Aluminium Electrolytic Capacitors (Radial Lead Type)

Japan
Malaysia
Taiwan

Series: **(Bi-polar) SU**
Type: **A (Radial Leads)**
Style: **JIS04**

Bi-polar

■ Features

- Lifetime: 85 ˚C 2000 h

■ Recommended Applications

- AV (TV, Video, Audio), Office, Home appliance

■ Specifications

Operating Temp. Range	–40 to +85 ˚C
Rated W.V. Range	6.3 to 50 V.DC
Nominal Cap. Range	0.47 to 6800 µF
Capacitance Tolerance	±20 % (120 Hz/+20 ˚C)
DC Leakage Current	I ≦ 0.03 CV +3 (µA) after 5 minutes
Dissipation Factor	W.V. (V): 6.3 / 10 / 16 / 25 / 35 / 50 (120 Hz/+20 ˚C) D.F.: 0.30 / 0.25 / 0.20 / 0.15 / 0.15 / 0.15 (max.) Add 0.02 per 1000 µF for products of 1000 µF or more. (120 Hz/+20 ˚C)
Characteristics at Low Temperature	W.V. (V): 6.3 / 10 / 16 / 25 / 35 / 50 Z(–25 ˚C)/Z(+20 ˚C): 4 / 3 / 2 / 2 / 2 / 2 Z(–40 ˚C)/Z(+20 ˚C): 8 / 6 / 4 / 4 / 4 / 3 (Impedance ratio at 120 Hz) 1 Add 0.5 per 1000 µF for products of 1000 µF or more at –25 ˚C 2 Add 1.0 per 1000 µF for products of 1000 µF or more at –40 ˚C
Endurance	After 2000 hours application of DC working voltage (1000 hours for each polarity) at +85 ˚C, the capacitor shall meet the following limits. Capacitance change: ±20 % of initial measured value D.F.: ≦ 150 % of initial specified value DC leakage current: ≦ Initial specified value
Shelf Life	After storage for 1000 hours at +85 ˚C with no voltage applied and then being stabilized at +20 ˚C, capacitor shall meet the limits specified in “Endurance”.

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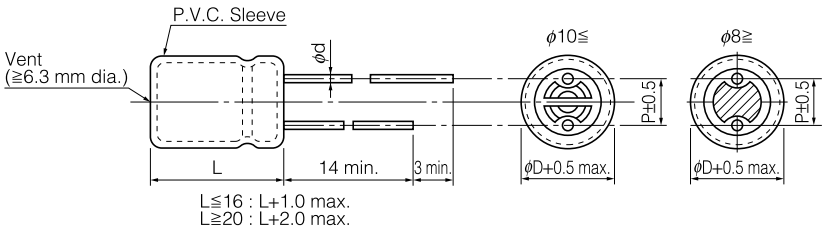
■ Explanation of Part Numbers

1	2	3	4	5	6	7	8	9	10	11
E	C	E	A			N				U/X
Product Code			Style	R.W. Voltage Code		Characteristics	N.Capacitance Code			Option

■ Dimensions in mm (not to scale)



Body Dia. φD	5	6.3	8	10	12.5	16	18
Lead Dia. φd	0.5	0.5	0.6	0.6	0.6	0.8	0.8
Lead space P	2.0	2.5	3.5	5.0	5.0	7.5	7.5

■ Case size/Ripple current

φD×L (mm)/(mA) r.m.s. (120 Hz/+85 ˚C)

Cap. (μF) \ W.V. (V)	6.3 (0J)		10 (1A)		16 (1C)		25 (1E)		35 (1V)		50 (1H)	
0.47 (R47)											5 ×11	10
1.0 (010)											5 ×11	10
2.2 (2R2)											5 ×11	18
3.3 (3R3)											5 ×11	25
4.7 (4R7)											5 ×11	30
10 (100)					5 ×11	40	5 ×11	45	5 ×11	43	6.3×11.2	50
22 (220)					5 ×11	60	∗ 5 ×11	60	6.3×11.2	80	8 ×11.5	90
33 (330)					5 ×11	80	6.3×11.2	90	8 ×11.5	100	8 ×11.5	110
47 (470)			5 ×11	90	6.3×11.2	100	6.3×11.2	110	8 ×11.5	120	10 ×12.5	140
100 (101)			∗ 6.3×11.2	130			8 ×11.5	180	10 ×16	230	10 ×20	250
220 (221)			8 ×11.5	200	∗10 ×12.5	260	10 ×16	320	12.5×20	360	12.5×25	360
330 (331)	8 ×11.5	250	10 ×16	280	10 ×16	330	12.5×20	350	12.5×20	450	16 ×25	450
470 (471)	∗10 ×12.5	310	10 ×16	340	10 ×20	380	12.5×20	430	12.5×25	590	16 ×31.5	590
1000 (102)	10 ×20	430	∗12.5×20	470	12.5×25	560	16 ×25	680				
2200 (222)	12.5×25	660	16 ×25	690	16 ×31.5	750	18 ×35.5	900				
3300 (332)	16 ×25	760	16 ×31.5	1090	18 ×35.5	900						
4700 (472)	16 ×31.5	1170	18 ×35.5	1200								
6800 (682)	18 ×35.5	1450										

∗ indicates an "X" in the part number suffix.

Note: 1. ( ) shows W.V. and capacitance code.
2. Products of 63 and 100 V DC are available upon request.
3. For use in circuits where occasional reversals occur or polarity is unknown, a bi-polar type capacitor should be used (but not for AC circuits).

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■ Standard Products(Bi-polar)

W.V.	Cap. (±20%)	Case size		Specification		Lead Length				Part No.	Min. Packaging Q'ty	
		Dia.	Length	Ripple current (120Hz) (+85˚C)	D.F.	Lead Dia.	Lead Space				Straight Leads	Taping
							Straight	Taping *B	Taping *i			
(V)	(μF)	(mm)	(mm)	(mA)		(mm)	(mm)	(mm)	(mm)		(pcs)	(pcs)
6.3	330	8	11.5	250	0.30	0.6	3.5	5.0		ECEA0JN331U( )	200	1000
	470	10	12.5	310	0.30	0.6	5.0	5.0		ECEA0JN471X( )	200	500
	1000	10	20	430	0.30	0.6	5.0	5.0		ECEA0JN102U( )	200	500
	2200	12.5	25	660	0.32	0.6	5.0	5.0		ECEA0JN222U( )	200	500
	3300	16	25	760	0.34	0.8	7.5	7.5		ECEA0JN332U( )	100	250
	4700	16	31.5	1170	0.36	0.8	7.5			ECEA0JN472U	100	
	6800	18	35.5	1450	0.40	0.8	7.5			ECEA0JN682U	50	
10	47	5	11.0	90	0.25	0.5	2.0	5.0	2.5	ECEA1AN470U( )	200	2000
	100	6.3	11.2	130	0.25	0.5	2.5	5.0	2.5	ECEA1AN101X( )	200	2000
	220	8	11.5	200	0.25	0.6	3.5	5.0		ECEA1AN221U( )	200	1000
	330	10	16	280	0.25	0.6	5.0	5.0		ECEA1AN331U( )	200	500
	470	10	16	340	0.25	0.6	5.0	5.0		ECEA1AN471U( )	200	500
	1000	12.5	20	470	0.25	0.6	5.0	5.0		ECEA1AN102X( )	200	500
	2200	16	25	690	0.27	0.8	7.5	7.5		ECEA1AN222U( )	100	250
	3300	16	31.5	1090	0.29	0.8	7.5			ECEA1AN332U	100	
	4700	18	35.5	1200	0.31	0.8	7.5			ECEA1AN472U	50	
16	10	5	11	40	0.20	0.5	2.0	5.0	2.5	ECEA1CN100U( )	200	2000
	22	5	11	60	0.20	0.5	2.0	5.0	2.5	ECEA1CN220U( )	200	2000
	33	5	11	80	0.20	0.5	2.0	5.0	2.5	ECEA1CN330U( )	200	2000
	47	6.3	11.2	100	0.20	0.5	2.5	5.0	2.5	ECEA1CN470U( )	200	2000
	220	10	12.5	260	0.20	0.6	5.0	5.0		ECEA1CN221X( )	200	500
	330	10	16	330	0.20	0.6	5.0	5.0		ECEA1CN331U( )	200	500
	470	10	20	380	0.20	0.6	5.0	5.0		ECEA1CN471U( )	200	500
	1000	12.5	25	560	0.20	0.6	5.0	5.0		ECEA1CN102U( )	200	500
	2200	16	31.5	750	0.22	0.8	7.5			ECEA1CN222U	100	
	3300	18	35.5	900	0.24	0.8	7.5			ECEA1CN332U	50	
25	10	5	11	45	0.15	0.5	2.0	5.0	2.5	ECEA1EN100U( )	200	2000
	22	5	11	60	0.15	0.5	2.0	5.0	2.5	ECEA1EN220X( )	200	2000
	33	6.3	11.2	90	0.15	0.5	2.5	5.0	2.5	ECEA1EN330U( )	200	2000
	47	6.3	11.2	110	0.15	0.5	2.5	5.0	2.5	ECEA1EN470U( )	200	2000
	100	8	11.5	180	0.15	0.6	3.5	5.0		ECEA1EN101U( )	200	1000
	220	10	16	320	0.15	0.6	5.0	5.0		ECEA1EN221U( )	200	500
	330	12.5	20	350	0.15	0.6	5.0	5.0		ECEA1EN331U( )	200	500
	470	12.5	20	430	0.15	0.6	5.0	5.0		ECEA1EN471U( )	200	500
	1000	16	25	680	0.15	0.8	7.5	7.5		ECEA1EN102U( )	100	250
	2200	18	35.5	900	0.17	0.8	7.5			ECEA1EN222U	50	
35	10	5	11	43	0.15	0.5	2.0	5.0	2.5	ECEA1VN100U( )	200	2000
	22	6.3	11.2	80	0.15	0.5	2.5	5.0	2.5	ECEA1VN220U( )	200	2000
	33	8	11.5	100	0.15	0.6	3.5	5.0		ECEA1VN330U( )	200	1000
	47	8	11.5	120	0.15	0.6	3.5	5.0		ECEA1VN470U( )	200	1000
	100	10	16	230	0.15	0.6	5.0	5.0		ECEA1VN101U( )	200	500
	220	12.5	20	360	0.15	0.6	5.0	5.0		ECEA1VN221U( )	200	500

When requesting taped product, please put the letter "B" or "i" between the "( )". Lead wire pitch B=5mm, 7.5mm. i=2.5mm.
The taping dimentions are explained on p.25 of our Catalog. Please use it as a reference guide.
High temperature Load Life test : 85˚C 2000h

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W.V.	Cap. (±20%)	Case size		Specification		Lead Length				Part No.	Min. Packaging Q'ty	
		Dia.	Length	Ripple current (120Hz) (+85˚C)	D.F.	Lead Dia.	Lead Space				Straight Leads	Taping
							Straight	Taping *B	Taping *i			
(V)	(μF)	(mm)	(mm)	(mA)		(mm)	(mm)	(mm)	(mm)		(pcs)	(pcs)
35	330	12.5	20	450	0.15	0.6	5.0	5.0		ECEA1VN331U( )	200	500
	470	12.5	25	590	0.15	0.6	5.0	5.0		ECEA1VN471U( )	200	500
50	0.47	5	11	10	0.15	0.5	2.0	5.0	2.5	ECEA1HNR47U( )	200	2000
	1	5	11	10	0.15	0.5	2.0	5.0	2.5	ECEA1HN010U( )	200	2000
	2.2	5	11	18	0.15	0.5	2.0	5.0	2.5	ECEA1HN2R2U( )	200	2000
	3.3	5	11	25	0.15	0.5	2.0	5.0	2.5	ECEA1HN3R3U( )	200	2000
	4.7	5	11	30	0.15	0.5	2.0	5.0	2.5	ECEA1HN4R7U( )	200	2000
	10	6.3	11.2	50	0.15	0.5	2.5	5.0	2.5	ECEA1HN100U( )	200	2000
	22	8	11.5	90	0.15	0.6	3.5	5.0		ECEA1HN220U( )	200	1000
	33	8	11.5	110	0.15	0.6	3.5	5.0		ECEA1HN330U( )	200	1000
	47	10	12.5	140	0.15	0.6	5.0	5.0		ECEA1HN470U( )	200	500
	100	10	20	250	0.15	0.6	5.0	5.0		ECEA1HN101U( )	200	500
	220	12.5	25	360	0.15	0.6	5.0	5.0		ECEA1HN221U( )	200	500
	330	16	25	450	0.15	0.8	7.5	7.5		ECEA1HN331U( )	100	250
	470	16	31.5	590	0.15	0.8	7.5			ECEA1HN471U	100	

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