,DUK: Write down one of the forming symbols given on page 15 to 19 for taping and lead-forming capacitors. DVN,DVL,DVS,DS,DSK: Write down one of the forming symbols given on page 237 for taping capacitors. When taping or lead-forming is not necessary, leave the boxes blank.

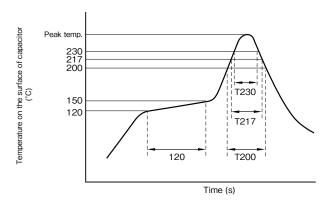


Recommended soldering conditions (Lead Free)

Series DS, DSK, DVN, DVL, DVS

Reflow soldering conditions.

Profile



- 1. Preheating shall be under 150°C within 120 seconds.
- 2. Peak temperature shall be within the following table.3. For conditions exceeding the tolerances, consult with us.

T200: Duration while capacitor head temperature exceeds 200°C (s). T217: Duration while capacitor head temperature exceeds 217°C (s).

T230: Duration while capacitor head temperature exceeds 230°C (s).

The measurement temperature point is the case top.

Series	Size	Peak temp. (5sec or less)	T230	T217	T200	Reflow cycle
DS DSK	φ4.8 to φ6.8	250°C Max.	20sec. max.	30sec. max.	40sec. max.	2 times or less
DVN DVL DVS	φ12.5	260°C Max.	20sec. max.	30sec. max.	50sec. max.	2 times or less

Attention: Carry out soldering work at low temperature and in the shortest time within above conditions. Do NOT reflow solder, when cell voltage is above 0.5V.

*Please consult with us about reflow soldering conditions other than the above.

■ Recommended soldering conditions (Lead free)

Electric Double Layer capacitors

(1) Soldering iron conditions

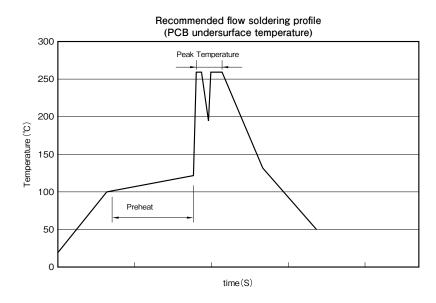
Iron tip temperature should be 400°C±5°C within the duration of 4 secons.

However, soldering condition of DC or DCK series is only soldering iron.

DC or DCK series are iron tip temperature should be 360 °C±5°C and the time should be 4 seconds or less.

(2) Flow soldering conditions

The recommendation soldering conditions of the product in which flow soldering is possible are as graph



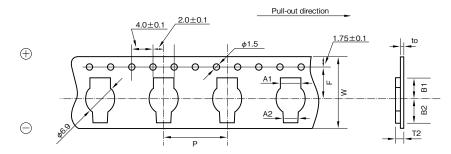
Type	Series	Size	Prel	neat	Peak		
Туре	Series	Size	Temperature	Time	Temperature	Time	
Coin cell	DB,DBN,DBJ DBS,DX,DXN DXJ,DXS,DH DHL,DHC	φ11.5 to φ21.5	100 to 110	30sec. max.	260°C Max	5sec. max.	
Cylindrical cell	DZ,DZH,DZN DU,DUK,DZP	φ6.3 to φ35	100 to 130	30 to 60s	260°C±5°C	10sec. max.	

Cautions when soldering

- (1) Do not dip the capacitor into melted solder.
- (2) Do not flux other part than the terminals.
- (3) If there is a direct contact between the sleeve of the capacitor and the printed circuit pattern or a metal part of another component such as a lead wire, it may cause shrinkage of crack.
- (4) If it is a coin type, please manage so that main part temperature including preheating does not exceed 90°C.
- (5) Please refer to cautions for using on page 239 to 240 and the specification about other notes.

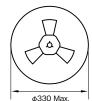


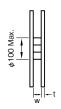
■ Carrier tape dimensions (Series DS, DSK) polarity L



	(Ont. min)									
Outside size	W	Р	F	A1	A2	B1	B2	T2	to	φD
φ6.8×1.4 to 2.1L	24±0.2	12.0	11.5	4.4	3.4	5.9	6.5	3.2	0.3	6.9
φ4.8×1.4L (Terminal shaped : HL)	16±0.2	8.0	7.5	2.4	3.6	5.0	5.1	2.45	0.3	4.9
φ4.8×1.4L (Terminal shaped : HR)	1	1	1	3.6	2.4	5.1	5.0	1	1	↑

■ Reel dimensions



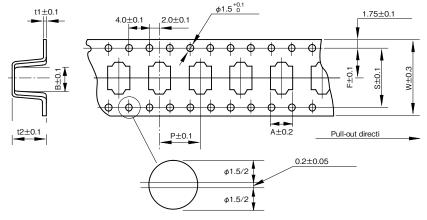


	(Unit : mm)
Outside size	W	t
φ6.8×1.4 to 2.1L	26	3
φ4.8×1.4L	18	3

Outside size	Quantity
φ6.8×2.1L	1500PCS.
φ6.8×1.4L	1500PCS. to 2000PCS.
φ4.8×1.4L	2000PCS.

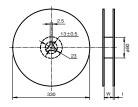
■ Packing quantity

■ Carrier tape dimensions (Series DVN, DVL, DVS) polarity R



								(Unit : mm)
Outside size	w	А	В	Р	t2	F	t1	S
φ12.5×10.5L	32	13.4	13.4	24	11	14.2	0.5	28.4
φ12.5× 8.5L	32	13.4	13.4	24	9.5	14.2	0.5	28.4

■ Reel dimensions



(Unit : mn					
Outside size	W	t			
φ12.5×10.5L	34	3			
φ12.5× 8.5L	34	3			

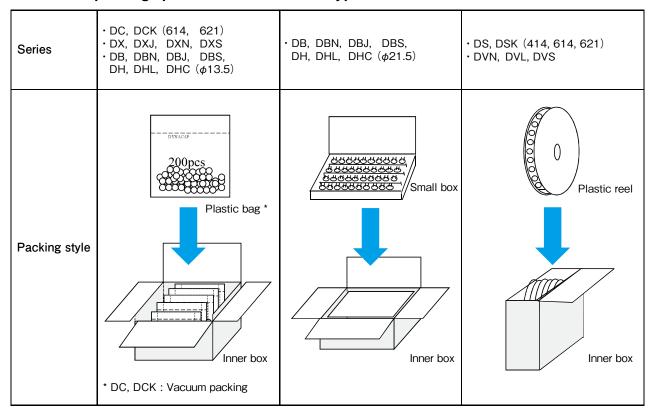
■ Packing quantity

Outside size	Quantity
φ12.5×10.5L	250pcs.
φ12.5× 8.5L	300pcs.

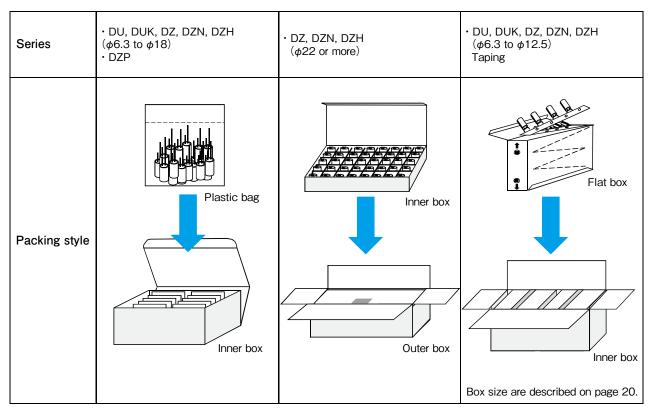
PACKING ELECTRIC DOUBLE LAYER CAPACITORS



■ Standard packing specification of Coin cell type



■ Standard packing specification of Cylindrical cell type



Please inquire for details.





Cautions for Using Electric Double Layer Capacitors (DYNACAP)

Usage

1. Electric double layer capacitors (EDLC) use a conductive organic electrolyte.

The use at excessive mounting temperature or exceeding the upper category temperature can cause the electrolyte to leak. Especially,coin and multilayer coin types for the memory backup excluding the DZ, DZH, DZN, DU, DUK, DZP series use a low elastic plastic as the sealant in the cell construction like coin batteries; therefore, avoid using such capacitors in the Vicinity of automotive equipment with steep temperature change, and heating element such as motor, relay, transformer, power IC, etc. because of the risk of leakage of electrolyte.

2. Since EDLC is polarized, do not apply a reversed voltage.

EDLC is polarized. If a reversed voltage is applied for a long time, the leakage current will increase abruptly, which may cause a decrease in the capacity, an increase in the internal resistance, and causing leakage or damage to the product in some cases.

3. Do not apply any voltage higher than the operating maximum voltage (this means the surge voltage in the case of short-time charge).

If an overvoltage is applied to the product, the leakage current will increase abruptly and the product will become overheated, which may cause a decrease in the capacity, an increase in the internal resistance, and causing leakage or damage to the product in some cases.

Do not use smoothing a power supply (for absorbing its ripple).

Since the internal resistance of EDLC is high, the product will be overheated if it is used for smoothing a power supply (for absorbing its ripple), which may cause a decrease in the capacity. an increase in the internal resistance, and causing leakage or damage to the product in some cases .

5. Do not use in a circuit where quick charge and discharge are repeated Very often.

In a circuit where quick charge and discharge are repeated very often, the product will become overheated, which may cause a decrease in the capacity, an increase in the internal resistance, and causing leakage or damage to the product in some cases.

Reduce the charge and discharge currents while selecting a product with low internal resistance, and rnake sure that the product surface temperature does not rise.

6. EDLC life depends heavily on the ambient temperature.

(1) The lifetime of EDLC is seriously affected by change in ambient temperature. If the temperature is lowered by 10°C, the lifetime will be approximately doubled. Therefore, the product should be used at a temperature lower than the guaranteed maximum value for maximum life.

②If the capacitor is used at a temperature exceeding its maximum guaranteed temperature, not only is its life shortened, but increased vapor pressure of electrolyte or electrochemical reactions may increase the internal pressure, and causing leakage or damage to the product in some cases.

7. Do not use the product in an ambient atomsphere containing waterdrops (condensation) or toxic gases.

Although EDLC is sealed, water droplets or toxic gases may do degradation characteristics, a leakage and corrode the lead wires and the case, which may cause a breaking of the wires.

Avoid abrupt temperature changes, which may cause water droplets, resulting in product deterioration and electrolyte leakage.

8. Contact us before connecting the products in series.

A series connection will cause imbalance in the voltage, charged to the capacitors and an overvoltage may be charged to one or more them. This may cause a decrease in the capacity, an increase in the internal resistance and causing leakage or damage to the product in some cases. When using series connection for several capacitors, please derate the applied voltage from the operating maximum voltage or use balancing circuits (bleeder resistor, etc.) to compensate for the imbalance in the applied voltage for each capacitor Moreover, please ensure the arrangement does not cause temperature fluctuation between capacitors.

9. About vibration.

A terminal blank, a terminal bend, and a crease may occur by adding too much vibration to a capacitor.

Moreover, depending on the case, an EDLC may do degradation of the characteristic, breakage, and a leakage.

When you become too much vibration, please contact us.

10. When used on a double sided printed circuit board, do not overlap the wiring patterns on the mounted part.

A short circuit may be created by certain wiring conditions. Should the electrolyte leaks, the circuit pattern may cause a short circuit, resulting in tracking or migration.

11.Do not keep In high temperature and high humidity atmospheres.

①Avoid high temperature or high humidity or direct rays when storing capacitors.

- ② Keep the product in a place where the temperature is 5°C to 30°C and the humidity is lower than 60%. Avoid an abrupt temperature change, which may cause condensation or deterioration of the product or liquid leakage. (Recommended storage term: 1year or less after delivery)
- 3 Do not store EDLC at a place where there is a possibility that they may get water, salt or oil spill.





①Do not store EDLC at place where the air contains dense hazardous gas (hydrogen sulfide, sulfurous acid, nitrous acid, chlorine ammonia, etc.).
 ⑤Do not store EDLC at a place where it gets ultraviolet ray or radioactive ray.

12. Capacitors fitted with a relief valve

①The relief valve is provided with a valve function with part of the case made thin to avoid explosion by increased internal pressure when the capacitor is under abnormal load such as overvoltage or reverse voltage. After activation of the relief valve, the capacitor must be replaced as it does not restore.

②For the capacitors with a case relief valve (series DZ,DZH,DZN,DZP,DU,DUK), provide a void on the top of the relief valve so as not to hamper its activation. Make a void of 2 mm or more for the product of ϕ 18 or less in diameter, and a void of 3 mm or more for the product of ϕ 20 to ϕ 35 mm in diameter on the top.

13. Use at a high altitude

The use of capacitors at high altitudes such as on an airplane causes a large difference between the internal pressure of the capacitors and the atmospheric pressure.

However, there is no problem in use under atmospheric pressure up to about an altitude of 10,000 meters.

If the condition is severe like space, please contact us.

■Mounting

1. Do not overheat when soldered.

Depending on the type and size of the board, the product may be subjected to overheat, leading to loss of airtightness. This may greatly shorten the product life or cause liquid leakage.

In case of a 1.6mm-thick and single side printed board. for example, keep the following soldering conditions: temperature lower then 260°C, time within 5 seconds (coin type), 10 seconds (Cylindrical type).

When a board thinner than 1.6 mm or multi-layer printed board is used, contact us.

In the case of hand soldering, the iron tip temperature is lower than 400°C, time is shorter than 4 seconds.

The coin types and multilayer coin types excluding the DZ and reflow-compatible coin types use polypropylene as the packing material for sealing and therefore susceptible to excessive heat. Note that the component body temperature shall be controlled so as not to exceed 90°C including preheating.

2. When soldering the capacitor to the wiring board, do not attach the body of the capacitor to the circuit board.

If the body of the capacitor is attached directly to the circuit board, the flux or solder can blow through the through holes in the circuit board, negatively impacting the capacitor.

Moreover, the heat influence at the time of soldering can be reduced by floating the body.

3. Contact us when cleaning is necessary after soldering.

Certain types of solvents are not compatible and may cause damage.

4. Contact us when the product Is attached by adhesive bonding.

Certain types of adhesives are not compatible. Paste bond partially between the product and the board so that the product will not adhere completely to the board.

Do not raise the temperature over the guaranteed value while the bond is hardening.

5. Heating conditions of adhesive curing oven

During heating of the adhesive curing oven, application of excessive heat may significantly shorten the product life or cause liquid leakage. Control the body temperature so as not to exceed 90°C during work while setting the allowable atmospheric temperature below 110°C, and allowable heating time within 30 seconds.

For the heating conditions deviating from the above, consult with us providing your temperature profile conditions.

6. Be careful not to apply an excessive force to the capacitor body, terminals or lead wires.

①Mount the capacitor while making sure that the terminal spacing of the capacitor and the spacing of the holes in the printed wiring board are aligned. ②If the capacitor body is subjected to stress such as grabbing, falling, bend, pushing or twisting after mounted, its terminals may come off, leading to open, short or liquid leakage.

Other cautions

1. Emergency procedures

If the EDLC overheats or starts to smell, immediately switch off the units main power supply to stop operation.

Keep your face and hands away from the EDLC, since the temperature may be high enough to cause the EDLC to ignite and burn.

2. Periodical inspections should be established for the EDLC used in industrial appliances.

The following items should be checked:

①Appearance: Check if there is leakage.

②Electronic performance: Check the leakage current, the electrostatic, the internal resistance and other items described in the catalog or the product specifications.

3. Disposing of EDLC

①Punch a hole or crush the EDLC (to prevent explosion) before incineration at approved facility. ②If they are not to be incinerated, bring them to a professional industrial waste disposal company.

4. Other notes

Please refer to the following literature for anything not described in the specification or the catalog. (Technical Report of Japan Electronics and Information Technology Industries Association #EIAJ RCR-2370B "Guideline of notabilia for fixed electric double layer capacitors")



ELECTRIC DOUBLE LAYER CAPACITORS "DYNACAP"



5.5V SMD, Low Resistance Capacitors







- Size : φ12.5×8.5Lmm, compatible with surface mounting and low ESR.
- Unlike batteries, safe and high reliability without containing active and hazardous substance.
- Unlike batteries, excellent charge and discharge characteristics with no chemical reactions.
- Responds to temperature 260°C during the reflow peek.
- · Ideal for industrial, smart meter, backing up of RTC's for surveillance camera, momentary power assistance of a battery etc.



Marking color: White print on an brown sleeve

Convert to chip



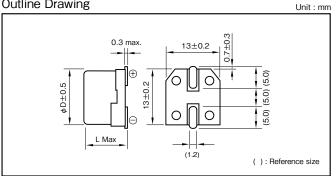




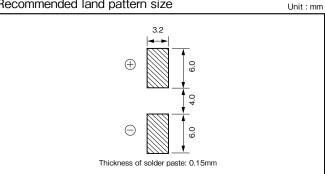
Specifications

Item	Performance								
Category temperature range (°C)	- 25 to +70								
Tolerance at rated capacitance (%)	- 20 to +80								
Internal resistance at 1 kHz	Rated capacitance (F)	0.047	0.1	0.22	0.33				
	Internal resistance (Ω Max.)	30	30	30	30				
Characteristics at high and low temperature	Percentage of capacitance change Internal resistance		thin ±30% of the value at 20°C we times or less of the value at 20°C						
Endurance (70°C)	Test time Percentage of capacitance change	1000 hours Within ±30% of the initial measured value							
	Internal resistance	Four times or less of the initial specified value.							
Shelf life (70°C)	Test time	Test time: 1000 hours; Same as endurance.							
Applicable standards	Cor	nforms to JIS C5160-1 (IEC 62391-1)						

Outline Drawing







Part numbering system (example : 5.5V0.22F)								
DVN -	– 5R5	D	224	T —	R5			
Series code	Max. operating voltage symbol		Rated capacitance symbol	-	Taping symbol			

Part number is refer to following table.

• tall latel a 1 tall 100			
Max. operating voltage (V)	Rated capacitance (F)	ELNA Parts No.	φD×L (mm)
5.5	0.047	DVN-5R5D473T-R5	12.5×8.5
5.5	0.1	DVN-5R5D104T-R5	12.5×8.5
5.5	0.22	DVN-5R5D224T-R5	12.5×8.5
5.5	0.33	DVN-5R5D334T-R5	12.5×8.5

^{*}soldering conditions are described on page 235.

^{*}It can discharge with 1.5 times as much current (mA) as rated capacitance.



5.5V SMD, Wide Temperature range Capacitors

GREEN CAP





- Size : φ12.5×10.5Lmm, compatible with surface mounting.
- ullet Wide temperature range (-40 to 85°C), Low ESR.
- Unlike batteries, safe and high reliability without containing active and hazardous substance.
- Unlike batteries, excellent charge and discharge characteristics with no chemical reactions.
- Responds to temperature 260°C during the reflow peek.
- Ideal for industrial, smart meter, backing up of RTC's for surveillance camera, momentary power assistance of a battery, automotive etc.



Marking color: White print on an brown sleeve

Convert to chip



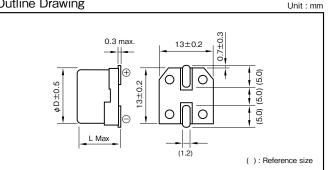




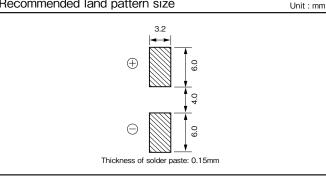
Item		Performance					
Category temperature range (°C)		- 40 to +85					
Tolerance at rated capacitance (%)		- 20 to +80					
Internal resistance	Rated capacitance (F)	0.047	0.1	0.22			
at 1 kHz	Internal resistance (Ω Max.)	45	45	45			
Characteristics at high	Percentage of capacitance change	Within ±30% of the value at 20°C					
and low temperature	Internal resistance	-40°C : Seven times or less of the value at 20°C 85°C : Five times or less of the value at 20°C					
	Test time	1000 ho	urs				
Endurance (85°C)	Percentage of capacitance change	Within ±	:30% of the initial measured value	ue			
	Internal resistance	Four time	es or less of the initial specified	value			
Shelf life (85°C)	Test	time : 1000 hours ; Same as end	durance.				
Applicable standards		Conforms to JIS C5160-1 (IEC	62391-1)				

Outline Drawing

Considerations



Recommended	land	pattern size
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Part numb	ering system (exar	mple : 5	.5V0.22F)	
DVL -	– 5R5	D	224	T — R5
Series code	Max. operating voltage symbol		Rated capacitance symbol	Taping symbol

Part number is refer to following table.

Max. operating voltage (V)	Rated capacitance (F)	ELNA Parts No.	φD×L (mm)
5.5	0.047	DVL-5R5D473T-R5	12.5×10.5
5.5	0.1	DVL-5R5D104T-R5	12.5×10.5
5.5	0.22	DVL-5R5D224T-R5	12.5×10.5

^{*}soldering conditions are described on page 235.

ELECTRIC DOUBLE LAYER CAPACITORS "DYNACAP"

3.6V SMD, High Temperature range Capacitors

GREEN CAP





- Size : φ12.5×8.5Lmm, compatible with surface mounting.
- Wide temperature range (-25 to 85° C), Low ESR.
- Unlike batteries, safe and high reliability without containing active and hazardous substance.
- Unlike batteries, excellent charge and discharge characteristics with no chemical reactions.
- Responds to temperature 260°C during the reflow peek.
- Ideal for industrial, smart meter, backing up of RTC's for surveillance camera, momentary power assistance of a battery, automotive etc.



Marking color: White print on a brown sleeve

Convert to chip



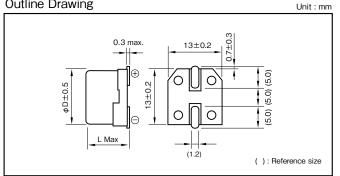




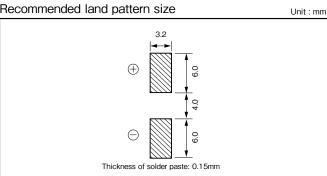
Specifications

Item		Performance						
Category temperature range (°C)	- 25 to +85							
Tolerance at rated capacitance (%)		- 20 to +	80					
Internal resistance	Rated capacitance (F)	0.047	0.1	0.22	0.33			
at 1 kHz	Internal resistance (Ω Max.)	30	30	30	30			
Characteristics at high and low temperature	Percentage of capacitance change Internal resistance	Within ±30% of the value at 20°C Five times or less of the value at 20°C						
Endurance (85°C)	Test time Percentage of capacitance change		000 hours /ithin ±30% of the init	tial measured value				
,	Internal resistance	Four times or less of the initial specified value.						
Shelf life (85℃)	Test ti	me : 1000 hours ; Same	e as endurance.					
Applicable standards		Conforms to JIS C5160-	-1 (IEC 62391-1)					

Outline Drawing







Part numb	ering system (exan	nple : 3	3.6V0.22F)		
DVS -	- 3R6	D	224	T —	R5
Series code	Max. operating voltage symbol		Rated capacitance symbol	•	Taping symbol

Part number is refer to following table.

otaliaala Hatii 180			
Max. operating voltage (V)	Rated capacitance (F)	ELNA Parts No.	φD×L (mm)
3.6	0.047	DVS-3R6D473T-R5	12.5×8.5
3.6	0.1	DVS-3R6D104T-R5	12.5×8.5
3.6	0.22	DVS-3R6D224T-R5	12.5×8.5
3.6	0.33	DVS-3R6D334T-R5	12.5×8.5

^{*}soldering conditions are described on page 235.

^{*}It can discharge with 1.5 times as much current (mA) as rated capacitance.



5.5V Standard Capacitors

- Small-sized, large capacity, excellent voltage holding.
- For all ratings, uniform 5mm pitch of terminal spacing.
- Wider temperature range (-25 to $+70^{\circ}$ C) than battery. $\phi21.5\times8.0$ Lmm size can encase up to 1.5F.
- Ideal for backing up of CMOS's, IC's of camera, microcomputers, RAM's, RTC's and the like used in audio, general electronic device, and others.



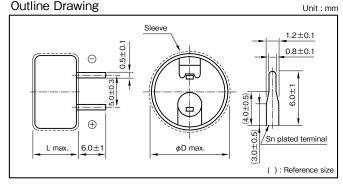


Marking color : White print on an indigo sleeve

Specifications

Item	Performance							
Category temperature range (°C)	-25 to +70							
Folerance at rated capacitance (%)		-20 to +80						
Internal resistance	Rated capacitance (F) 0.	.047 0.1	0.22	0.33	0.47	0.47	1	1.5
at 1 kHz	Internal resistance (Ω Max.)	120 75	75	75	75 (ϕ 13.5)	30 (φ21.5)	30	30
Characteristics at high and low temperature	Percentage of capacitance change Internal resistance	Within ±30% of the value at 20°C Five times or less of the value at 20°C						
Endurance (70°C)	Test time Percentage of capacitance change Internal resistance			0% of the	initial measu			
Shelf life (70°C)	Test tir	me : 1000 hours	; Same as er	durance.				
Applicable standards	Co	onforms to JIS C	5160-1 (IEC 6	62391-1)				

Outline Drawing



Part numberi	ng system (exa	mple :	: 5.5V0.22F)	
DB -	- 5R5	D	224		Т
Series code	Max. operating voltage symbol		Reted capacitance symbol	Additional symbol	

Part number is refer to following table.

Max. operating voltage (V)	Rated capacitance (F)	ELNA Parts No.	φD×L (mm)
5.5	0.047	DB-5R5D473T	13.5×7.5
5.5	0.1	DB-5R5D104T	13.5×7.5
5.5	0.22	DB-5R5D224T	13.5×7.5
5.5	0.33	DB-5R5D334T	13.5×7.5
5.5	0.47	DB-5R5D474ST	13.5×7.5
5.5	0.47	DB-5R5D474T	21.5×8.0
5.5	1	DB-5R5D105T	21.5×8.0
5.5	1.5	DB-5R5D155T	21.5×8.0

ELECTRIC DOUBLE LAYER CAPACITORS "DYNACAP"

DB



5.5V Low Resistance





• Internal resistance was reduced to about 1/3 (ϕ 13.5), compared with DB series.

• It excels in rapid charge.



Marking color : White print on an indigo sleeve

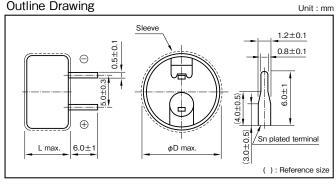
Specifications

Item	Performance								
Category temperature range (°C)	-25 to +70								
Folerance at rated capacitance (%)	-20 to +80								
Internal resistance	Rated capacitance (F)	0.047	0.1	0.22	0.33	0.47	0.47	1	1.5
at 1 kHz	Internal resistance (Ω Max.)	25	25	25	25	25 (φ 13.5)	20 (φ21.5)	20	20
Characteristics at high and low temperature	Percentage of capacitance change Internal resistance	Within ±30% of the value at 20°C Five times or less of the value at 20°C							
	Test time			1000 hour	s				
Endurance (70°C)	Percentage of capacitance change			Within ±3	0% of the	initial measu	red value		
	Internal resistance	Four times or less of the initial specified value							
Shelf life (70°C)		Test time : 10	00 hours ;	Same as en	durance.				
Applicable standards		Conforms	to JIS C51	60-1 (IEC 6	32391-1)				

DBN

Low resistance

Outline Drawing



Part numbering system (example : 5.5V0.22F)									
DBN — 5R5				224		Т			
Series code		Max. operating voltage symbol		Reted capacitance symbol	Additional symbol				

Part number is refer to following table.

- ten renen er r rentm 10 -			
Max. operating voltage (V)	Rated capacitance (F)	ELNA Parts No.	φD×L (mm)
5.5	0.047	DBN-5R5D473T	13.5×7.5
5.5	0.1	DBN-5R5D104T	13.5×7.5
5.5	0.22	DBN-5R5D224T	13.5×7.5
5.5	0.33	DBN-5R5D334T	13.5×7.5
5.5	0.47	DBN-5R5D474ST	13.5×7.5
5.5	0.47	DBN-5R5D474T	21.5×8.0
5.5	1	DBN-5R5D105T	21.5×8.0
5.5	1.5	DBN-5R5D155T	21.5×8.0

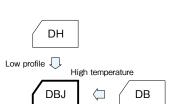
^{*}It can discharge with 1.5 times as much current (mA) as rated capacitance.



5.5V Low Profile and High Temperature Capacitors

85°C

- High temperature type of series DB.
- Small-sized, large capacity, excellent voltage holding.
- For all ratings, uniform 5mm pitch of terminal spacing.
- ϕ 13.5×7.5Lmm size can encase up to 0.33F.
- Ideal for backing up of CMOS's, IC's of camera, microcomputers, RAM's, RTC's and the like used in audio, general electronic device, and others.



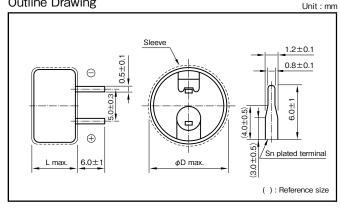


Marking color: White print on a black sleeve

Specifications

Item		P	erformance								
Category temperature range (°C)		-10 to +85									
Tolerance at rated capacitance (%)		-20 to +80									
Internal resistance	Rated capacitance (F)	0.047	0.1	0.22	0.33	0.47	1				
at 1 kHz	Internal resistance (Ω Max.)	200	150	150	150	100	75				
Characteristics at high and low temperature	Percentage of capacitance change Internal resistance	Within ±30% of the value at 20°C Four times or less of the initial specified value.									
Endurance (85°C)	Test time Percentage of capacitance change	1000 hours Within ±30% of the initial measured value									
Litudiance (65 C)	Internal resistance	Four times or less of the initial specified value									
Shelf life (85°C)	Test tim	e : 1000 h	nours ; Same as	s endurance.							
Applicable standards	Con	forms to J	IS C5160-1 (IE	EC 62391-1)							

Outline Drawing



F	Part numbering system (example : 5.5V0.22F)								
	DBJ	_	5R5	D	224	Т			
	Series code		Max.operating voltage symbol		Rated capacitance symbol				

Part number is refer to following table.

Max. operating voltage (V)	Rated capacitance (F)	ELNA Parts No.	φD×L (mm)
5.5	0.047	DBJ-5R5D473T	13.5×7.5
5.5	0.1	DBJ-5R5D104T	13.5×7.5
5.5	0.22	DBJ-5R5D224T	13.5×7.5
5.5	0.33	DBJ-5R5D334T	13.5×7.5
5.5	0.47	DBJ-5R5D474T	21.5×8.0
5.5	1	DBJ-5B5D105T	21.5×8.0



3.6V Low Profile and Low ESR High Temperature Capacitors

- Long life of 3.6V 2000 hours in small size low ESR.
- For all ratings, uniform 5mm pitch of terminal spacing.
- Wider temperature range (-25 to +85°C) than battery.
- φ13.5×7.5Lmm size can encase up to 0.47F.
- Ideal for backing up of CMOS's, IC's of camera, microcomputers, RAM's, RTC's and the like used in audio, smart meter, general electronic device, and others.
- It excels in rapid charge.





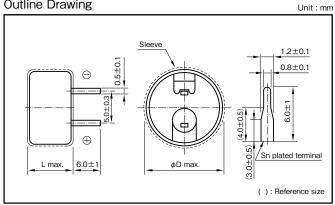
Marking color : White print on a black sleeve

85°C

Specifications

Item	Performance									
Category temperature range (°C)	-25 to +85									
Tolerance at rated capacitance (%)	-20 to +80									
Internal resistance	Rated capacitance (F) 0.047 0.1 0.22 0.33 0.47 0.47 1									
at 1 kHz	Internal resistance (Ω Max.) 25 25 25 25 25 (φ13.5) 20 (φ21.5) 20									
Characteristics at high and low temperature	Percentage of capacitance change Within ±30% of the value at 20°C Internal resistance Five times or less of the value at 20°C									
Endurance (85°C)	Test time 2000 hours (φ13.5 0.47F : 1000 hours) Percentage of capacitance change Within ±30% of the initial measured value Internal resistance Four times or less of the initial specified value									
Shelf life (85°C)	Test time: 1000 hours; Same as endurance.									
Applicable standards	Conforms to JIS C5160-1 (IEC 62391-1)									

Outline Drawing



Р	Part numbering system (example : 3.6V0.22F)									
	DBS — 3R6		D	224		Т				
	Series code M		Max. operating voltage symbol		Reted capacitance symbol	Additional symbol				

Part number is refer to following table.

- to to t. 10.tt. 100								
Max. operating voltage (V)	Rated capacitance (F)	ELNA Parts No.	φD×L (mm)					
3.6	0.047	DBS-3R6D473T	13.5×7.5					
3.6	0.1	DBS-3R6D104T	13.5×7.5					
3.6	0.22	DBS-3R6D224T	13.5×7.5					
3.6	0.33	DBS-3R6D334T	13.5×7.5					
3.6	0.47	DBS-3R6D474ST	13.5×7.5					
3.6	0.47	DBS-3R6D474T	21.5×8.0					
3.6	1	DBS-3R6D105T	21.5×8.0					

^{*}It can discharge with 1.5 times as much current (mA) as rated capacitance.



5.5V Miniaturized Standard Capacitors

GREEN CAP



- · Smaller and lighter than Series DB.
- •5mm tall. Max. thin profile (H-shaped).
- Miniaturized but can encase up to 0.47F in ϕ 11.5 case, and 1.5F in ϕ 19.0 case.
- Ideal for backing up of CMOS's, IC's of camera, microcomputers, RAM's, RTC's and the like used in audio, general electronic device, and others.



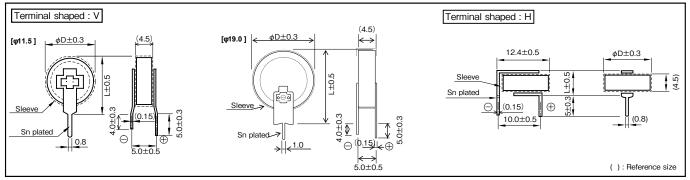


Marking color: White print on an indigo sleeve

Specifications

Item	Performance									
Category temperature range (°C)	-25 to +70									
Tolerance at rated capacitance (%)	-20 to +80									
Internal resistance	Rated capacitance (F) 0.047 0.1 0.22 0.33 0.47 0.47 1 1.5									
at 1 kHz	Internal resistance (Ω Max.) 120 75 75 75 75 (φ11.5) 30 (φ19.0) 30 30									
Characteristics at high and low temperature	Percentage of capacitance change Within ±30% of the value at 20°C Internal resistance Five times or less of the value at 20°C									
	Test time 1000 hours									
Endurance (70℃)	Percentage of capacitance change Within ±30% of the initial measured value									
	Internal resistance Four times or less of the initial specified value									
Shelf life (70°C)	Test time: 1000 hours; Same as endurance.									
Applicable standards	Conforms to JIS C5160-1 (IEC 62391-1)									

Outline Drawing Unit: mm



Part numbering system (example : 5.5V0.22F)							
DX — 5R5			224		U		
Series code		Max.operating voltage symbol	Terminal code	Reted capacitance symbol	Additional symbol		

Part number is refer to following table.

Note

Do not apply external force to products or terminals as stress such as twisting, bending, pushing, or falling of such products or terminals may remove the terminals, resulting in an open/short circuit or liquid leakage. Avoid applying excessive heat to capacitors during heating of an adhesive curing oven.

For details, refer to the precautions in use of DYNACAP.

Max. operating voltage (V)	Rated capacitance (F)	ELNA Parts No.	φD×L (mm)
5.5	0.047	DX-5R5V473U	11.5×13.0
5.5	0.047	DX-5R5H473U	11.5× 5.0
5.5	0.1	DX-5R5V104U	11.5×13.0
5.5	0.1	DX-5R5H104U	11.5× 5.0
5.5	0.22	DX-5R5V224U	11.5×13.0
5.5	0.22	DX-5R5H224U	11.5× 5.0
5.5	0.33	DX-5R5V334U	11.5×13.0
5.5	0.33	DX-5R5H334U	11.5× 5.0
		DX-5R5V474SU	11.5×13.0
5.5	0.47	DX-5R5H474SU	11.5× 5.0
		DX-5R5V474U	19.0×20.5
5.5	1	DX-5R5V105U	19.0×20.5
5.5	1.5	DX-5R5V155U	19.0×20.5

ELECTRIC DOUBLE LAYER CAPACITORS "DYNACAP"



5.5V Miniaturized Low Resistance Capacitors

GREEN CAP



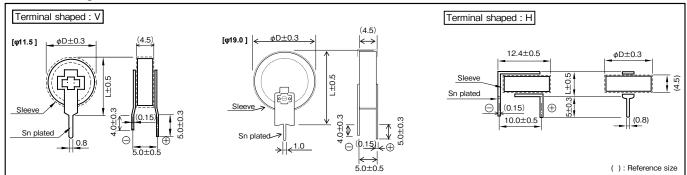
- Internal resistance was reduced to about 1/3 ($\phi 11.5$), compared with DX series.
- •5mm tall. Max. thin profile (H-shaped).
- Miniaturized but can encase up to 0.47F in ϕ 11.5 case, and 1.5F in ϕ 19.0 case.
- It excels in rapid charge.
- · Ideal for backing up of CMOS's, IC's of camera, microcomputers, RAM's, RTC's and the like used in audio, general electronic device, and others.



Specifications

opcomoations -										
Item		F	Performa	ance						
Category temperature range (°C)	-25 to +70									
olerance at rated capacitance (%)		-20 to +80								
Internal resistance	Rated capacitance (F) 0.	.047	0.1	0.22	0.33	0.47	0.47	1	1.5	
at 1 kHz	Internal resistance (Ω Max.)	25	25	25	25	25 (φ11.5)	20 (φ19.0)	20	20	
Characteristics at high and low temperature	Percentage of capacitance change Internal resistance	Within ±30% of the value at 20°C Five times or less of the value at 20°C								
Endurance (70°C)	Test time Percentage of capacitance change Internal resistance	Percentage of capacitance change Within ±30% of the initial measured value								
Shelf life (70°C)		time : 1000	hours :	Same as en		ne muai spe	ecified value			
Applicable standards				0-1 (IEC 623						

Outline Drawing Unit: mm



Part numbering system (example : 5.5V0.22F)						
DXN —	5R5		224		U	
Series code	Max.operating voltage symbol	Terminal code	Rated Capacitance symbol	Additional symbol		

Part number is refer to following table.

Do not apply external force to products or terminals as stress such as twisting, bending, pushing, or falling of such products or terminals may remove the terminals, resulting in an open/short circuit or liquid leakage.

Avoid applying excessive heat to capacitors during heating of an adhesive curing oven For details, refer to the precautions in use of DYNACAP.

talidad Hatiligs						
Max. operating voltage (V)	Rated capacitance (F)	ELNA Parts No.	φD×L (mm)			
5.5	0.047	DXN-5R5V473U	11.5×13.0			
5.5	0.047	DXN-5R5H473U	11.5× 5.0			
5.5	0.1	DXN-5R5V104U	11.5×13.0			
5.5	0.1	DXN-5R5H104U	11.5× 5.0			
5.5	0.22	DXN-5R5V224U	11.5×13.0			
5.5		DXN-5R5H224U	11.5× 5.0			
5.5	0.33	DXN-5R5V334U	11.5×13.0			
5.5		DXN-5R5H334U	11.5× 5.0			
		DXN-5R5V474SU	11.5×13.0			
5.5	0.47	DXN-5R5H474SU	11.5× 5.0			
		DXN-5R5V474U	19.0×20.5			
5.5	1	DXN-5R5V105U	19.0×20.5			
5.5	1.5	DXN-5R5V155U	19.0×20.5			

^{*}It can discharge with 1.5 times as much current (mA) as rated capacitance.



5.5V Miniaturized High Temperature Capacitors

GREEN 85°

- High temperature type of Series DX.
- •5mm tall. Max. thin profile (H-shaped).
- Miniaturized but can encase up to 0.33F in ϕ 11.5 case, and 1.0F in ϕ 19.0 case.
- Ideal for backing up of CMOS's, IC's of camera, microcomputers, RAM's, RTC's and the like used in audio, general electronic device, and others.



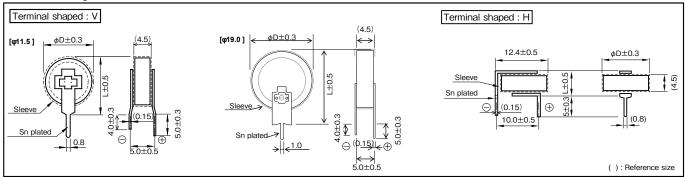


Marking color: White print on a black sleeve

Specifications

Item	Performance						
Category temperature range (°C)	-10 to +85						
Tolerance at rated capacitance (%)	-20 to +80						
Internal resistance	Rated capacitance (F) 0.047 0.1 0.22 0.33 1						
at 1 kHz	Internal resistance (Ω Max.) 200 150 150 150 75						
Characteristics at high and low temperature	Percentage of capacitance change Within ±30% of the value at 20°C Internal resistance Four times or less of the initial specified value.						
Endurance (85°C)	Test time 1000 hours Percentage of capacitance change Within ±30% of the initial measured value						
	Internal resistance Four times or less of the initial specified value.						
Shelf life (85°C)	Test time: 1000 hours; Same as endurance.						
Applicable standards	Conforms to JIS C5160-1 (IEC 62391-1)						

Outline Drawing Unit: mm



Part numbering system (example : 5.5V0.22F)						
DXJ	_	5R5		224		U
Series code		Max.operating voltage symbol	Terminal code	Rated Capacitance symbol	Additional symbol	

Part number is refer to following table.

Note

Do not apply external force to products or terminals as stress such as twisting, bending, pushing, or falling of such products or terminals may remove the terminals, resulting in an open/short circuit or liquid leakage.

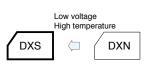
Avoid applying excessive heat to capacitors during heating of an adhesive curing oven. For details, refer to the precautions in use of DYNACAP.

Max. operating voltage (V)	Rated capacitance (F)	ELNA Parts No.	φD×L (mm)
5.5	0.047	DXJ-5R5V473U	11.5×13.0
3.3	0.047	DXJ-5R5H473U	11.5× 5.0
5.5	0.1	DXJ-5R5V104U	11.5×13.0
	0.1	DXJ-5R5H104U	11.5× 5.0
5.5	0.22	DXJ-5R5V224U	11.5×13.0
		DXJ-5R5H224U	11.5× 5.0
5.5	0.33	DXJ-5R5V334U	11.5×13.0
		DXJ-5R5H334U	11.5× 5.0
5.5	1	DXJ-5R5V105U	19.0×20.5

3.6V Miniaturized Low ESR High Temperature Capacitors

GREEN CAP

- 85°C
- Long life of 3.6V 2000 hours, low ESR in DX series and this size.
- •5mm tall. Max. thin profile (H-shaped).
- Wider temperature range (-25 to +85°C) than battery.
- Miniaturized but can encase up to 0.47F in ϕ 11.5 case, and 1.0F in ϕ 19.0 case.
- It excels in rapid charge.
- · Ideal for backing up of CMOS's, IC's of camera, microcomputers, RAM's, RTC's and the like used in audio, general electronic device, and others.



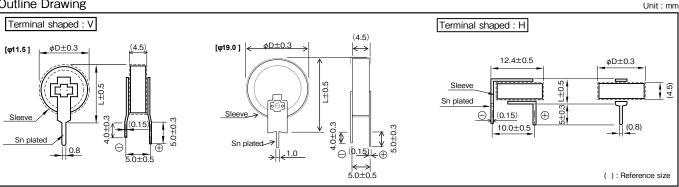


Marking color: White print on a black sleeve

Specifications

Item	Performance								
Category temperature range (°C)	-25 to +85								
Tolerance at rated capacitance (%)	-20 to +8	-20 to +80							
Internal resistance	Rated capacitance (F) 0.047 0.1	0.22	0.33	0.47	0.47	1			
at 1 kHz	Internal resistance (Ω Max.) 25 25	25	25	25 (φ11.5)	20 (φ19.0)	20			
Characteristics at high and low temperature		Within ±30% of the value at 20°C Five times or less of the value at 20°C							
Endurance (85°C)				: 1000 hours)					
		Four times or less of the initial specified value							
Shelf life (85℃)	Test time: 1000 hours; Sa	ame as endura	ance.						
Applicable standards	Conforms to JIS C5160-1	(IEC 62391-	-1)						

Outline Drawing



Part numbering system (example : 3.6V0.22F)						
DXS	_	3R6		224		U
Series code		Max.operating voltage symbol	Terminal shaped	Rated capacitance symbol	Additional symbol	

Part number is refer to following table.

Note

Do not apply external force to products or terminals as stress such as twisting, bending, pushing, or falling of such products or terminals may remove the terminals, resulting in an open/short circuit or liquid leakage.

Avoid applying excessive heat to capacitors during heating of an adhesive curing oven. For details, refer to the precautions in use of DYNACAP.

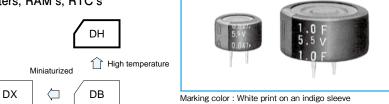
tal lacific Factor (O						
Max. operating voltage (V)	Rated capacitance (F)	ELNA Parts No.	φD×L (mm)			
3.6	0.047	DXS-3R6V473U	11.5×13.0			
3.0	0.047	DXS-3R6H473U	11.5× 5.0			
3.6	0.1	DXS-3R6V104U	11.5×13.0			
3.0	0.1	DXS-3R6H104U	11.5× 5.0			
3.6	0.22	DXS-3R6V224U	11.5×13.0			
3.0		DXS-3R6H224U	11.5× 5.0			
3.6	0.33	DXS-3R6V334U	11.5×13.0			
3.0		DXS-3R6H334U	11.5× 5.0			
		DXS-3R6V474SU	11.5×13.0			
3.6	0.47	DXS-3R6H474SU	11.5× 5.0			
		DXS-3R6V474U	19.0×20.5			
3.6	1	DXS-3R6V105U	19.0×20.5			

^{*}It can discharge with 1.5 times as much current (mA) as rated capacitance.



High Temperature Capacitors

- $^{\bullet}$ High temperature tolerant (-25 to +85 $^{\circ}\text{C})$ and highly reliable.
- Ideal for backing up of CMOS IC's, microcomputers, RAM's, RTC's for smart meter, outdoor equipment, industrial.

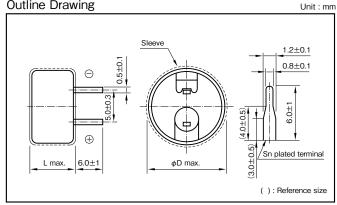


DX					

Specifications

Item	Performance						
Category temperature range (°C)	-25 to +85						
Folerance at rated capacitance (%)	-20 to +80						
Internal resistance	Rated capacitance (F)	0.047	0.1	0.22	0.47	0.68	1
at 1 kHz	Internal resistance (Ω Max.)	300	200	120	50	50	30
Characteristics at high and low temperature	Percentage of capacitance change Internal resistance	Within ±30% of the value at 20°C Five times or less of the value at 20°C					
Endurance (85°C)	Test time Percentage of capacitance change		1000 h		sitial magnirod	voluo	
Endurance (65 C)	Internal resistance	Within ±30% of the initial measured value Four times or less of the initial specified value					
Shelf life (85°C)	Test time: 1000 hours; Same as endurance.						
Applicable standards		Conforms to JIS	S C5160-1 (IEC	C 62391-1)			

Outline Drawing



Part numbering system (example : 5.5V0.22F)

DH	_	5R5	D	224	Т
Series code	-	Max.operating voltage symbol		Rated capacitance symbol	

Part number is refer to following table.

Standard Ratings

CAT.No.2019/2020E

Max. operating voltage (V)	Rated capacitance (F)	ELNA Parts No.	φD×L (mm)
5.5	0.047	DH-5R5D473T	13.5×9.5
5.5	0.1	DH-5R5D104T	13.5×9.5
5.5	0.22	DH-5R5D224T	13.5×9.5
5.5	0.47	DH-5R5D474T	21.5×9.5
5.5	0.68	DH-5R5D684T	21.5×9.5
5.5	1	DH-5R5D105T	21.5×9.5

ELECTRIC DOUBLE LAYER CAPACITORS "DYNACAP"



5.5V Wide Temperature Range Capacitors



- It is a category temperature range larger than battery.
- ϕ 13.5 size can encase up to 0.22F, ϕ 21.5 size can encase up to 1.0F.
- It excels in rapid charge.
- Ideal for backing up of CMOS IC's, microcomputers, RAM's, RTC's for smart meter, outdoor equipment, auto motive and industrial.



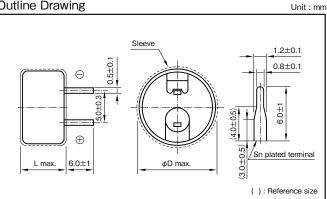


Marking color: White print on an indigo sleeve

Specifications

Item	Performance								
Category temperature range (°C)	-40 to +85								
Tolerance at rated capacitance (%)	-20 to +80								
Internal resistance	Rated capacitance (F)	0.047	0.1	0.22	0.47	0.68	1		
at 1 kHz	Internal resistance (Ω Max.)	40	40	40	20	20	20		
Characteristics at high	Percentage of capacitance change	Within ±30% of the value at 20℃							
Characteristics at high and low temperature	Internal resistance	-40°C: Seven times or less of the value at 20°C 85°C: Five times or less of the value at 20°C							
	Test time	Test time 1000 hours							
Endurance (85°C)	Percentage of capacitance change		Within	±30% of the in	itial measured v	/alue			
Internal resistance Four times or less of the initial specified value									
Shelf life (85°C)	Test time: 1000 hours; Same as endurance.								
Applicable standards	Conforms to JIS C5160-1 (IEC 62391-1)								

Outline Drawing





Part number is refer to following table.

- 1 1 1 1 1			
Max. operating voltage (V)	Rated capacitance (F)	ELNA Parts No.	φD×L (mm)
5.5	0.047	DHL-5R5D473T	13.5×9.5
5.5	0.1	DHL-5R5D104T	13.5×9.5
5.5	0.22	DHL-5R5D224T	13.5×9.5
5.5	0.47	DHL-5R5D474T	21.5×9.5
5.5	0.68	DHL-5R5D684T	21.5×9.5
5.5	1	DHL-5R5D105T	21.5×9.5

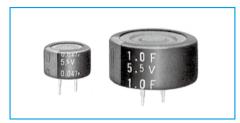


5.5V High Temperature, Long Life Capacitors



- Guarantees 3000 hours at 85°C, 5.5V (10 years at room temperature).
- It is a category temperature range larger than battery.
- It excels in rapid charge.
- Ideal for backing up of CMOS IC's, microcomputers, RAM's, RTC's for smart meter, outdoor equipment, auto motive and industrial.



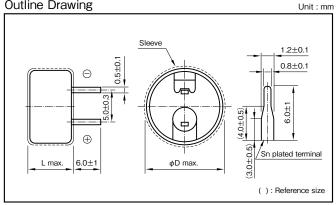


Marking color: White print on a Black sleeve

Specifications

Specifications	_								
Item	Performance								
Category temperature range (°C)	-25 to +85								
Tolerance at rated capacitance (%)	-20 to +80								
Internal resistance	Rated capacitance (F)	0.047	0.1	0.22	0.47	0.68	1		
at 1 kHz	Internal resistance (Ω Max.)	300	200	120	50	50	30		
Characteristics at high and low temperature						;			
Endurance (85°C)	Test time Percentage of capacitance change		3000 h		itial maggurad y	valuo			
Elidulalice (63 C)	Percentage of capacitance change Within ±30% of the initial measured value Internal resistance Four times or less of the initial specified value								
Shelf life (85°C)	Test time: 1000 hours; Same as endurance.								
Applicable standards	Cor	nforms to JIS	C5160-1 (IEC	62391-1)					

Outline Drawing



Part numbering system (example : 5.5V0.22F)								
DHC — 5R5 D 224 T								
Series code Rated voltage Rated capacitance symbol symbol								

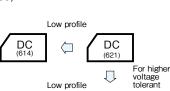
Part number is refer to following table.

Max. operating voltage (V)	Rated capacitance (F)	ELNA Parts No.	φD×L (mm)
5.5	0.047	DHC-5R5D473T	13.5×9.5
5.5	0.1	DHC-5R5D104T	13.5×9.5
5.5	0.22	DHC-5R5D224T	13.5×9.5
5.5	0.47	DHC-5R5D474T	21.5×9.5
5.5	0.68	DHC-5R5D684T	21.5×9.5
5.5	1	DHC-5R5D105T	21.5×9.5

Coin Cell Capacitors



- · High reliability, Safe and unlike secondarybatteries, environmentally friendly devices.
- · Unlike batteries, excellent charge and discharge characteristics with no chemical reactions.
- 1.8mm height 614type made lineup in the DC, DCK Series.
- Ideal for backing up of portable device etc.



DCK

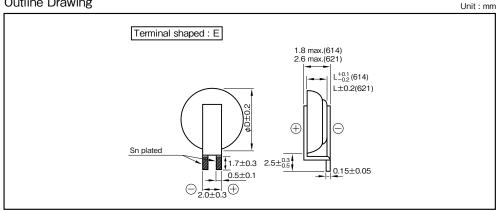


Specifications

-									
Item			Perfo	orma	rmance				
Series Name		Series DC			Series DCK				
Max. operating voltage (V)	2.5					3.3			
Category temperature range (°C)		-25 to +70				-10 to +60			
Tolerance at rated capacitance (%)		-20 to +80				-20 to +80			
	Size code	614	621		Size code	614	621		
Internal resistance (Ω) at 1 kHz	Rated capacitance (F)	0.2	0.33		Rated capacitance (F)	0.2	0.4		
	Internal resistance (ΩMax.)	100	100		Internal resistance (ΩMax.)	200	200		
	Size code	614	621		Size code	614	621		
Characteristics at high and low temperature	Percentage of capacitance change	Within ±30% of the value at 20℃	Within ±30% of the value at 20℃		Percentage of capacitance change	Within ±50% of the value at 20°C	Within ±50% of the value at 20°C		
and low temperature	Internal resistance	Five times or less of the value at 20°C	Five times or less of the value at 20°C		Internal resistance	Five times or less of the initial specified value.	Five times or less of the value at 20°C		
	Size code	614	621		Size code	614	621		
F	Test time and temp	70°C 1000 hours	70°C 500 hours		Test time and temp	60°C 1000 hours	60°C 500 hours		
Endurance	Percentage of capacitance change	Within ±30% of the initial measured value	Within ±40% of the initial measured value		Percentage of capacitance change	Within ±30% of the initial measured value	Within ±40% of the initial measured value		
	Internal resistance	1kΩ Max.	400Ω Max.		Internal resistance	2kΩ Max.	800Ω Max.		
Shelf life		Same as endurance.				Same as endurance.			
Applicable standards			Conforms to JIS CF	516	160-1 (IEC 62391-1)				

DCK (614)

Outline Drawing



· Soldering condition of DC or DCK series is only soldering iron. (Soldering conditions are described on page 236.)

Part numberir	ng system (example	: 6	614,2.5V0.2F, te	erminal shape	ed : E)
DC -	- 2R5	Ε	204	T 614 -	- E
Series code	Max. operating voltage symbol		Rated capacitance symbol	Additional symbol	

Part number is refer to following table.

L	Part numberi	ing s	system (example : 0	621	, 3.3V0.4F, terr	minal sha _l	ped : E)
	DCK	_	3R3	Ε	404	Т	— E
	Series code		Max. operating voltage symbol		Rated capacitance symbol	Additional symbol	

Part number is refer to following table.

Max. operating	voltage (V)	Rated capacitance (F)	ELNA Parts No.	φD×L (mm)
2.5	i	0.2	DC-2R5E204T614-E	6.8×1.4
3.3	,	0.2	DCK-3R3E204T614-E	6.8×1.4
2.5	i	0.33	DC-2R5E334T-E	6.8×2.1
3.3	}	0.4	DCK-3R3E404T-E	6.8×2.1



Coin Cell Capacitors







- Reflow soldering method available.
- High reliability, Safe and unlike secondarybatteries, environmentally friendly devices.
- Unlike batteries, exceilent charge and discharge characteristics with no chemical reactions.
- φ4.8×1.71Lmm Max height type made lineup in the DSK series.
- Ideal for backing up of portable device etc.

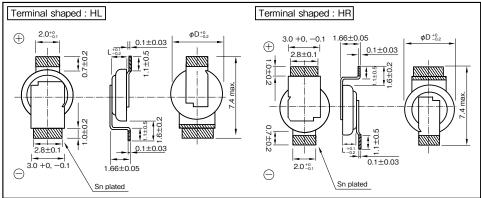
DSK (414) DSK (614)



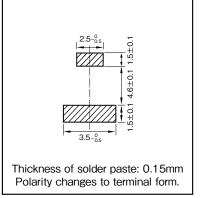
Specifications

	-							
Item		Performance						
Series name	series DSK							
Max. operating voltage (V)		3.3						
Category temperature range (°C)		-10 to +70						
Tolerance at rated capacitance (%)		-20 to +80						
Rated capacitance (F)		0.07						
Internal resistance (Ω Max.) at 1 kHz		100						
Characteristics at high	Percentage of capacitance change	Within ±50% of the value at 20℃						
and low temperature	Internal resistance	Ten times or less of the value at 20°C						
	Test time	500 hours						
Endurance (70°C)	Percentage of capacitance change	Within $\pm 30\%$ of the initial measured value						
	Internal resistance 5kΩ Max.							
Shelf life (70°C)	Test time	Test time : 500 hours ; Same as endurance.						
Applicable standards	Conform	Conforms to JIS C5160-1 (IEC 62391-1)						

Outline Drawing



Unit: mm Recommended land pattern size Unit: mm



^{*}Please consult with us about other terminal form

Part numbering system (3.3V0.07F, terminal shaped : HL)							
DSK —	3R3	Н	703	T414	_	HL	L
Series code	Max.operating voltage symbol		Rated capacitance symbol	Additional symbol		Terminal shaped	Taping symbol

Part number is refer to following table.

Max. operating voltage (V)	Rated capacitance (F)	ELNA Parts No.	φD×L (mm)	
2.2	0.07	DSK-3R3H703T414-HLL	4.8×1.4	
3.3	0.07	DSK-3R3H703T414-HRL	4.0^1.4	

^{*}Soldering conditions are described on page 235.

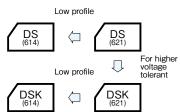
Coin Cell Capacitors







- Reflow soldering method available.
- High reliability, Safe and unlike secondarybatteries, environmentally friendly devices.
- Unlike batteries, excellent charge and discharge characteristics with no chemical reactions.
- 1.8Lmm height type 614 made lineup in the DS, DSK series.
- Ideal for backing up of portable device etc.

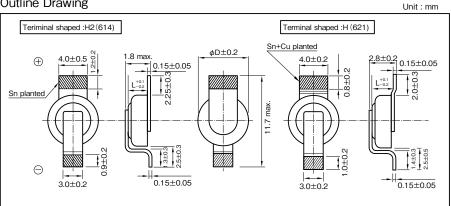




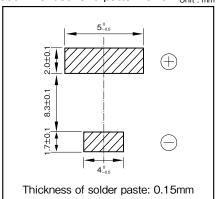
Specifications

Item	Performance										
Series Name		Series DS		Series DSK							
Max.operating voltage (V)		2.5			3.3						
Category temperature range (°C)		-25 to +70		-10 to +60							
Tolerance at rated capacitance (%)		-20 to +80			-20 to +80						
	Size code	614	621	Size code	614	621					
Internal resistance (Ω) at 1 kHz	Rated capacitance (F)	0.2	0.33	Rated capacitance (F)	0.2	0.33					
	Internal resistance (Ω Max.)	100	100	Internal resistance (Ω Max	200	200					
Characteristics at high	Size code	614	621	Size code	614	621					
and low temperature	Percentage of capacitance change Internal resistance	Within $\pm 30\%$ of the value at 20° C Five times or less of the value at 20° C		Percentage of capacitance change Internal resistance	· · · · · · · · · · · · · · · · · · ·						
	Size code	614	621	Size code	614	621					
Endurance	Test time and temp. Percentage of capacitance change	70°C 1000 hours Within ±30% of the initial measured value	70°C 500 hours Within ±30% of the initial measured value	Test time and temp. Percentage of capacitance change	60°C 1000 hours e Within ±30% of the initial measured value	60°C 500 hours Within ±30% of the initial measured value					
	Internal resistance	1kΩ Max.	400 Ω Max.	Internal resistance	2k Ω Max.	800 Ω Max.					
Shelf life		Same as endurance.		Same as endurance.							
Applicable standards	Conforms to JIS C5160-1 (IEC 62391-1)										

Outline Drawing



Recommended land pattern size Unit:mm



*Please consult with us about other terminal form.

Part numbering system (example : 614, 2.5V0.2F, terminal shaped : H2)									
DS	_	2R5	Н	204	T614	_	H2	٦	
Series code	Ma	ax.operating voltage symbol		Rated capacitance symbol	Additional symbol		Terminal shaped	Taping symbol	

Part number is refer to following table.

Part numb	oeri	ng	system	(exa	mple:621,	3.3V0.33F	, terr	ninal sha	aped:H)
DSK	_		3R3	Н	334	U	_	Н	L
Series code	-)	Max.c	pperating vo symbol	ltage	ated capacitar symbol	Additional symbol		Terminal shaped	Taping symbol

Part number is refer to following table.

Max. operating voltage (V) Rated capacitance (F)		ELNA Parts No.	φD×L (mm)
2.5	0.2	DS-2R5H204T614-H2L	6.8×1.4
3.3	0.2	DSK-3R3H204T614-H2L	6.8×1.4
2.5	0.33	DS-2R5H334U-HL	6.8×2.1
3.3	0.33	DSK-3R3H334U-HL	6.8×2.1

^{*}Soldering conditions are described on page 235.



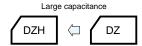
Standard, Large Capacitance Type Capacitors







- · Environmentally Friendly: without environmentally hazardous substances such as Cd or Pb.
- · Unlike batteries, excellent charge and discharge characteristics with no chemical reactions.



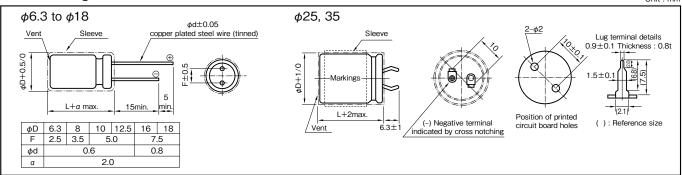


Marking color : White print on a black sleeve

Specifications

Item		Perf	nce				
Series name	(Series DZ		Series DZH			
Category temperature range (°C)	-	25 to +70		-25 to +60			
Tolerance at rated capacitance (%)	-	20 to +80			20 to +80		
Internal resistance at 1kHz		Refer to the	follo	ollowing page			
Characteristics at high and low temperature	Percentage of capacitance change Internal resistance	Within ±30% of the value at 20°C Five times or less of the value at 20°C		Percentage of capacitance change Internal resistance	Within ±30% of the value at 20°C Eight times or less of the value at 20°C		
Endurance	Test temperature Test time Percentage of capacitance change Internal resistance	70°C 1000 hours Within ±30% of the initial measured value Four times or less of the initial specified value		Test temperature Test time Percentage of capacitance change Internal resistance	60°C 2000 hours Within ±30% of the initial measured value Four times or less of the initial specified value		
Shelf life	Same	as endurance		Same as endurance			
Applicable standards	Conforms to JIS C5160-1 (IEC 62391-1)						

Outline Drawing Unit: mm



Part numbering system (example : 2.5V10F)								
DZ	_	2R5	D	106	(Z6)(S)	т — 🔲		
Series code		Max. operating voltage symbol		Rated capacitance symbol	Casing symbol	Taping (Forming) symbol		

Part number is refer to the following page.

Standard Ratings (Series DZ 2.5V)

Max. operating voltage (V)	Rated capacitance (F)	Max. Leakage Current (mA) after 24h	ELNA Parts No.	$\phi D \times L (mm)$	Internal resistance (Ω max.) at 1kHz	Internal resistance (mΩ) at 1kHz (measurement value)
2.5	1	0.1	DZ-2R5D105F4T	6.3 × 14	1.0	400
2.5	1	0.1	DZ-2R5D105G3T	8 × 12	1.0	200
2.5	2.7	0.2	DZ-2R5D275G5ST	8 × 20	0.5	150
2.5	3.3	0.2	DZ-2R5D335H5T	10 × 20	0.3	90
2.5	4.7	0.3	DZ-2R5D475H5T	10 × 20	0.2	80
2.5	5.6	0.3	DZ-2R5D565H5T	10 × 20	0.2	70
2.5	6.8	0.4	DZ-2R5D685H6T	10 × 25	0.2	60
2.5	10	0.5	DZ-2R5D106H8T	10 × 35	0.2	40
2.5	10	0.5	DZ-2R5D106Z6ST	12.5 × 25	0.2	40
2.5	15	0.7	DZ-2R5D156Z8ST	12.5 × 35	0.2	35
2.5	15	0.7	DZ-2R5D156J5T	16 × 20	0.2	35
2.5	22	0.8	DZ-2R5D226J6T	16 × 25	0.2	30
2.5	33	0.8	DZ-2R5D336J8T	16 × 35.5	0.2	30
2.5	40	0.8	DZ-2R5D406K9T	18 × 40	0.2	30
2.5	50	1.0	DZ-2R5D506T	25 × 40	0.08	20
2.5	100	1.0	DZ-2R5D107S37T	25 × 50	0.08	15
2.5	200	2.0	DZ-2R5D207S57T	35 × 50	0.08	15

We tailor packaged product in series and parallel arrangements according to voltage and capacitance as required.

Standard Ratings (Series DZ 2.7V)

Max. operating voltage (V)	Rated capacitance (F)	Max. Leakage Current (mA) after 24h	ELNA Parts No.	$\phi D \times L (mm)$	Internal resistance (Ω max.) at 1kHz	Internal resistance (mΩ) at 1kHz (measurement value)
2.7	1	0.2	DZ-2R7D105F4T	6.3 × 14	1.0	400
2.7	1	0.2	DZ-2R7D105G3T	8 × 12	1.0	200
2.7	2.7	0.3	DZ-2R7D275G5ST	8 × 20	0.5	150
2.7	3.3	0.3	DZ-2R7D335H5T	10 × 20	0.3	130
2.7	4.7	0.4	DZ-2R7D475H5T	10 × 20	0.2	80
2.7	5.6	0.4	DZ-2R7D565H5T	10 × 20	0.2	70
2.7	6.8	0.5	DZ-2R7D685H6T	10 × 25	0.2	60
2.7	10	0.6	DZ-2R7D106H8T	10 × 35	0.2	40
2.7	10	0.6	DZ-2R7D106Z6ST	12.5 × 25	0.2	40
2.7	15	0.8	DZ-2R7D156Z8ST	12.5 × 35	0.2	35
2.7	15	0.8	DZ-2R7D156J6T	16 × 25	0.2	35
2.7	22	1.0	DZ-2R7D226J7T	16 × 31.5	0.2	30
2.7	33	1.0	DZ-2R7D336J9T	16 × 40	0.2	30

We tailor packaged product in series and parallel arrangements according to voltage and capacitance as required.

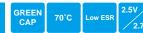
Standard Ratings (Series DZH 2.5V)

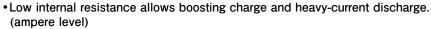
Max. operating voltage (V)	Rated capacitance (F)	Max. Leakage Current (mA) after 24h	ELNA Parts No.	$\phi D \times L \text{ (mm)}$	Internal resistance (Ω max.) at 1kHz	Internal resistance (mΩ) at 1kHz (measurement value)
2.5	22	0.8	DZH-2R5D226Z8ST	12.5 × 35	0.2	55
2.5	50	1.0	DZH-2R5D506K9T	18 × 40	0.08	30
2.5	100	2.0	DZH-2R5D107S35T	25 × 40	0.08	20
2.5	300	5.0	DZH-2R5D307S57T	35 × 50	0.08	15

We tailor packaged product in series and parallel arrangements according to voltage and capacitance as required.



High Power Type Capacitors





- Environmentally Friendly: without environmentally hazardous substances such as Cd or Pb.
- Unlike batteries, excellent charge and discharge characteristics with no chemical reaction.



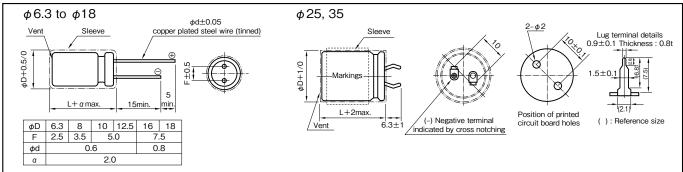


Marking color: White print on a blue sleeve

Specifications

Item		Performance					
Category temperature range (°C)		-25 to +70					
Tolerance at rated capacitance (%)		-20 to +80					
Internal resistance		Refer to the following page					
Characteristics at high and low temperature	Percentage of capacitance change Internal resistance	Within ±30% of the value at 20°C Five times or less of the value at 20°C					
Endurance (70°C)	Test time Percentage of capacitance change Internal resistance	1000 hours Within ±30% of the initial measured value Four times or less of the initial specified value					
Shelf life (70°C)		Test time: 1000 hours; Same as endurance.					
Applicable standards		Conforms to JIS C5160-1 (IEC 62391-1)					

Outline Drawing Unit:mm



Part numb	erir	ng system (exan	nple : 2	.5V10F)		
DZN	_	2R5	D	106	(Z6)(S)	т — 🖂
Series code		Max. operating voltage symbol		Rated capacitance symbol	Casing symbol	Taping (Forming) symbol

Part number is refer to the following page.

ELECTRIC DOUBLE LAYER CAPACITORS "DYNACAP"



Standard Ratings (Series DZN 2.5V)

Max. operating voltage (V)	Rated capacitance (F)	Max. Leakage Current (mA) after 24h	ELNA Parts No.	$\phi D \times L (mm)$	Internal resistance (Ω max.) at 1kHz	Internal DC resistance (mΩ Max.)
2.5	1	0.1	DZN-2R5D105F4T	6.3 × 14	0.4	1500
2.5	1	0.1	DZN-2R5D105G3T	8 × 12	0.3	1000
2.5	2.7	0.2	DZN-2R5D275G5ST	8 × 20	0.3	500
2.5	3.3	0.2	DZN-2R5D335H5T	10 × 20	0.1	400
2.5	4.7	0.3	DZN-2R5D475H5T	10 × 20	0.1	400
2.5	5.6	0.3	DZN-2R5D565H5T	10 × 20	0.1	350
2.5	6.8	0.4	DZN-2R5D685H6T	10 × 25	0.1	300
2.5	10	0.5	DZN-2R5D106H8T	10 × 35	0.1	200
2.5	10	0.5	DZN-2R5D106Z6ST	12.5 × 25	0.1	200
2.5	15	0.7	DZN-2R5D156Z8ST	12.5 × 35	0.1	150
2.5	15	0.7	DZN-2R5D156J5T	16 × 20	0.1	150
2.5	22	0.8	DZN-2R5D226J6T	16 × 25	0.1	120
2.5	33	0.8	DZN-2R5D336J8T	16 × 35.5	0.1	100
2.5	40	0.8	DZN-2R5D406K9T	18 × 40	0.1	75
2.5	50	1.0	DZN-2R5D506T	25 × 40	0.03	60
2.5	100	1.0	DZN-2R5D107S37T	25 × 50	0.03	50
2.5	200	2.0	DZN-2R5D207S57T	35 × 50	0.03	40

We tailor packaged product in series and parallel arrangements according to voltage and capacitance as required.

Standard Ratings (Series DZN 2.7V)

Max. operating voltage (V)	Rated capacitance (F)	Max. Leakage Current (mA) after 24h	ELNA Parts No.	$\phi D \times L \text{ (mm)}$	Internal resistance (Ω max.) at 1kHz	Internal DC resistance (mΩ Max.)
2.7	1	0.2	DZN-2R7D105F4T	6.3 × 14	0.4	1500
2.7	1	0.2	DZN-2R7D105G3T	8 × 12	0.3	1000
2.7	2.7	0.3	DZN-2R7D275G5ST	8 × 20	0.3	500
2.7	3.3	0.3	DZN-2R7D335H5T	10 × 20	0.2	470
2.7	4.7	0.4	DZN-2R7D475H5T	10 × 20	0.1	400
2.7	5.6	0.4	DZN-2R7D565H5T	10 × 20	0.1	350
2.7	6.8	0.5	DZN-2R7D685H6T	10 × 25	0.1	300
2.7	10	0.6	DZN-2R7D106H8T	10 × 35	0.1	200
2.7	10	0.6	DZN-2R7D106Z6ST	12.5 × 25	0.1	200
2.7	15	0.8	DZN-2R7D156Z8ST	12.5 × 35	0.1	150
2.7	15	0.8	DZN-2R7D156J6T	16 × 25	0.1	150
2.7	22	1.0	DZN-2R7D226J7T	16 × 31.5	0.1	120
2.7	33	1.0	DZN-2R7D336J9T	16 × 40	0.1	100

We tailor packaged product in series and parallel arrangements according to voltage and capacitance as required.



High Power, For Low Temperature Type Capacitors

GREEN CAP







- For Low Temperature (-40°C).
- Environmentally Friendly: without environmentally hazardous substances such as Cd or Pb.
- Unlike batteries, excellent charge and discharge characteristics with no chemical reaction.

For low temperature





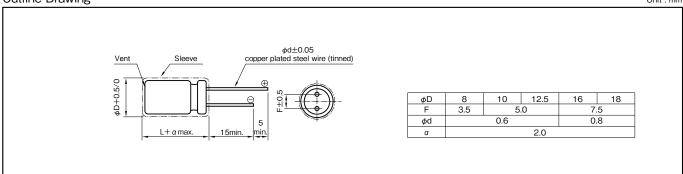


Marking color: White print on a brown sleeve

Specifications

Item		Performance					
Category temperature range (°C)		-40 to +65					
Tolerance at rated capacitance (%)		-20 to +80					
Internal resistance		Refer to the Standard Ratings					
Characteristics at high and low temperature	Percentage of capacitance change	Within ±30% of the value at 20°C Three times or less of the value at 20°C					
	internal resistance	Three times or less or the value at 20 C					
	Test time	1000 hours					
Endurance (65°C)	Percentage of capacitance change	Within ±30% of initial measured value					
	Internal resistance Three times or less of the initial specified value						
Shelf life (65°C)	Test time: 1000 hours; same as endurance.						
Applicable standards		Conforms to JIS C5160-1 (IEC 62391-1)					

Outline Drawing Unit:mm



Part numb	perin	g system (exam	ple:2.	.7V10F)				
DU	DU — 2R7 D 106 H7 T — 🗌							
Series code	İ	Max. operating voltage symbol		Rated capacitance symbol	Casing symbol	Taping (Forming) symbol		

Part number is refer to the following table.

Standard Ratings

Max. operating voltage (V)	Rated capacitance (F)	Max. Leakage Current (mA) after 24h	ELNA Parts No.	$\phi D \times L (mm)$	Internal resistance (mΩ max.) at 1kHz	Internal DC resistance (mΩ Max.)
2.7	1	0.2	DU-2R7D105G3T	8 × 12	250	700
2.7	3.3	0.3	DU-2R7D335G5T	8 × 20	75	200
2.7	6.8	0.5	DU-2R7D685H5T	10 × 20	60	120
2.7	10	0.6	DU-2R7D106H7T	10 × 30	50	75
2.7	15	0.8	DU-2R7D156Z6T	12.5 × 25	35	60
2.7	25	1.0	DU-2R7D256J6T	16 × 25	25	42
2.7	33	1.0	DU-2R7D336J7T	16 × 31.5	20	35
2.7	50	1.5	DU-2R7D506K9T	18 × 40	14	25

ELECTRIC DOUBLE LAYER CAPACITORS "DYNACAP"



High Power, For Low Temperature and High Voltage Tolerance Type Capacitors









- For Low Temperature (-40°C), High voltage tolerant (3.0V guaranteed).
- Environmentally Friendly; without environmentally hazardous substances such as Cd or Pb.
- Unlike batteries, excellent charge and discharge characteristics with no chemical reaction.

High Voltage, High Temperature







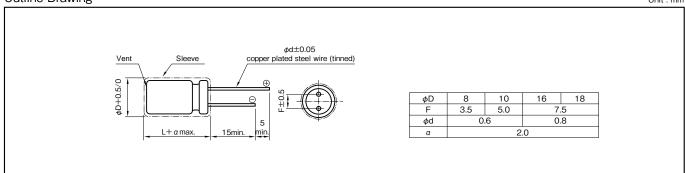


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Specifications

Opcomoationo									
Item	Performance								
Category temperature range (°C)		-40 to +65							
Expansion category temperature range (°C)			-40 to +85 (Applie	ed volt	age: 2.5 V or less)				
Tolerance at rated capacitance (%)			-20) to +	20				
Internal resistance		Refer to the Standard Ratings							
Characteristics at high	Percentage of cap	Percentage of capacitance change Within ±30% of the value at 20°C							
and low temperature	Internal re	esistance		TI	nree times or less of the val	lue at 20℃			
	Test temperature	65°C			Test temperature	85°C			
	Test voltage	3.0V			Test voltage	2.5V			
Endurance	Test time	1000 ho	urs		Test time	1000 hours			
	Percentage of capacitance change	Within ±30% of the init	ial measured value		Percentage of capacitance change	Within ±30% of the initial measured value			
	Internal resistance Three times or less of the initial specified value Internal resistance Three times or less of the initial specified value								
Shelf life (85°C)	Test time: 1000hours; same as endurance.								
Applicable standards			Conforms to JIS C	5160	-1 (IEC 62391-1)				

Outline Drawing Unit: mm



Part numb	erin	ng system (exam	ple : 3	V10F)		
DUK		3	D	106	H7	Т —
Series code		Max. operating voltage symbol		Rated capacitance symbol	Casing symbol	Taping (Forming) symbol

Part number is refer to the following table.

Standard Ratings

Max. operating voltage (V)	Rated capacitance (F)	Max. Leakage Current (mA) after 24h	ELNA Parts No.	$\phi D \times L \text{ (mm)}$	Internal resistance (mΩ max.) at 1kHz	Internal DC resistance (mΩ Max.)
3	1	0.2	DUK-3D105G3T	8 × 12	300	1500
3	3.3	0.3	DUK-3D335G5T	8 × 20	90	500
3	6.8	0.5	DUK-3D685H5T	10 × 20	70	250
3	10	0.6	DUK-3D106H7T	10 × 30	55	150
3	15	0.8	DUK-3D156H9T	10 × 40	40	120
3	25	1.0	DUK-3D256J6T	16 × 25	30	75
3	33	1.0	DUK-3D336J7T	16 × 31.5	25	65
3	50	1.5	DUK-3D506K9T	18 × 40	20	45

We tailor packaged product in series and parallel arrangements according to voltage and capacitance as required.





Packed Type Capacitors

GREEN 70°C 5.0

High-voltage capacitor which connected DZN in series.Environmentally Friendly : without environmentally

hazardous substances such as Cd or Pb.

• Unlike batteries, excellent charge and discharge characteristics with no chemical reaction.



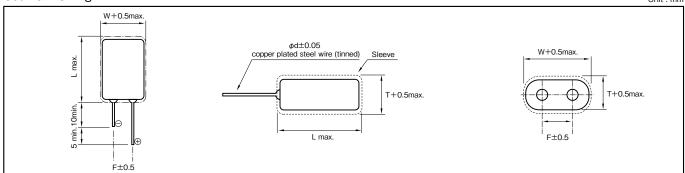


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Specifications

Item	Performance							
Category temperature range (°C)	-25 to +70							
Tolerance at rated capacitance (%)		-20 to +80						
Internal resistance at 1 kHz		Refer to the Standard Ratings						
Characteristics at high and low temperature	Percentage of capacitance change Internal resistance	Within ±30% of the value at 20°C Five times or less of the value at 20°C						
Endurance (70°C)	Test time Percentage of capacitance change Internal resistance	1000 hours Within ±30% of the initial measured value Four times or less of the initial specified value						
Shelf life (70°C)		Test time: 1000hours; same as endurance.						
Applicable standards	Conforms to JIS C5160-1 (IEC 62391-1)							

Outline Drawing Unit : mm



Part numbering system (example : 5.0V0.47F)								
DZP —	5	٧	474	G3()	NT(S1)			
Series code	Max. operating voltage symbol		Rated capacitance symbol	Casing symbol	Additional code			

Part number is refer to the following table.

Standard Ratings

Max. operating voltage (V)	Rated capacitance (F)	Max. Leakage Current (mA) after 24h	ELNA Parts No.	$T \times W \times L$ (mm)	φd	F	Internal resistance (Ω max.) at 1kHz	Internal resistance (mΩ) at 1kHz (measurement value)
5.0	0.47	0.2	DZP-5V474G3NTS1A	8.5 × 17.0 × 16.0	0.6	5.1	0.6	300
5.0	0.47	0.2	DZP-5V474G3NTS1B	6.5 × 17.0 × 16.0	0.6	12.1	0.6	
5.0	5.0 1.0		DZP-5V105G5SNTA	8.5 × 17.0 × 24.0	0.6	5.1	0.6	240
5.0	1.0	0.3	DZP-5V105G5SNTB	6.5 × 17.0 × 24.0	0.6	12.1	0.0	240
5.0	5.0 1.5	0.4	DZP-5V155G5SNTA	8.5 × 17.0 × 24.0	0.6	5.1	0.6	200
5.0			DZP-5V155G5SNTB	6.5 × 17.0 × 24.0	0.6	12.1		
5.0	3.3	0.8	DZP-5V335H6NTS1A	10.5 × 21.0 × 29.0	0.6	5.5	0.2	100
5.0	3.3		DZP-5V335H6NTS1B	10.5 × 21.0 × 29.0	0.6	15.5	0.2	100
5.0	4.7	1.0	DZP-5V475H8NTS1A	10.5 × 21.0 × 39.0	0.6	5.5	0.2	70
		1.0	DZP-5V475H8NTS1B	10.5 ^ 21.0 × 39.0	0.6	15.5	0.2	/0

TECHNICAL NOTE ELECTRIC DOUBLE LAYER CAPACITORS



1 Description of Electric Double Layer Capacitor

1-1 Basic Concepts

Generally capacitors are constructed with a dielectric placed between opposed electrodes, functioning as capacitors by accumulating charges in the dielectric material. Aluminum electrolytic and tantalum electrolytic capacitors, for example, use an aluminum oxide film and a tantalum oxide film as the dielectric, respectively.

On the other hand, Electric Double Layer Capacitors have no visible dielectric in a general sense but utilize the state referred to as the electric double layer, which is developed naturally on the interface between substances, as the function of dielectric.

1-2 Operating Principle

The Electric Double Layer represents the state in which positive and negative charges exist at a very short distance on the boundary where contact occurs between two different substances (e.g. solid and liquid). By externally applying a voltage below a certain voltage to the boundary, higher charges can be accumulated. Accordingly, charge and discharge of electric double layer capacitors utilize adsorption and desorption of ions to the ionic adsorption layer (Electric Double Layer) formed on the electrode surface of the activated carbon used for electrodes.

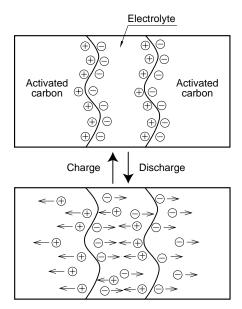


Fig.1 Schematic of Principle of Electric Double Layer Capacitor

Applying DC voltage externally across the electrodes of the Electric Double Layer allows almost no passage of current up to a certain voltage, exhibiting a condition like insulation.

However, the application of voltages exceeding the certain voltage causes electrolysis to occur in the electrolyte, resulting in abrupt passage of current.

This voltage determines the resistance of voltage of an Electric Double Layer Capacitor. We use an organic electrolyte and its standard electrolysis occurs at the voltage of about 2.5 to 3V.

1-3 Advantages and Disadvantages of Electric Double Layer Capacitor

[Advantages]

- (1) Small size and capacitance in farads (F) available by utilizing the activated carbon electrode with a large surface area
- (2) No special charging circuit and constrains during discharge are required.
- (3) No effect on the life through overcharging and overdischarging
- (4) Environmentally clean energy

[Disadvantage]

- (1) The life is limited due to the use of electrolyte.
- (2) Series connection is required when used with a low resistance of voltage at a high voltage.
- (3) Cannot be used in AC circuits due to high internal resistance unlike aluminum electrolytic capacitors.



1-4 Construction of DYNACAP

The series which consists of coin cells is similar to that of coin-type batteries as shown in Fig.2. DYNACAP contains a single cell or two to three cells stacked in series.

Since these series have a large electrode-to-electrode distance and a small electrode area exhibiting a large internal resistance, they are suitable for the memory backup application that involves microcurrent discharge.

The cylindrical cell construction as seen in the DZ and DZN series has the construction similar to that of aluminum electrolytic capacitors as shown in Fig.3.

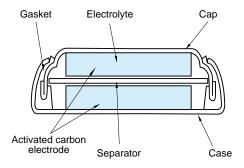


Fig.2 Example of Basic Construction of Coin Cell

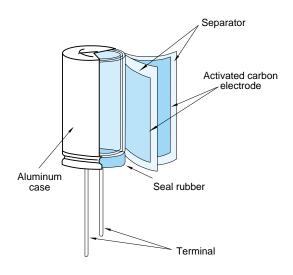


Fig.3 Example of Basic Construction of Cylindrical Cell

These series have a small electrode-to-electrode distance, allowing a large electrode area because of the winding structure. This decreases the internal resistance, which is primary suitable for applications requiring high-power such as motor drive and LED lighting that need high currents.

2 Description of Life Expectancy

Generally, the life of Electric Double Layer Capacitors is largely affected by the ambient temperature.

The expected life is approximated by the equation as shown below:

$$L = L_0 \times 2 \left(\frac{T_0 - T}{10} \right)$$

Where.

L: Expected lifetime at temperature T

 L_0 : Lifetime at temperature T_0 T: Expected working temperature T_0 : Upper category temperature

Note that the above equation does not cover charge and discharge. In the case of charge and discharge, heat generation occurs inside a capacitor; the temperature rise by this heat generation must also be considered.

The expected life time is a maximum as a guide in terms of deterioration of the sealant.

Coin cell type: about ten years Cylindrical type: about fifteen years

TECHNICAL NOTE ELECTRIC DOUBLE LAYER CAPACITORS



3 Calculation Method of Discharge Time

3-1 Approximating the Discharge Time of Basic Constant Current Discharge

The discharge time at the constant current of a capacitor can be calculated by the following equation.

 $t = (C \times \Delta V)/I$

Where,

t : Discharge time (sec.)
C : Capacitor capacitance (F)
ΔV : Working voltage range (V)
I : Discharge current (A)

As an example, we calculate the discharge time when a capacitor of the DB series 5.5V 1F is charged with 5V and discharged to 3V at a constant current of 1 mA. Since the working voltage range ΔV is 2V from 5 - 3V, t = (1F \times 2V)/0.001A from the above equation, and the discharge time can be calculated as 2,000 seconds (about 33 minutes). Note that the actual discharge time may be different because this equation does not cover the effect of the self-discharge and the IR drop by internal resistance described below.

3-2 Effect of Self-discharge at Microcurrents

When backup is made by discharge with a microcurrent below some μA especially for the memory backup application and the like, the discharge time must be determined while taking into account the selfdischarge as shown in Fig.4.

The value closer to the actual discharge curve is obtained by adding the voltage drop through the self-discharge determined from the voltage retention characteristic test to the discharge curve given by calculation.

Note that the value of self-discharge varies by the charge time, charging current and an ambient temperature.

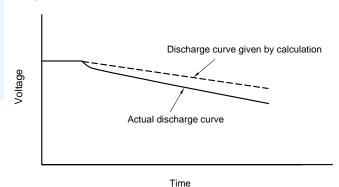


Fig.4 Example of Discharge Curve involving Self-Discharge

3-3 Effect of IR Drop at Large Currents

When a large Current discharge and a capacitor with a high internal resistance are used, the effect of IR drop by the product of the internal resistance and the current must be considered as shown in Fig.5. Moreover, the maximum discharge current of the product (coin cell series) of a memory backup use recommends below 1 mA/F (at20 °C).

When a large current is required in a very short time, or a large instantaneous current flows at the start of discharge, the voltage drop indicated with $\Delta V1$ counts. However, when the discharge continues as it is, the discharge curve indicates in a manner showing a slow diffusion and then keeps a constant straight line.

We also make calculation including $\Delta V2$ of the intersection extending from the initial discharge and the discharge straight line section including the diffusion curve when indicating the DC internal resistance.

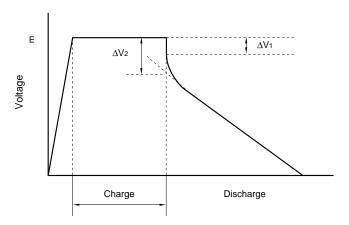


Fig.5 Example of Discharge Curve involving IR Drop

Due to IR drop, the shape of the discharge curve varies by the internal resistance and ambient temperature for each series.

4 Series-parallel connection packaged products.

Electric Double Layer Capacitors have a low operating voltage per cell.

To deal with this, ELNA is ready to offer series packaging for high operating voltages to meet to various needs.

Please consult with us on optimization and design.

Packaged item







Example of packaged item

In case of a low voltage (up to about 24 V) for the DZ and DZN series with relatively low capacitance, we are preparing simple packaged products.

No full-scale voltage equalization circuit has been equipped yet, but comparatively low cost and flexible layout can be realized.

5 Moisture-proof provision

If a electric double layer capacitor is used in a heat-and-high-humidity environment, the characteristic will deteriorate.

Please consult when using in a heat and high humidlty environment.

6 Regarding Recovery Voltage

After charging and then discharging the electric double layer capacitor, and further causing short-circuit to the terminals and leave them alone, the voltage between the two terminals will rise again after some interval. This voltage is called recovery voltage.

This voltage may cause the bad influence to the low-voltage driven components (CPU, memory, etc.) or damage of the capacitor with soldering.

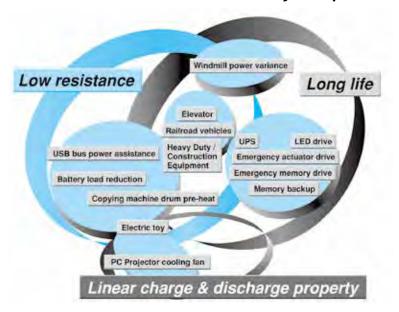
Discharging before use is safer. It is important especially when using it by series connection.

Moreover, it is possible making the terminals in short-circuit condition at

the production stage. Please consult us for adequate procedures.

7 Applications

Features & Benefits of Electric Double Layer Capacitor



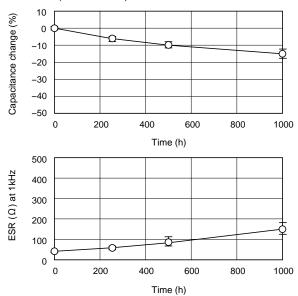


7 Electric Characteristics Data

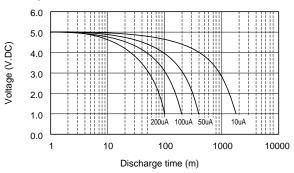
7-1 Coin type for memory back-up

DYNACAP Series DXJ 5.5V 0.33F/DXJ-5R5H334U ϕ 11.5×5L (mm)

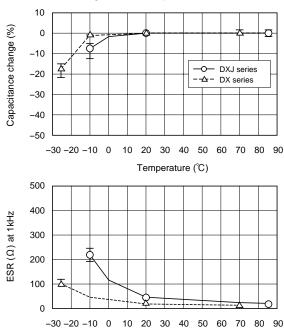
■ Endurance (85°C 5.5V.DC)



Discharge characteristics

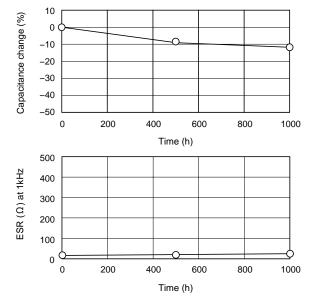


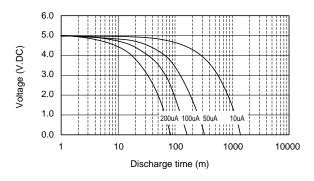
■ Characteristics at high and low temperature

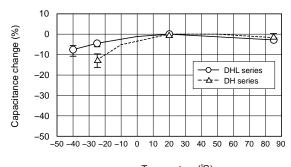


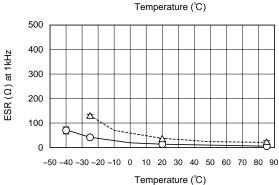
Temperature (°C)

DYNACAP Series DHL 5.5V 0.22F/DHL-5R5D224T φ13.5×9.5L (mm)



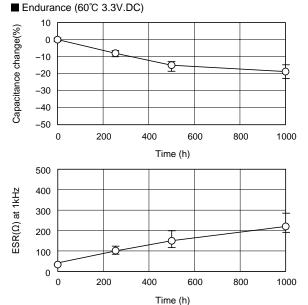




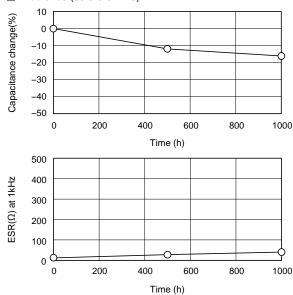


. .

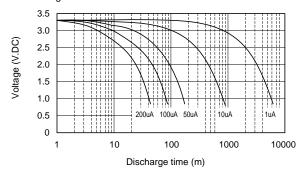
DYNACAP Series DSK 3.3V 0.22F/DSK-3R3H224T ϕ 6.8×2.1L (mm)

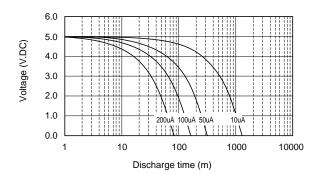


■ Endurance (85°C 5.5V.DC)

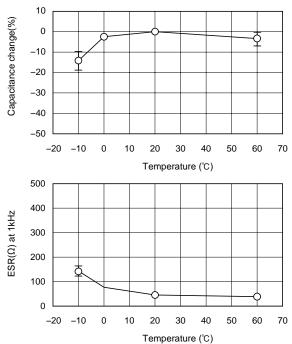


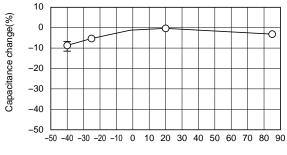
■ Discharge characteristics

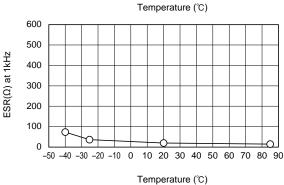




■ Characteristics at high and low temperature



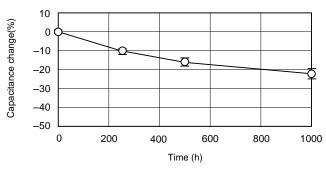


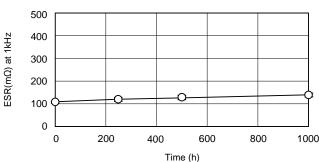


7-2 Cylindrical type for power

DYNACAP Series DZN 2.7V 2.7F/DZN-2R7D275G5ST ϕ 8X20L (mm)

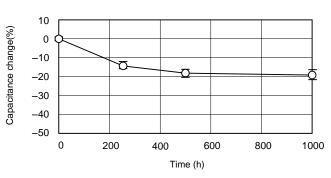
■ Endurance (70°C 2.7V.DC)

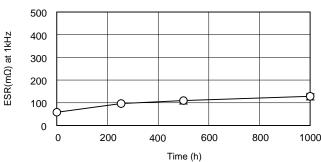




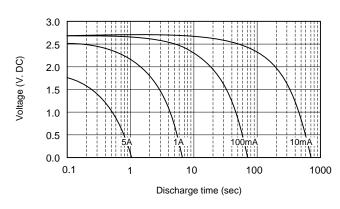
DYNACAP Series DU 2.7V 3.3F/DU-2R7D335G5T φ8X20L (mm)

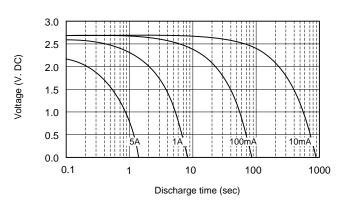
■ Endurance (65°C 2.7V.DC)



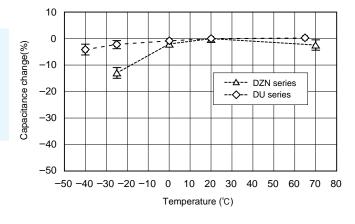


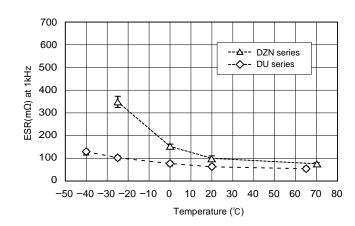
■ Discharge characteristics





■ Characteristics at high and low temperature





ELNA

Plastic Film Capacitors

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■ Product Symbol System for Plastic Film Capacitors

N Y D - _ _ _ _ V _ _ _ _ _ _ _ 6 B B

(3)

NYE - DDD V DDD DB

1 Series code

Please refer to the page of each series.

2

2 Rated voltage

Please refer to the page of each series.

3 Rated capacitance symbol

Example of series NYD, NYE

Capacitance (µF)	Capacitance symbol	Capacitance (μF)	Capacitance symbol	
70	700	420	421	
100	101	440	441	
110	111	450	451	
140	141	480	481	
160	161	550	551	
170	171	610	611	
220	221	700	701	
230	231	750	751	
260	261	940	941	
280	281	970	971	
350	351	1100	112	
400	401	1500	152	

Example of series NXA, NXB

(5)

Capacitance (μF)	Capacitance symbol	Capacitance (μF)	Capacitance symbol
0.15	154	1.3	135
0.2	204	1.4	145
0.22	224	1.5	155
0.3	304	1.6	165
0.33	334	1.7	175
0.4	404	1.8	185
0.45	454	2	205
0.47	474	2.2	225
0.55	554	2.5	255
0.56	564	2.8	285
0.6	604	3	305
0.65	654	3.3	335
0.68	684	3.5	355
0.7	704	4	405
0.8	804	4.2	425
0.82	824	4.5	455
0.85	854	4.8	485
1	105	5	505
1.1	115	6	605
1.2	125	7	705

4 Capacitance tolerance symbol

Example

Contents	symbol
±5%	J
±10%	К
±20%	М

5 Casing symbol

Please refer to the page of each series.

7 Shape code

Please refer to the page of each series.

6 Terminal code

Please refer to the page of each series.



■ Cautions for Using Film Capacitors

1 Operation voltage

The plastic film capacitor varies in the maximum applicable voltage depending on the applied voltage waveform, current waveform frequency, ambient temperature (capacitor surface temperature), capacitance value, etc.

Be sure to use capacitors within the specified values by checking the voltage waveform, current waveform, and frequency applied to them (In the application of high frequency, the permissible voltage varies with the type of the capacitor.

For detail see the specification).

2 Operating Current

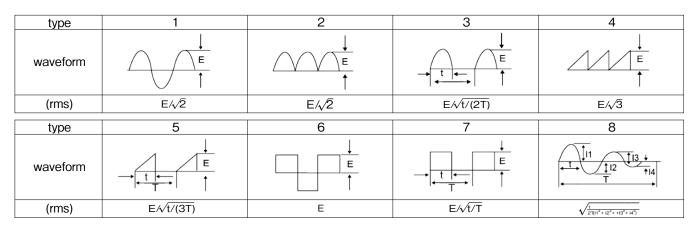
The pulse (or AC) current flowing through the capacitor is expressed as: $I=C \times dV/dt$

Due to the fact that dissipation factor of the capacitor will generate the internal heat under the application of high frequency or high pulse current, temperature rise in it will occur and may cause deterioration of with standing voltage, even lead to break down (smoking or firing).

Therefore, the safety use of capacitor must be within the rated voltage(or category voltage) and the permissible current. The rated current must be considered by dividing into pulse current (peak current) and continuous current (rms current) depending on the break down mode, and when using, should make sure the both currents are within the permissible values.

3 Calculation of rms in various waveforms

In each waveform, calculate the rms value in the following formula.



4 Charging and discharging

Because the charging and discharging current of capacitor is obtained by the product of voltage rise rate (dV/dt) and capacitance, low voltage charging and discharging may also cause deterioration of capacitor such as shorting and open due to sudden charging and discharging current.

When charging and discharging, pass though a resistance of $20\Omega/V$ to $1000\Omega/V$ or more to limit current.

When connecting multiple film capacitors in parallel in withstand voltage test or life test, connect a resistance of $20\Omega/V$ to $1000\Omega/V$ or more in series to each capacitor. (For detail see the specification)

In additional, capacitors must be discharged with resistor before handling.

Because the capacitor hasn't discharge resistor inside, so there is residual but maybe deathful electric energy contained.

5 Buzzing noise

Any buzzing noise produced by capacitor is caused by the vibration of the film due to the coulomb force that is generated between the electrodes with opposite poles.

If the wave-form with a high distortion rate or frequency is applied across the capacitor, the buzzing noise will become louder.

But the buzzing noise is of no damage to capacitor.

6 Surface over temperature ∆θcase

When continuing current flows through the capacitor, the temperature inside the capacitor will rise, induced by accumulated heat.

If the temperature exceeds allowed hot-spot temperature, it might cause a short circuit or fire.

The limits described in the catalogue are not exceeded and it's necessary to check the temperature on the capacitor surface when it works.

7 Flame retardation

Although flame retardation epoxy resin or plastic case is used in the coating or encapsulating of plastic film capacitor, continuous outer high temperature or firing will break the coating layer or plastic case of the capacitor, and may lead to melting and firing of the capacitor element.

flame time (s)

volume (mm³)	≦250	250<, ≦500	500<, ≦1750	1750<	Max. flame time (s)
Α	15	30	60	120	3
В	10	20	30	60	10
С	5	10	20	30	30

8 Humid ambient

If used for a long time in a humid ambient, the capacitor might absorb humidity and oxidize the electrodes causing breakage of the capacitor.

If case of AC application, high humidity would increase the corona effect. This phenomenon causes a drop of capacitance and a increase of capacitor losses.

9 Storage conditions

1) Capacitors may not be stored in corrosive atmospheres, particularly not when chlorides, sulfides, acids, lye, salts, organic solvents or similar substances are present.

2) It shouldn't be located in particularly high temperature and high humidity, it must submit to the following conditions(unchanging primal package):

Temperature : ≦35°C

Humidity: ≦80% RH, no dew allowed on the capacitor. Storage time: ≦24 months (from the dale marked on the capacitor's body or the label glued to the package)





For DC-Link Circuits Capacitors

85°C DC-LINK

- Used in DC-Link circuits, can replace electrolytic capacitor.
- PP film design, good temperature characteristics, stable capacity, low ESR, high ripple current handing capabilities, low Ls, long life.
- Aluminum case, filled with fire-retardant resin.
- Self-healing property.
- Used in Inverters of wind power and solar power, HEV or EV, welders, elevators, Motor Driver systems.

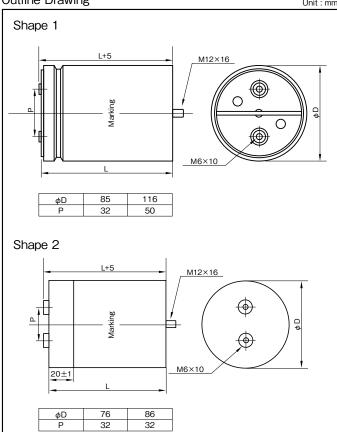


Specifications

Item		Performance	
Category temperature range (°C)		- 55 to +85	(at Hotspot in capacitor)
Tolerance at rated capacitance (%)		±5, ±10	(20°C, 50 to 120Hz)
	Rated voltage × 1.1	30% of on-load-duration	
	Rated voltage × 1.15	30 min/day	
Over Voltage	Rated voltage × 1.2	5 min/day	
	Rated voltage × 1.3	1 min/day	
	Rated voltage × 1.5	30 ms every time, 100ms/day	
Dielectric Dissipation Factor		2×10 ⁻⁴ or less	
Life Expectancy		100000 hours (at	Hotspot in capacitor = 70°C)
Failure Rate		50Fit	
	Between Terminals	Rated voltage × 1.5 10s	
Withstanding DC Voltage	Between Terminals and Case	$(2x(Ratef voltage)/\sqrt{2})+1000 \text{ or } 3000 \text{ VAC whichever is lager } 1$	0 s (20°C, 50Hz)
Insulation Resistance		5000MΩ· μF or more	(20°C, 100V DC, 1min)
Reference Standard		IEC 61071	

Outline Drawing





Part numbering system (example : 1100V420µF)									
NYD	_	1100	٧	421	K	F(S)D6	6BB		
Series code	-	Rated voltage symbol		Rated capacitance symbol	Capacitance tolerance symbol	Casing symbol	Optional symbol		





Standard Ratings

Rated voltage	Rated	Case	(mm)	Casing	Maximum	Thermal	Maximum	Series	Self-inductance	
UR (V)	Capacitance Capacitance	φD	L	symbol	current I max (Arms)	resistance R _{th} (K/W)	peak current Î(A)	resistance Rs (mΩ)	Ls (nH)	ELNA Parts No.
On (V)	350	76	120	EC0	60	4.7	3500	2.4	60	NYD-800V351*EC06BB
	400	76	136	ED6	56	4.6	3600	2.8	60	NYD-800V401*ED66BB
800	400	85	120	FC0	61	4.0	3840	2.3	60	NYD-800V481*FC06BB
	480	86		FSC0		4.7			60	
			120		61		3840	2.3		NYD-800V481*FSC06BB
	550	85	136	FD6	58	4.6	3850	2.6	60	NYD-800V551*FD66BB
		86	136	FSD6	58	4.6	3850	2.6	60	NYD-800V551*FSD66BB
ļ	970	116	120	HC0	69	5	5820	1.7	60	NYD-800V971*HC06BB
	1000	85	225	FM5	79	4	6000	1.6	80	NYD-800V102*FM56BB
		86	225	FSM5	79	4	6000	1.6	80	NYD-800V102*FSM56BB
	1100	116	136	HD6	67	4.9	6600	1.8	60	NYD-800V112*HD66BB
	1900	116	230	HN0	100	2.7	11400	1.4	80	NYD-800V192*HN06BB
	350	76	120	EC0	54	4.7	3500	2.9	60	NYD-900V351*EC06BB
	400	76	136	ED6	51	4.6	3600	3.3	60	NYD-900V401*ED66BB
	480	85	120	FC0	55	4.7	3840	2.8	60	NYD-900V481*FC06BB
	400	86	120	FSC0	55	4.7	3840	2.8	60	NYD-900V481*FSC06BB
		85	136	FD6	53	4.6	3850	3.1	60	NYD-900V551*FD66BB
900	550	86	136	FSD6	53	4.6	3850	3.1	60	NYD-900V551*FSD66BB
	970	116	120	HC0	60	5	5820	2.2	60	NYD-900V971*HC06BB
	0.0	85	225	FM5	69	4	6000	2.1	80	NYD-900V102*FM56BB
	1000	86	225	FSM5	69	4	6000	2.1	80	NYD-900V102*FSM56BB
}	1100	116	136	HD6	60	4.9	6600	2.3	60	NYD-900V102*F5M56BB
}	1900	116		HN0		2.7	11400		80	
			230		88			1.9		NYD-900V192*HN06BB
,	170	76	95	E95	50	5.6	1700	3	60	NYD-1100V171*E956BB
ļ	230	76	120	EC0	50	4.7	1840	3.4	60	NYD-1100V231*EC06BB
	240	85	95	F95	56	5.1	1920	2.5	60	NYD-1100V241*F956BB
		86	95	FS95	56	5.1	1920	2.5	60	NYD-1100V241*FS956BB
	260	76	136	ED6	50	4.6	2080	3.6	60	NYD-1100V261*ED66BB
	310	85	120	FC0	57	4.7	2480	2.6	60	NYD-1100V311*FC06BB
	310	86	120	FSC0	57	4.7	2480	2.6	60	NYD-1100V311*FSC06BB
	350	76	175	EH5	68	4.3	2800	2	80	NYD-1100V351*EH56BB
	400	85	136	FD6	56	4.6	3360	2.8	60	NYD-1100V421*FD66BB
	420	86	136	FSD6	56	4.6	3360	2.8	60	NYD-1100V421*FSD66BB
1100	400	85	155	FF5	75	4.5	4200	1.6	60	NYD-1100V421*FF56BB
1100	420	86	155	FSF5	75	4.5	4200	1.6	60	NYD-1100V421*FSF56BB
İ	450	116	95	H95	61	5.4	4500	2	60	NYD-1100V451*H956BB
		85	175	FH5	72	4.3	4800	1.8	80	NYD-1100V481*FH56BB
	480	86	175	FSH5	72	4.3	4800	1.8	80	NYD-1100V481*FSH56BB
ŀ		85	225	FM5	71	4	6000	2	80	NYD-1100V601*FM56BB
	600	86	225	FSM5	71	4	6000	2	80	NYD-1100V601*FSM56BB
	610	116	120	HC0	60	5	4880	2.2	60	NYD-1100V611*HC06BB
}									60	
	680	116	136	HD6	58	4.9	5440	2.4		NYD-1100V681*HD66BB
ļ	940	116	175	HH5	99	3.4	8460	1.2	80	NYD-1100V941*HH56BB
ļ	1100	116	230	HN0	100	2.7	9900	1.3	80	NYD-1100V112*HN06BB
	1200	116	230	HN0	100	2.7	10800	1.3	80	NYD-1100V122*HN06BB
	220	76	136	ED6	46	4.6	2200	4.2	60	NYD-1200V221*ED66BB
	300	85	136	FD6	50	4.6	3000	3.5	60	NYD-1200V301*FD66BB
1200		86	136	FSD6	50	4.6	3000	3.5	60	NYD-1200V301*FSD66BB
	450	116	136	HD6	54	4.9	4050	2.8	60	NYD-1200V451*HD66BB
	470	86	225	HM5	67	4	4230	2.2	80	NYD-1200V471*FSM56BB
	100	76	95	E95	46	5.6	1400	3.4	60	NYD-1300V101*E956BB
	160	76	120	EC0	50	4.7	1920	3.6	60	NYD-1300V161*EC06BB
		85	95	F95	53	5.1	2240	2.8	60	NYD-1300V161*F956BB
	160	86	95	FS95	53	5.1	2240	2.8	60	NYD-1300V161*FS956BB
ŀ		85	120	FC0	53	4.7	2640	3	60	NYD-1300V221*FC06BB
	220	86	120	FSC0	53	4.7	2640	3	60	NYD-1300V221*FSC06BB
	210		95	H95		5.4	3720	-		
1300	310	116			58			2.2	60	NYD-1300V311*H956BB
	310	85	175	FH5	45	4.3	3720	4.9	60	NYD-1300V311*FH56BB
		86	175	FSH5	45	4.3	3720	4.9	60	NYD-1300V311*FSH56BB
	420	116	120	HC0	57	5	4200	2.5	60	NYD-1300V421*HC06BB
	l	85	225	FM5	65	4	4700	2.4	80	NYD-1300V471*FM56BB
	I 47∩ ⊦			E0145	65	4	4700	2.4	80	NYD-1300V471*FSM56BB
	470	86	225	FSM5						
	470 620	86 116	175	HH5	92	3.4	5580	1.4	80	NYD-1300V621*HH56BB

(Note) * : If tolerance at rated capacitance is 5% = J, 10% = K



For DC-Link Circuits Capacitors

DC-LINK 85°C

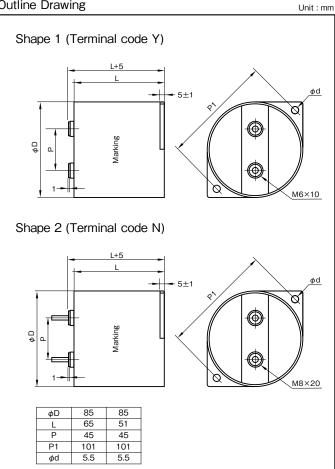
- Used in DC-Link circuits, can replace electrolytic capacitor.
- PP film design, good temperature characteristics, stable capacity, low ESR, high ripple current handing capabilities, low Ls, long life.
- Plastic case, filled with fire-retardant resin.
- Self-healing property.
- Used in Inverters of wind power and solar power, welders, elevators, Motor Driver systems.



Specifications

Item		Performance					
Category temperature range (°C)		- 40 to +85	(at Hotspot in capacitor)				
Tolerance at rated capacitance (%)		±5, ±10	(20°C, 50 to 120Hz)				
	Rated voltage × 1.1	30% of on-load-duration					
	Rated voltage × 1.15	30 min/day					
Over Voltage	Rated voltage × 1.2	5 min/day					
	Rated voltage × 1.3	1 min/day					
	Rated voltage × 1.5	30 ms every time, 100ms/day					
Dielectric Dissipation Factor		2×10 ⁻⁴ or less					
Life Expectancy		100000 hours (at	Hotspot in capacitor = 70°C)				
Failure Rate		50Fit					
	Between Terminals	Rated voltage × 1.5 VDC 10 s					
Withstanding DC Voltage	Between Terminals and Case	$(2x(Ratef voltage)/\sqrt{2})+1000 \text{ or } 3000 \text{ VAC whichever is lager } 1$	0 s (20°C, 50Hz)				
Insulation Resistance		5000MΩ · μF or more (20°C, 100V DC					
Reference Standard	IEC 61071						

Outline Drawing



Part numbering system (example : 1000V110μF)							
NYE —	1000	V 111	K	F65	Υ	В	
Series code	Rated voltage symbol	Rated capacitance symbol	Capacitance tolerance symbol	Casing	Terminal code	Optional symbol	





Standard Ratings

Rated voltage	Rated capacitance	Case	(mm)	Casing	Maximum current	Thermal resistance	Maximum peak current	Series resistance	Self-inductance	ELNA Parts No.
U _R (V)	C _R (µF)	φD	L	symbol	I max (Arms)	R _{th} (K/W)	Î (A)	Rs (mΩ)	Ls (nH)	
600	200	85	51	F51	55	4.2	4000	1.2	20	NYE-600V201*F51□B
800	280	85	65	F65	65	5.5	3700	1.4	30	NYE-600V281*F65□B
800	120	85	51	F51	55	4.2	3000	1.2	20	NYE-800V121*F51□B
800	220	85	65	F65	65	5.5	3000	1.4	30	NYE-800V221*F65□B
1000	75	85	51	F51	50	4.2	2400	1.4	20	NYE-1000V750*F51□B
1000	110	85	65	F65	60	5.5	2300	1.7	30	NYE-1000V111*F65□B
1200	50	85	51	F51	50	4.2	2000	1.6	20	NYE-1200V500*F51□B
1200	80	85	65	F65	60	5.5	2000	2.0	30	NYE-1200V800 * F65□B

(Note) ★ : If tolerance at rated capacitance is 5% = J, 10% = K

☐ : Terminal code





For High-frequency Circuits Capacitors



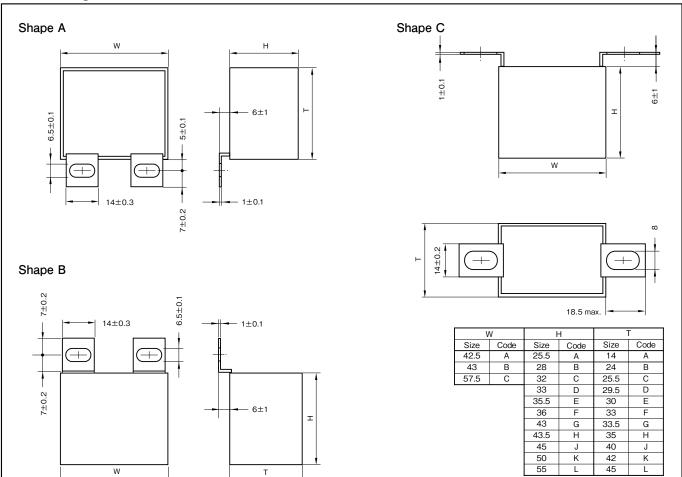


- Widely used in high voltage, high frequency circuit.
- · Low loss and small inherent temperature rise.
- Excellent active and passive flame resistant circuit.
- Especially designed as snubber capacitor for IGBT.

Specifications

Item		Performance			
Category temperature range (°C)		- 40 to +85	(at Hotspot in capacitor)		
Tolerance at rated capacitance (%)		±5, ±10	(20°C, 50 to 120Hz)		
Dielectric Dissipation Factor		2×10 ⁻⁴ or less			
Life Expectancy		(at Hotspot in capacitor = 70°C)			
Failure Rate		100Fit			
Withstanding DC Voltage	Between Terminals	Rated voltage ×1.5 VDC 10 s			
With istaliding DC Voltage	Between Terminals and Case	3000 VAC 10 s	(20°C, 50Hz)		
Insulation Resistance		3000MΩ• μF or more (20°C, 100V I			
Reference Standard		IEC 61071			

Outline Drawing Unit:mm



Part numb	Part numbering system (example : 1200V2.2μF)							
NXA —	1200	V 225	K	CHD	Α	В		
Series code	Rated voltage symbol	Rated capacitance symbol	Capacitance tolerance symbol	Casing	Shape code	Optional symbol		

(Note) Tolerance at size : ± 1.0





Standard Ratings

Rated voltage	Rated		Case (mm	2)	0	Maximum rate	Maximum	ESR	Maximum	Self-inductance	
U _R (V)	capacitance CR (µF)	w	H	" т	Casing symbol	of voltage rise dV/dt (V/µS)	Peak current Î (A)	(mΩ/100kHz Max.)	current Imax (A)	Ls (nH)	ELNA Parts No.
On (*)	1	42.5	28	14	ABA	100	100	12	7.5	20	NXA-630V105*ABA□B
	1.2	42.5	32	14	ACA	100	120	11	9.4	20	NXA-630V125*ACA B
	1.5	42.5	25.5	25.5	AAC	100	150	10	11	20	NXA-630V155*AAC□B
	2	42.5	28	24	ABB	100	200	8	12.6	20	NXA-630V205*ABB
630VDC	3	42.5	36	24	AFB	100	300	7	17.2	20	NXA-630V305*AFB□B
(330VAC)	3.5	42.5	33	33	ADF	100	350	6	19.2	20	NXA-630V355*ADF□B
	4	42.5	35.5	33.5	AEG	100	400	5	20.5	20	NXA-630V405*AEG□B
	4.5	42.5	45	30	AJE	100	450	4	23	20	NXA-630V455*AJE□B
	7	42.5	43	42	AGK	100	700	3	28	20	NXA-630V705*AGK□B
	0.8	42.5	28	14	ABA	132	105.6	12	7.2	20	NXA-700V804*ABA□B
	1	42.5	32	14	ACA	132	132	12	9.2	20	NXA-700V105*ACA□B
	1.2	42.5	25.5	25.5	AAC	132	158.4	10	10.8	20	NXA-700V125*AAC□B
700VDC	1.6	42.5	28	24	ABB	132	211.2	10	12.4	20	NXA-700V165*ABB□B
(380VAC)	2.5	42.5	36	24	AFB	132	330	8	16.8	20	NXA-700V255*AFB□B
(,	3	42.5	33	33	ADF	132	396	7	18.8	20	NXA-700V305*ADF□B
	3.5	42.5	35.5	33.5	AEG	132	462	6	20.3	20	NXA-700V355*AEG□B
	4	42.5	45	30	AJE	132	528	5	22.4	20	NXA-700V405*AJE_B
	6	42.5	43	42	AGK	132	792	4	25	20	NXA-700V605*AGK□B
	0.7	42.5	28	14	ABA	200	140	12	6.4	20	NXA-850V704*ABA
	0.8	42.5	32	14	ACA	200	160	12	8.8	20	NXA-850V804*ACA B
	1	42.5	25.5	25.5	AAC	200	200	10	10.4	20	NXA-850V105*AAC B
850VDC	1.2	42.5	28	24	ABB	200	240	10	11.8	20	NXA-850V125*ABB□B
(450VAC)	2	42.5	36	24	AFB	200	400	9	15.8	20	NXA-850V205*AFB□B
,	2.5	42.5	33	33	ADF	200	500	8	17.6	20	NXA-850V255*ADF
	2.8	42.5	35.5	33.5	AEG	200	560	7	19.8	20	NXA-850V285*AEG□E
	3.3	42.5	45	30	AJE	200	660	6	21.5	20	NXA-850V335*AJE□B
	4	42.5	43	42	AGK	200	800	5	24	20	NXA-850V405*AGK□B
	0.47	42.5	28	14	ABA	225	105.75	12	6.2	20	NXA-1000V474*ABA
	0.56	42.5	32	14	ACA	225	126	12	8.6	20	NXA-1000V564*ACA
	0.82	42.5	25.5	25.5	AAC	225	184.5	10	9.8	20	NXA-1000V824*AAC
	1	42.5	28	24	ABB	225	225	10	11.6	20	NXA-1000V105*ABB
	1.5	42.5	36	24	AFB	225	337.5	9	15.5	20	NXA-1000V155*AFB□I
	1.8	42.5	33	33	ADF	225	405	8	17.5	20	NXA-1000V185*ADF
1000VDC	2	42.5	35.5	33.5	AEG	225	450	7	18.8	20	NXA-1000V205*AEG
(480VAC)	2.5	42.5	45	30	AJE	225	562.5	6	21	20	NXA-1000V255*AJE
	3	42.5	43	42	AGK	225	675	5	23	20	NXA-1000V305*AGK
	3.3	57.5	43.5	29.5	CHD	130	429	6	23	20	NXA-1000V335*CHD
	3.5	57.5	45	30	CJE	130	455	5	24	20	NXA-1000V355*CJE
	4.2	57.5	45	35	CJH	130	546	5	24	20	NXA-1000V425*CJH
	4.8	57.5	50	35	CKH	130	624	4	25	20	NXA-1000V485*CKH
	5	57.5	45	45	CJL	130	650	4	25	20	NXA-1000V505*CJL
	6	57.5	55	40	CLJ	130	780	4	28	20	NXA-1000V605*CLJ
	0.33	42.5	28	14	ABA	225	74.25	12	6	20	NXA-1200V334*ABA
	0.4	42.5	32	14	ACA	225	90	12	8.5	20	NXA-1200V404*ACA
	0.56	42.5	25.5	25.5	AAC	225	126	11	9.6	20	NXA-1200V564*AAC
	0.68	42.5	28	24	ABB	225	153	10	11.5	20	NXA-1200V684*ABB
		42.5 42.5	36 33	33	AFB ADF	225	225	9	15.4 17.2	20	NXA-1200V105*AFB
	1.1	42.5	35.5	33.5	AEG	225 225	247.5 292.5	8	17.2	20 20	NXA-1200V115*ADF NXA-1200V135*AEG
1200VDC						-		_		_	
(500VAC)	1.6	42.5 42.5	45 43	30 42	AJE AGK	225 225	360 450	7 6	20.6	20 20	NXA-1200V165*AJE□E NXA-1200V205*AGK□
	2.2	42.5 57.5	43.5	29.5	CHD	150	330	6	22	20	NXA-1200V205*AGK
	2.2	57.5	45.5	30	CHD	150	375	6	23	20	NXA-1200V225*CHD_
	2.5	57.5	45	35	CJE	150	420	5	23	20	NXA-1200V255*CJE
	3.3	57.5	50	35	CKH	150	495	5	24	20	NXA-1200V265*CJH
	3.5	57.5	45	45	CJL	150	525	4	25	20	NXA-1200V355*CKHL
	4	57.5	55	45	CLJ	150	600	4	26	20	NXA-1200V355*CJL
	0.2	42.5	28	14	ABA	225	45	12	6	20	NXA-1200V405*CLJ
	0.22	42.5	32	14	ACA	225	49.5	12	8.4	20	NXA-1600V204*ABA_
	0.22	42.5	25.5	25.5	AAC	225	74.25	11	9.5	20	NXA-1600V224*ACA
	0.45	42.5	28	24	ABB	225	101.25	11	11.4	20	NXA-1600V354*AAC
	0.45	42.5	36	24	AFB	225	135	10	15.2	20	NXA-1600V604*AFB
	0.0	43	33	33	BDF	225	157.5	10	17	20	NXA-1600V704*APB
	0.85	43	35.5	33.5	BEG	225	191.25	9	18.4	20	NXA-1600V764*BBII
1600VDC	1	42.5	45	30	AJE	225	225	8	20.5	20	NXA-1600V105 * AJE
	1.3	42.5	43	42	AGK	225	292.5	7	20.5	20	NXA-1600V105 * AGK
	1.0	57.5	43.5	29.5	CHD	150	292.5	6	22	20	NXA-1600V155*AGK_I
	1.5	J1.0	+J.J				240	6	22	20	NXA-1600V155*CHD
(550VAC)	1.5		15	30						. ∠∪	ロスターロリカス いっこう マレット
	1.6	57.5	45 45	30	CJE	150					
	1.6 1.8	57.5 57.5	45	35	CJH	150	270	5	23	20	NXA-1600V185 * CJH□B
	1.6	57.5									NXA-1600V185 * CJH B NXA-1600V205 * CKH B NXA-1600V225 * CJL B

(Note) ★ : If tolerance at rated capacitance is 5% = J, 10% = K

☐ : Shape code





For High-frequency Circuits Capacitors



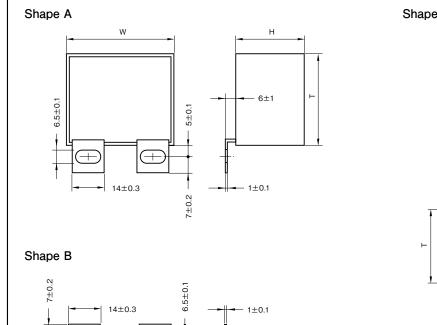


- Widely used in high voltage, high frequency circuit.
- · Low loss and small inherent temperature rise.
- Excellent active and passive flame resistant circuit.
- Double side metallized.
- Especially designed as snubber capacitor for I GBT.

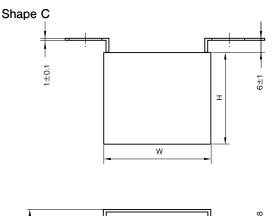
Specifications

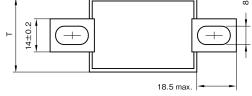
Item		Performance			
Category temperature range (°C)		- 40 to +85	(at Hotspot in capacitor)		
Tolerance at rated capacitance (%)		±5, ±10	(20°C, 50 to 120Hz)		
Dielectric Dissipation Factor		2×10 ⁻⁴ or less			
Life Expectancy		(at Hotspot in capacitor = 70°C)			
Failure Rate		100Fit			
Withstanding DC Voltage	Between Terminals	Rated voltage ×1.5 VDC 10 s			
With Standing DO Voltage	Between Terminals and Case	3000 VAC 10 s	(20°C, 50Hz)		
Insulation Resistance		3000MΩ· μF or more (20°C, 100V DC			
Reference Standard		IEC 61071			

Outline Drawing Unit:mm



Т





V	٧	H	+		Γ
Size	Code	Size	Code	Size	Code
42.5	Α	25.5	Α	14	Α
43	В	28	В	24	В
57.5	С	32	С	25.5	С
		33	D	29.5	D
		35.5	E	30	E
		36	F	33	F
		43	G	33.5	G
		43.5	Н	35	Н
		45	J	40	J
		50	K	42	K
		55		45	l l

(Note) Tolerance at size : ±1.0

Г <u>.</u> .	Part numbering system (example : 850V2.2µF)							
Part numb	pering sy	rstem (exa	ample:8	5002.2	2μF)			
NXB —	850	V 225	K	AJE	С	В		
Series code	Rated voltage symbol	Rated capacitance symbol	Capacitance tolerance symbol	Casing symbol	Shape code	Optional symbol		

W





Standard Ratings

Rated voltage	Rated capacitance		Case (mm		Casing symbol	Maximum rate of voltage rise		ESR	Maximum current	Self-inductance	ELNA Parts No.
UR (V)	C _R (µF)	W	Н	T	404	dV/dt (V/μS)	Î (A)	(mΩ/100kHz Max.)	Imax (A)	Ls (nH)	NVD 700VC04 tr ADA DD
	0.6	42.5	28	14	ABA	325	195	12	7.2	20	NXB-700V604*ABA B
	0.8	42.5	32 25.5	14	ACA	325	260	12 10	9.2	20	NXB-700V804*ACA B
	1 1 2	42.5	28.5	25.5	AAC	325	325	10		20	NXB-700V105*AAC B
700VDC	1.2	42.5		24	ABB	325	390		12.4		NXB-700V125*ABB B
(380VAC)	1.8	42.5	36	24	AFB	325	585	8	16.8	20	NXB-700V185*AFB B
	2.2	42.5	33	33	ADF	325	715	7	18.8	20	NXB-700V225*ADF B
	2.5	42.5	35.5	33.5	AEG	325	813	6	20.3	20	NXB-700V255*AEG B
	3	42.5	45	30	AJE	325	975	5	22.4	20	NXB-700V305*AJE B
	4	42.5	43	42	AGK	325	1300	4	25	20	NXB-700V405*AGK B
	0.47	42.5	28	14	ABA	400	188	12	6.4	20	NXB-850V474*ABA□B
	0.55	42.5	32	14	ACA	400	220	12	8.8	20	NXB-850V554*ACA□B
	0.68	42.5	25.5	25.5	AAC	400	272	10	10.4	20	NXB-850V684*AAC B
850VDC	0.8	42.5	28	24	ABB	400	320	10	11.8	20	NXB-850V804*ABB
(450VAC)	1.2	42.5	36	24	AFB	400	480	9	15.6	20	NXB-850V125*AFB□B
,,	1.5	42.5	33	33	ADF	400	600	8	17.6	20	NXB-850V155*ADF□B
	1.8	42.5	35.5	33.5	AEG	400	720	7	19.8	20	NXB-850V185*AEG□B
	2.2	42.5	45	30	AJE	400	880	6	21.5	20	NXB-850V225*AJE□B
	2.8	42.5	43	42	AGK	400	1120	5	24	20	NXB-850V285*AGK□B
	0.33	42.5	28	14	ABA	500	165	12	6.2	20	NXB-1000V334*ABA□B
	0.45	42.5	32	14	ACA	500	225	12	8.6	20	NXB-1000V454*ACA□B
	0.55	42.5	25.5	25.5	AAC	500	275	10	9.8	20	NXB-1000V554*AAC□B
	0.65	42.5	28	24	ABB	500	325	10	11.6	20	NXB-1000V654*ABB□B
	1	42.5	36	24	AFB	500	500	9	15.5	20	NXB-1000V105*AFB□B
	1.2	42.5	33	33	ADF	500	600	8	17.5	20	NXB-1000V125*ADF□B
	1.4	42.5	35.5	33.5	AEG	500	700	7	18.8	20	NXB-1000V145*AEG□B
1000VDC	1.8	42.5	45	30	AJE	500	900	6	21	20	NXB-1000V185*AJE□B
(480VAC)	2.2	42.5	43	42	AGK	500	1100	5	5	20	NXB-1000V225*AGK□B
	2.2	57.5	43.5	29.5	CHD	350	770	6	6	20	NXB-1000V225*CHD□B
	2.5	57.5	45	30	CJE	350	875	5	5	20	NXB-1000V255*CJE□B
	3	57.5	45	35	CJH	350	1050	5	5	20	NXB-1000V305*CJH□B
	3.3	57.5	50	35	CKH	350	1155	4	4	20	NXB-1000V335*CKH□B
	3.5	57.5	45	45	CJL	350	1225	4	4	20	NXB-1000V355*CJL□B
	4.5	57.5	55	40	CLJ	350	1575	4	28	20	NXB-1000V455*CLJ□B
	0.22	42.5	28	14	ABA	650	143	12	6	20	NXB-1200V224*ABA□B
	0.3	42.5	32	14	ACA	650	195	12	8.5	20	NXB-1200V304*ACA B
	0.4	42.5	25.5	25.5	AAC	650	260	11	9.6	20	NXB-1200V404*AAC□B
	0.47	42.5	28	24	ABB	650	306	10	11.5	20	NXB-1200V474*ABB B
	0.68	42.5	36	24	AFB	650	442	10	15.4	20	NXB-1200V684*AFB_B
	0.8	42.5	33	33	ADF	650	520	9	17.2	20	NXB-1200V804*ADF□B
	1	42.5	35.5	33.5	AEG	650	650	8	18.6	20	NXB-1200V105*AEG□B
1200VDC	1.2	42.5	45	30	AJE	650	780	7	20.6	20	NXB-1200V105*ALCd_B
(500VAC)	1.5	42.5	43	42	AGK	650	975	6	22	20	NXB-1200V155*AGK□B
	1.5	57.5	43.5	29.5	CHD	455	683	6	22	20	NXB-1200V155*AGR□B
	1.8	57.5	45.5	30	CJE	455	819	6	23	20	NXB-1200V135*C1D□B
	2	57.5	45	35	CJE	455	910	5	24	20	NXB-1200V185*CJE_B
	2.2	57.5	50	35	CKH	455	1001	5	24	20	NXB-1200V205*C5H_B
	2.5	57.5	45	45	CKH	455	1138	4	25	20	NXB-1200V225*CKH_B
	3	57.5	55	40	CJL	455	1365	4	26	20	NXB-1200V255*CJL_B
	0.15	42.5	28	14	ABA	800	120	12	6	20	NXB-1200V305*CLJ_B
	0.2	42.5	32	14	ACA	800	160	12	8.4	20	NXB-1600V204*ACA B
	0.3	42.5	25.5	25.5	AAC	800	240	11	9.5	20	NXB-1600V304*AAC B
	0.33	42.5	28	24	ABB	800	264	11	11.4	20	NXB-1600V334*ABB B
	0.47	42.5	36	24	AFB	800	376	10	15.2	20	NXB-1600V474*AFB B
	0.56	42.5	33	33	ADF	800	448	10	17	20	NXB-1600V564 * ADF B
1600VDC	0.65	42.5	35.5	33.5	AEG	800	520	9	18.4	20	NXB-1600V654 * AEG B
(550VAC)	0.8	42.5	45	30	AJE	800	640	8	20.5	20	NXB-1600V804 * AJE B
•	1	42.5	43	42	AGK	800	800	7	21	20	NXB-1600V105 * AGK B
	1	57.5	43.5	29.5	CHD	560	560	6	22	20	NXB-1600V105 * CHD□B
	1.2	57.5	45	30	CJE	560	672	6	22	20	NXB-1600V125 * CJE□B
	1.4	57.5	45	35	CJH	560	784	5	23	20	NXB-1600V145 * CJH□B
	1.6	57.5	50	35	CKH	560	896	5	24	20	NXB-1600V165 * CKH□B
							0.50	1	0.4		NVD 4000V47F # 0 II □D
	1.7	57.5	45	45	CJL CLJ	560	952 1120	4	24 25	20	NXB-1600V175 * CJL□B NXB-1600V205 * CLJ□B

(Note) * : If tolerance at rated capacitance is 5% = J, 10% = K
☐ : Shape code



1 The standard system of fixed plastic film capacitor for use in electronic equipment.

The standard system of fixed plastic film capacitor for use in electronic equipment includes the foundational standard, generic specification, sectional specification, blank detail specification and detail specification, or manufacturer specification.

Generic specification specifies the terminology, inspection procedures and test methods applied in sectional and detail specifications.

Sectional specification is classified according to the specific dielectric material and construction of capacitor, it prescribes preferred rating and characteristics and to elect from generic specification the appropriate quality assessment procedures, tests and measuring methods and to give general performance requirements for this type of capacitor. Blank detail specification is a supplementary document to the sectional specification and contains requirements for style, layout and minimum contents of detail specifications. Following please find the corresponding specification lists for plastic film capacitors.

No.	Standard
GB/T 2693 (IEC 60384-1)	Fixed capacitors for use in electronic equipment Part 1: Generic specification
GB/T 17702 (IEC 61071)	Power electronic capacitors
AEC-Q200	Stress test qualification for passive components
GB/T 25121 (IEC61881)	Railway applications - Rolling stock equipment - Capacitors for power electronics
GB/T21563 (IEC61373)	Railway applications - Rolling stock equipment Shock and vibration tests
GB/T 4798-1 (IEC 60721-3-1)	Classification of environmental conditions Part 3: Classification of groups of environmental parameters and their severities Section 1 Storage
GB/T 4798-2 (IEC60721-3-2)	Classification of environmental conditions Part 3: Classification of groups of environmental parameters and their severities Section 2 Transportation
GB/T 4798-3 (IEC 60721-3-3)	Classification of environmental conditions Part 3: Classification of groups of environmental parameters and their severities Section 3 Stationary use at weather protected locations

2 General Description of Film Capacitors

2-1 Principle of Capacitor Construction

The principle construction of a parallel plate capacitor is shown in Fig. 1.

When a voltage V is applied between the conducting electrodes placed opposite to each other, a certain amount Q of electric charge proportional to the voltage can be stored on the surfaces of the dielectric.

The proportional constant is called capacitance C, designating the ability of a capacitor to store energy in an electric field.

 $\Omega = C \cdot V$

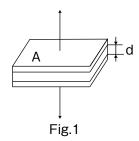
Q: Charge [Coulomb]

V: Voltage [Volt]

C: Capacitance [Farad]

The capacitance C of capacitor can be expressed

by the following equation:



 $C[F]=\varepsilon 0 \cdot \varepsilon \cdot A / d$

ε: dielectric constant

ε0: dielectric constant in vacuum (= 8.85x10⁻¹²F/m)

A: electrode area [m²]

d: electrode distance [m]

The dielectric constant of Polypropylene film is 2.2.

Larger capacitances can be obtained by entailing the electrode area A or by reducing the distanced.

Table 1 shows the dielectric constants of typical film dielectrics used in capacitors.

In many cases, capacitor names are related to their dielectric material used.

Table-1

Dielectric	Dielectric Constant
Polypropylene	2.2
Polyester	3.3
Polyimide	3.5
Polyethylene	2.3
Polycarbonate	2.8
Polytetrafluoroethylene	2

The schematic of an film capacitoris shown in Fig. 2

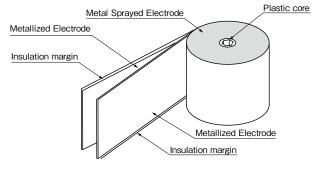


Fig-2

ELNA® PLASTIC FILM CAPACITORS TECHNICAL NOTE

3 Basic parameters and terms

3-1 Rated capacitance CR

Nominal value of the capacitance at 20°C and measuring frequency range of 50 to 120 Hz.

3-2 Rated voltage UR

Maximum operating peak voltage of either polarity but of a non-reversing type waveform, for which the capacitor has been designed, for continuous operation.

It shall be higher than the sum of operating d.c. voltage and operating ripple peak voltage.

3-3 Ripple voltage Ur

Peak-to-peak alternating component of the unidirectional voltage.

3-4 Non-recurrent surge voltage Us

Peak voltage induced by a switching or any other disturbance of the system which is allowed for a limited number of times and for durations shorter than the basic period.

- Maximum duration: 50ms / pulse
- Maximum number of occurrences: 1000 (during load)

3-5 Insulation voltage Ui

Rms value of a.c. voltage designed for the insulation between terminals of the capacitor to case or earth.

The insulation voltage is equal to the rated voltage of the capacitor, divided by $\sqrt{2}$, unless otherwise specified.

3-6 Maximum current Imax

Maximum rms current for continuous operation.

3-7 Maximum rate of voltage rise dV/dt

Maximum permissible repetitive rate of voltage rise of the operational voltage.

3-8 Maximum peak current Î

Maximum permitted repetitive peak current that can occur during continuous operation.

The value is following: Î=CR X (dV/dt)

3-9 Maximum surge current Îs

Admissible peak current induced by a switching or any other disturbance of the system.

- Maximum duration: 50ms / pulse
- Maximum number of occurrences: 1000

3-10 Series resistance Rs

Effective ohmic resistance of the conductors of a capacitor under specified operating conditions.

3-11 Equivalent series resistance ESR

The equivalent series resistance (ESR) represents all of the ohmic losses of the capacitor.

$$ESR = \frac{tg\delta}{W \cdot C} = Rs + \frac{tg\delta0}{W \cdot C}$$

3-12 Dielectric dissipation factor $tg\delta 0$

Constant dissipation factor of the dielectric material for all capacitors at their rated frequency.

The typical loss factor of polypropylene film is 2x10⁻⁴.

NOTE: Design, Specifications are subject to change without notice. It is recommended that you shall obtain technical specifications from ELNA to ensure that the component is suitable for your use.

3-13 Loss factor of the capacitor $tq\delta$

The dissipation factor is ratio between reactive power of the impedance of the capacitor and effective power when capacitor is submitted to a sinusoidal voltage of specified frequency, it is that ratio between the equivalent series resistance and the capacitive reactance of a capacitor.

3-14 Dielectric power loss Pd

Loss power induced by dielectric polarization or dielectric conductance.

3-15 Joule power loss Pj

Loss power induced by series resistance of the capacitor under rms current.

3-16 Capacitor losses Pi

Active power dissipated in the capacitor. Pt = I^2 rms x ESR

3-17 Maximum power loss Pmax

Maximum power loss at which the capacitor may be operated at the maximum case temperature.

3-18 Self-inductance Ls

Represents the sum of all inductive elements which are for mechanical and construction reasons contained in any capacitor.

3-19 Resonance frequency fr

Lowest frequency at which the impedance of the capacitor becomes minimum.

The value is following: fr = $1/(2\pi x)$

3-20 Ambient temperature O_A

Temperature of the air measured at the hottest position of the capacitor, under steady-state conditions, midway between two unite.

If only one unit is involved, it is the temperature of surrounding air, measured 10cm away and at 2/3 of the case height of the capacitor under steady-state conditions.

3-21 Maximum operating temperature Θ_{max}

Highest temperature of the case at which the capacitor may be operated.

3-22 Lowest operating temperature Θ_{min}

Lowest temperature of the dielectric at which the capacitor may be energized.

3-23 Thermal resistance R_{th}

The thermal resistance indicates by how many degrees the capacitor temperature at the hotspot rises above OA per watt of the heat dissipation loss.

3-24 Hotspot temperature Θ_{hs}

Temperature at the hottest spot inside the capacitor.

The value is following: $\Theta_{hs} = \Theta_A + P_t \times R_{th}$

3-25 Temperature coefficient of capacitance of

The change rate of capacitance with temperature measured over a specified range of temperature.

3-26 Voltage between terminals UTT

Voltage between terminals.

TECHNICAL NOTE PLASTIC FILM CAPACITORS

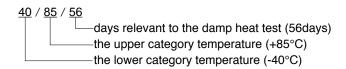


3-27 Voltage between terminals and case UTC

Voltage between terminals and case.

3-28 Climatic category

The climatic category which the capacitor belongs to is expressed in three numbers separated by slashes, (I EC 60068-1 :example 40/85/56)



3-29 Insulation Resistance (IR) /Time Constant (t)

The insulation resistance is the ratio between an applied D.C. voltage and the resulting leakage current after a minute of

It is expressed in $M\Omega$.

The time constant is expressed in seconds with the following formula: t [s]=IR [M Ω] x C [μ F]

3-30 Self-healing (Only for metallized film capacitor)

Process by which the electrical properties of the capacitor, after a local breakdown of the dielectric, are rapidly and essentially restored to the values before the breakdown.

The metal coatings of the metallized film, which are vacuumdeposited directly onto the plastic film, have a thickness of only several tens nm.

At weak points or impurities in the dielectric, a dielectric breakdown would occur.

The energy released by the arc discharge in the breakdown channel is sufficient to totally evaporate the thin metal coating in the vicinity of the channel.

The insulated region thus resulting around the former faulty area will cause the capacitor to regain its full operation ability.

3-31 Failure rate λ

Failure rate refers to the work to a moment has not failed products, at that time, the failure probability of occurrence in a time unit.

$$\lambda = \frac{r}{n \cdot t}$$

t: test time

n: test number

r: number of failures

4 Expected lifetime of the capacitor

The expected lifetime of the capacitor depends on the applied voltage and the hot spot temperature during operation.

For capacitors applied in different situation, the designed average service lifes are different.

The capacitors used in DC-Link circuits will have a expected lifetime of probable 100000 hrs at rated voltage and 70t hot spot temperature.

4-1 The hotspot temperature estimation

During operation, the ripple current flowing through the capacitor will generate heat due to the series resistance (Rs) of the capacitor.

Considering the above factors hotspot temperature estimation formula is as follows:

 $\Theta_{\text{hs}} = \Theta_{\text{A}} + I_{\text{rms}} \text{ x ESR x R}_{\text{th}}$ Θ_{hs} : Hotspot Temperature **Environment Temperature** Θ_A :

 I_{rms} : Ripple Current ESR: Equivalent series resistance

Thermal Resistance

4-2 Estimation of lifetime calculation

Considering the fever caused by ripple current, internal resistance (hotspot temperature), as well as the applied voltage, life estimation formula:

$$L = L_0 \; x \; (\; U_R \; / \; U \;)^n \; x \; 2^{(\Theta \; - \; \Theta_{hs}) \; / \; m}$$

The calculation of Lifetime, hrs L_0 : Rated Lifetime (100000hrs)

U: Working Voltage, VDC

UR: Rated Voltage, VDC

Acceleration Coefficient of Voltage,

experienced value: 8-12

 Θ_{hs} : The Actual or Calculated Hotspot Temperature, VC

Rated Hotspot Temperature, 70 °C

Acceleration Coefficient of Temperature,

experienced value: 7-10

PS: Typically the capacity change rate> ± 3%, determined that product failure

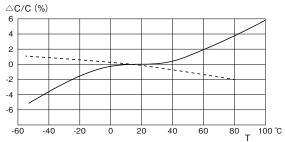
Expected lifetime is a statistical value calculated on the basis of experience and on theoretical evaluations.

The above formula only as a theoretical reference.

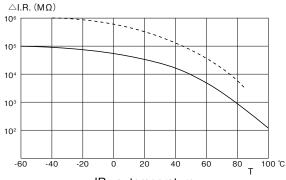
The diagrams should be considered only as a theoretical reference.

Please consult our technical department in case of working condition different from the rated ones.

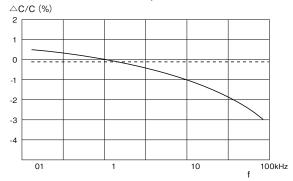
5 Electrical behaviour



Capacitance vs. temperature at 1kHz



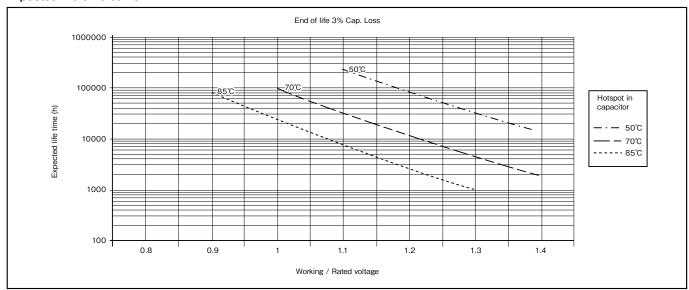
IR vs. temperature



Capacitance vs. frequency (room temperature)

----- Polypropylene Film Polyester Film

Expected life time curve



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Observe the following to ensure safe operation.

- 1. The models and specification values contained in this catalog are for reference purposes only. During actual use or when placing an order, please request "drawings" and make your purchase or use the purchased product based on those drawings.
- 2. In order to ensure that products are used correctly and safely, always make sure to read the cautions for using prior to using the product.

NOTE

- 1. Since the contents contained are subject to changes in specifications, dimensions and so forth without notice due to modification, please confirm the contents when placing an order.
- If any of the matters described here are unclear, please inquire at one of our nearby sales offices.
- 2. The contents of this catalog are valid as of December 2018.