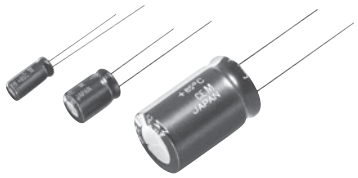
Radial Lead Type

Series : **M** Type : **A**



Features

- Endurance : 85 °C 2000 h
- Smaller than series SU
- RoHS compliant

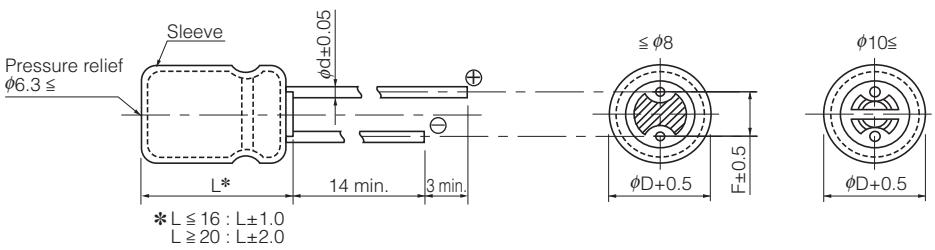
Specifications

Category temperature range	–40 °C to + 85 °C	–25 °C to +85 °C
Rated voltage range	6.3 V.DC to 100 V.DC	160 V.DC to 450 V.DC
Capacitance range	2.2 µF to 22000 µF	2.2 µF to 470 µF
Capacitance tolerance	±20 % (120 Hz/+20 °C)	
Leakage current	I ≦ 0.01 CV or 3 (µA) After 2 minutes (Whichever is greater)	I ≦ 0.06 CV +10 (µA) After 2 minutes
Dissipation factor (tan δ)	Please see the attached characteristics list	
Endurance	After applying rated working voltage for 2000 hours at +85°C±2 °C, when the capacitors are restored to 20 °C, capacitors shall meet the following limits.	
	Capacitance change	Within ±20 % of the initial value
	tan δ	≦ 150 % of the initial limit
	DC leakage current	Within the initial limit
Shelf life	After storage for 1000 hours at +85 °C±2 °C with no voltage applied and then being stabilized at +20 °C, capacitors shall meet the limits specified in Endurance. (With voltage treatment)	

Frequency correction factor for ripple current

Frequency (Hz)	50, 60	120	1 k	10 k to
Correction factor	0.70	1.00	1.30	1.70

Dimensions



(Unit : mm)

φD	5	6.3	8	10	12.5	16	18
φd	0.5	0.5	0.6	0.6	0.6	0.8	0.8
F	2.0	2.5	3.5	5.0	5.0	7.5	7.5

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Characteristics list

Endurance : 85 °C 2000 h

Rated voltage (V.DC)	Cap. (±20 %) (μF)	Case size (mm)		Specification		Lead length (mm)				Part No.	Min. Packaging Q'ty	
							Lead space					
		φD	L	Ripple current (120 Hz) (+85 °C) (mA r.m.s.)	tan δ (120 Hz) (+20 °C)	Lead dia. φd	Straight	Taping ✻B	Taping ✻i		Straight leads (pcs)	Taping (pcs)
6.3	220	5	11	240	0.28	0.5	2.0	5.0	2.5	ECA0JM221( )	200	2000
	470	6.3	11.2	380	0.28	0.5	2.5	5.0	2.5	ECA0JM471( )	200	2000
	1000	8	11.5	580	0.28	0.6	3.5	5.0		ECA0JM102( )	200	1000
	2200	10	16	890	0.30	0.6	5.0	5.0		ECA0JM222( )	200	500
	3300	10	20	1020	0.32	0.6	5.0	5.0		ECA0JM332( )	200	500
	4700	12.5	20	1170	0.34	0.6	5.0	5.0		ECA0JM472( )	200	500
	6800	12.5	25	1270	0.38	0.6	5.0	5.0		ECA0JM682( )	200	500
	10000	16	25	1450	0.46	0.8	7.5	7.5		ECA0JM103( )	100	250
	15000	16	31.5	1700	0.56	0.8	7.5			ECA0JM153	100	
	22000	18	35.5	1900	0.70	0.8	7.5			ECA0JM223	50	
10	330	6.3	11.2	330	0.24	0.5	2.5	5.0	2.5	ECA1AM331( )	200	2000
	1000	10	12.5	630	0.24	0.6	5.0	5.0		ECA1AM102( )	200	500
	2200	10	20	920	0.26	0.6	5.0	5.0		ECA1AM222( )	200	500
	3300	12.5	20	1090	0.28	0.6	5.0	5.0		ECA1AM332( )	200	500
	4700	12.5	25	1200	0.30	0.6	5.0	5.0		ECA1AM472( )	200	500
	6800	16	25	1400	0.34	0.8	7.5	7.5		ECA1AM682( )	100	250
	10000	16	31.5	1600	0.42	0.8	7.5			ECA1AM103	100	
	15000	18	35.5	1850	0.52	0.8	7.5			ECA1AM153	50	
16	10	5	11	30	0.20	0.5	2.0	5.0	2.5	ECA1CM100( )	200	2000
	22	5	11	75	0.20	0.5	2.0	5.0	2.5	ECA1CM220( )	200	2000
	33	5	11	110	0.20	0.5	2.0	5.0	2.5	ECA1CM330( )	200	2000
	47	5	11	130	0.20	0.5	2.0	5.0	2.5	ECA1CM470( )	200	2000
	100	5	11	180	0.20	0.5	2.0	5.0	2.5	ECA1CM101( )	200	2000
	220	6.3	11.2	280	0.20	0.5	2.5	5.0	2.5	ECA1CM221( )	200	2000
	470	8	11.5	440	0.20	0.6	3.5	5.0		ECA1CM471( )	200	1000
	1000	10	16	680	0.20	0.6	5.0	5.0		ECA1CM102( )	200	500
	2200	12.5	20	1000	0.22	0.6	5.0	5.0		ECA1CM222( )	200	500
	3300	12.5	25	1200	0.24	0.6	5.0	5.0		ECA1CM332( )	200	500
	4700	16	25	1360	0.26	0.8	7.5	7.5		ECA1CM472( )	100	250
	6800	16	31.5	1600	0.30	0.8	7.5			ECA1CM682	100	
	10000	18	35.5	1800	0.38	0.8	7.5			ECA1CM103	50	
25	100	6.3	11.2	180	0.16	0.5	2.5	5.0	2.5	ECA1EM101( )	200	2000
	330	8	11.5	390	0.16	0.6	3.5	5.0		ECA1EM331( )	200	1000
	470	10	12.5	480	0.16	0.6	5.0	5.0		ECA1EM471( )	200	500
	1000	10	20	850	0.16	0.6	5.0	5.0		ECA1EM102( )	200	500
	2200	12.5	25	1200	0.18	0.6	5.0	5.0		ECA1EM222( )	200	500
	3300	16	25	1300	0.20	0.8	7.5	7.5		ECA1EM332( )	100	250
	4700	16	31.5	1500	0.22	0.8	7.5			ECA1EM472	100	
	6800	18	35.5	1750	0.26	0.8	7.5			ECA1EM682	50	

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Characteristics list

Endurance : 85 °C 2000 h

Rated voltage (V.DC)	Cap. (±20 %) (μF)	Case size (mm)		Specification		Lead length (mm)				Part No.	Min. Packaging Q'ty	
							Lead space					
		φD	L	Ripple current (120 Hz) (+85 °C) (mA r.m.s.)	tan δ (120 Hz) (+20 °C)	Lead dia. φd	Straight	Taping ✻B	Taping ✻i		Straight leads (pcs)	Taping (pcs)
35	47	5	11	130	0.14	0.5	2.0	5.0	2.5	ECA1VM470( )	200	2000
	100	6.3	11.2	210	0.14	0.5	2.5	5.0	2.5	ECA1VM101( )	200	2000
	220	8	11.5	350	0.14	0.6	3.5	5.0		ECA1VM221( )	200	1000
	330	10	12.5	440	0.14	0.6	5.0	5.0		ECA1VM331( )	200	500
	470	10	16	550	0.14	0.6	5.0	5.0		ECA1VM471( )	200	500
	1000	12.5	20	900	0.14	0.6	5.0	5.0		ECA1VM102( )	200	500
	2200	16	25	1250	0.16	0.8	7.5	7.5		ECA1VM222( )	100	250
	3300	16	31.5	1400	0.18	0.8	7.5			ECA1VM332	100	
	4700	18	35.5	1600	0.20	0.8	7.5			ECA1VM472	50	
50	2.2	5	11	20	0.12	0.5	2.0	5.0	2.5	ECA1HM2R2( )	200	2000
	3.3	5	11	35	0.12	0.5	2.0	5.0	2.5	ECA1HM3R3( )	200	2000
	4.7	5	11	45	0.12	0.5	2.0	5.0	2.5	ECA1HM4R7( )	200	2000
	10	5	11	65	0.12	0.5	2.0	5.0	2.5	ECA1HM100( )	200	2000
	22	5	11	100	0.12	0.5	2.0	5.0	2.5	ECA1HM220( )	200	2000
	33	5	11	110	0.12	0.5	2.0	5.0	2.5	ECA1HM330( )	200	2000
	47	6.3	11.2	130	0.12	0.5	2.5	5.0	2.5	ECA1HM470( )	200	2000
	100	8	11.5	250	0.12	0.6	3.5	5.0		ECA1HM101( )	200	1000
	220	10	12.5	400	0.12	0.6	5.0	5.0		ECA1HM221( )	200	500
	330	10	16	500	0.12	0.6	5.0	5.0		ECA1HM331( )	200	500
	470	10	20	650	0.12	0.6	5.0	5.0		ECA1HM471( )	200	500
	1000	12.5	25	1050	0.12	0.6	5.0	5.0		ECA1HM102( )	200	500
	2200	16	31.5	1300	0.14	0.8	7.5			ECA1HM222	100	
	3300	18	35.5	1500	0.16	0.8	7.5			ECA1HM332	50	
63	10	5	11	70	0.11	0.5	2.0	5.0	2.5	ECA1JM100( )	200	2000
	22	5	11	105	0.11	0.5	2.0	5.0	2.5	ECA1JM220( )	200	2000
	33	6.3	11.2	130	0.11	0.5	2.5	5.0	2.5	ECA1JM330( )	200	2000
	47	6.3	11.2	160	0.11	0.5	2.5	5.0	2.5	ECA1JM470( )	200	2000
	100	8	11.5	270	0.11	0.6	3.5	5.0		ECA1JM101( )	200	1000
	220	10	16	450	0.11	0.6	5.0	5.0		ECA1JM221( )	200	500
	330	10	20	550	0.11	0.6	5.0	5.0		ECA1JM331( )	200	500
	470	12.5	20	750	0.11	0.6	5.0	5.0		ECA1JM471( )	200	500
	1000	16	25	1100	0.11	0.8	7.5	7.5		ECA1JM102( )	100	250
	2200	18	35.5	1400	0.13	0.8	7.5			ECA1JM222	50	

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							Lead space					
		φD	L	Ripple current (120 Hz) (+85 °C) (mA r.m.s.)	tan δ (120 Hz) (+20 °C)	Lead dia. φd	Straight	Taping ✻B	Taping ✻i		Straight leads (pcs)	Taping (pcs)
100	2.2	5	11	30	0.10	0.5	2.0	5.0	2.5	ECA2AM2R2( )	200	2000
	3.3	5	11	40	0.10	0.5	2.0	5.0	2.5	ECA2AM3R3( )	200	2000
	4.7	5	11	50	0.10	0.5	2.0	5.0	2.5	ECA2AM4R7( )	200	2000
	10	5	11	70	0.10	0.5	2.0	5.0	2.5	ECA2AM100( )	200	2000
	22	6.3	11.2	115	0.10	0.5	2.5	5.0	2.5	ECA2AM220( )	200	2000
	33	8	11.5	145	0.10	0.6	3.5	5.0		ECA2AM330( )	200	1000
	47	8	11.5	180	0.10	0.6	3.5	5.0		ECA2AM470( )	200	1000
	100	10	16	350	0.10	0.6	5.0	5.0		ECA2AM101( )	200	500
	220	12.5	20	550	0.10	0.6	5.0	5.0		ECA2AM221( )	200	500
	330	12.5	25	700	0.10	0.6	5.0	5.0		ECA2AM331( )	200	500
	470	16	25	900	0.10	0.8	7.5	7.5		ECA2AM471( )	100	250
	1000	18	35.5	1300	0.10	0.8	7.5			ECA2AM102	50	
160	2.2	6.3	11.2	53	0.16	0.5	2.5	5.0	2.5	ECA2CM2R2( )	200	2000
	3.3	6.3	11.2	66	0.16	0.5	2.5	5.0	2.5	ECA2CM3R3( )	200	2000
	4.7	6.3	11.2	78	0.16	0.5	2.5	5.0	2.5	ECA2CM4R7( )	200	2000
	10	10	12.5	105	0.16	0.6	5.0	5.0		ECA2CM100( )	200	500
	22	10	16	175	0.16	0.6	5.0	5.0		ECA2CM220( )	200	500
	33	10	20	235	0.16	0.6	5.0	5.0		ECA2CM330( )	200	500
	47	12.5	20	320	0.16	0.6	5.0	5.0		ECA2CM470( )	200	500
	100	12.5	25	515	0.16	0.6	5.0	5.0		ECA2CM101( )	200	500
	220	16	31.5	830	0.16	0.8	7.5			ECA2CM221	100	
	330	18	31.5	1090	0.16	0.8	7.5			ECA2CM331	50	
	470	18	40	1440	0.16	0.8	7.5			ECA2CM471	50	
200	2.2	6.3	11.2	50	0.18	0.5	2.5	5.0	2.5	ECA2DM2R2( )	200	2000
	3.3	6.3	11.2	62	0.18	0.5	2.5	5.0	2.5	ECA2DM3R3( )	200	2000
	4.7	8	11.5	86	0.18	0.6	3.5	5.0		ECA2DM4R7( )	200	1000
	10	10	12.5	100	0.18	0.6	5.0	5.0		ECA2DM100( )	200	500
	22	10	20	180	0.18	0.6	5.0	5.0		ECA2DM220( )	200	500
	33	10	20	220	0.18	0.6	5.0	5.0		ECA2DM330( )	200	500
	47	12.5	20	300	0.18	0.6	5.0	5.0		ECA2DM470( )	200	500
	100	16	25	475	0.18	0.8	7.5	7.5		ECA2DM101( )	100	250
	220	18	31.5	835	0.18	0.8	7.5			ECA2DM221	50	
	330	18	40	1140	0.18	0.8	7.5			ECA2DM331	50	

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							Lead space					
		φD	L	Ripple current (120 Hz) (+85 °C) (mA r.m.s.)	tan δ (120 Hz) (+20 °C)	Lead dia. φd	Straight	Taping ✻B	Taping ✻i		Straight leads (pcs)	Taping (pcs)
250	2.2	6.3	11.2	50	0.18	0.5	2.5	5.0	2.5	ECA2EM2R2( )	200	2000
	3.3	8	11.5	72	0.18	0.6	3.5	5.0		ECA2EM3R3( )	200	1000
	4.7	8	11.5	86	0.18	0.6	3.5	5.0		ECA2EM4R7( )	200	1000
	10	10	16	110	0.18	0.6	5.0	5.0		ECA2EM100( )	200	500
	22	10	20	180	0.18	0.6	5.0	5.0		ECA2EM220( )	200	500
	33	12.5	20	250	0.18	0.6	5.0	5.0		ECA2EM330( )	200	500
	47	12.5	25	330	0.18	0.6	5.0	5.0		ECA2EM470( )	200	500
	100	16	31.5	530	0.18	0.8	7.5			ECA2EM101	100	
	220	18	40	930	0.18	0.8	7.5			ECA2EM221	50	
350	2.2	8	11.5	55	0.20	0.6	3.5	5.0		ECA2VM2R2( )	200	1000
	3.3	8	11.5	60	0.20	0.6	3.5	5.0		ECA2VM3R3( )	200	1000
	4.7	10	12.5	65	0.20	0.6	5.0	5.0		ECA2VM4R7( )	200	500
	10	10	20	115	0.20	0.6	5.0	5.0		ECA2VM100( )	200	500
	22	12.5	20	195	0.20	0.6	5.0	5.0		ECA2VM220( )	200	500
	33	16	25	300	0.20	0.8	7.5	7.5		ECA2VM330( )	100	250
	47	16	25	325	0.20	0.8	7.5	7.5		ECA2VM470( )	100	250
	100	18	31.5	535	0.20	0.8	7.5			ECA2VM101	50	
400	2.2	8	11.5	50	0.20	0.6	3.5	5.0		ECA2GM2R2( )	200	1000
	3.3	10	12.5	54	0.20	0.6	5.0	5.0		ECA2GM3R3( )	200	500
	4.7	10	16	72	0.20	0.6	5.0	5.0		ECA2GM4R7( )	200	500
	10	10	20	115	0.20	0.6	5.0	5.0		ECA2GM100( )	200	500
	22	12.5	25	215	0.20	0.6	5.0	5.0		ECA2GM220( )	200	500
	33	16	25	275	0.20	0.8	7.5	7.5		ECA2GM330( )	100	250
	47	16	31.5	350	0.20	0.8	7.5			ECA2GM470	100	
	100	18	40	600	0.20	0.8	7.5			ECA2GM101	50	
450	2.2	10	12.5	44	0.20	0.6	5.0	5.0		ECA2WM2R2( )	200	500
	3.3	10	16	60	0.20	0.6	5.0	5.0		ECA2WM3R3( )	200	500
	4.7	10	20	79	0.20	0.6	5.0	5.0		ECA2WM4R7( )	200	500
	10	12.5	20	130	0.20	0.6	5.0	5.0		ECA2WM100( )	200	500
	22	16	25	210	0.20	0.8	7.5	7.5		ECA2WM220( )	100	250
	33	16	31.5	285	0.20	0.8	7.5			ECA2WM330	100	

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