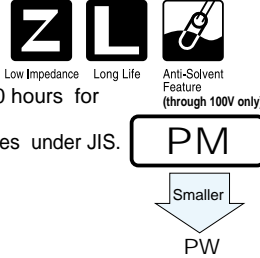


ALUMINUM ELECTROLYTIC CAPACITORS

PM series Extremely Low Impedance, High Reliability

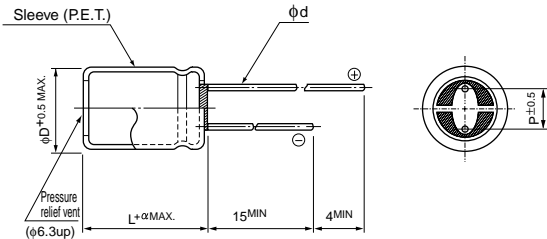


- High reliability withstanding 5000 hour load life at +105°C (3000/2000 hours for smaller case sizes as specified below).
- Capacitance ranges available based on the numerical values in E12 series under JIS.
- Compliant to the RoHS directive (2002/95/EC).

Specifications

Item	Performance Characteristics		
Category Temperature Range	-55 to +105°C (6.3 to 100V), -40 to +105°C (160 to 400V), -25 to +105°C (450V)		
Rated Voltage Range	6.3 to 450V		
Rated Capacitance Range	0.47 to 15000µF		
Capacitance Tolerance	±20% at 120Hz, 20°C		
Leakage Current	Rated Voltage (V)	6.3 to 100 160 to 450	
	Leakage current	After 1 minute's application of rated voltage, leakage current is not more than 0.03CV or 4 (µA), whichever is greater. CV ≤ 1000 : I = 0.1CV+40 (µA) max. (1 minute's) CV > 1000 : I = 0.04CV+100 (µA) max. (1 minute's)	
Tangent of loss angle (tan δ)	For capacitance of more than 1000µF, add 0.02 for every increase of 1000µF. Measurement frequency : 120Hz at 20°C		
	Rated Voltage (V)	6.3 10 16 25 35 50 63 to 100 160 to 350 400 · 450	
Stability at Low Temperature	Rated voltage (V)	6.3 · 10 16 25 · 35 50 to 100 160 · 200 250 315 · 350 400 450	
	Impedance ratio (MAX.)	Z-25°C / Z+20°C	— — — — — — — — — 15
		Z-40°C / Z+20°C	— — — — — 4 6 8 10 —
Z-55°C / Z+20°C	4 3 3 2 — — — — — —		
Endurance	The specifications listed at right shall be met when the capacitors are restored to 20°C after D.C. bias plus rated ripple current is applied for 5000 hours (2000 hours for φD=5 and 6.3, 3000 hours for φD=8) at 105°C, the peak voltage shall not exceed the rated voltage.		
	Capacitance change	Within ±20% of the initial capacitance value	
	tan δ	200% or less than the initial specified value	
Shelf Life	After storing the capacitors under no load at 105°C for 1000 hours and then performing voltage treatment based on JIS C 5101-4 clause 4.1 at 20°C, they shall meet the characteristic requirements listed at right.		
	Capacitance change	Within ±20% of the initial capacitance value	
	tan δ	150% or less than the initial specified value	
Marking	Printed with white color letter on dark brown sleeve.		

Radial Lead Type



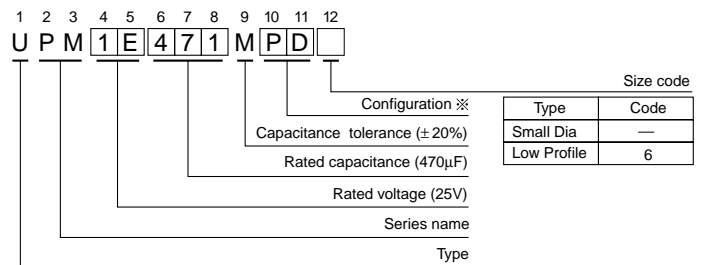
α	(φD < 10)	1.5
	(φD ≥ 10)	2.0

	(mm)							
φD	5	6.3	8	10	12.5	16	18	
P	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	

※: In case L > 25 for the φ12.5 dia. unit, lead dia. φd = 0.8mm.

- Please refer to page 20 about the end seal configuration.

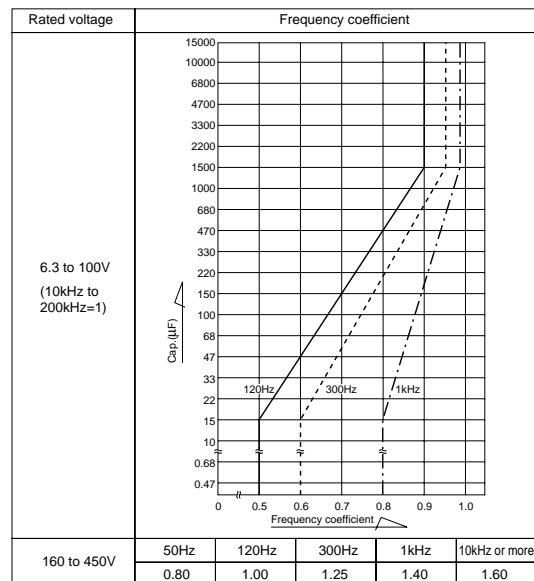
Type numbering system (Example : 25V 470µF)



※ Configuration

φ D	Pb-free leadwire Pb-free PET sleeve
5	DD
6.3	ED
8 · 10	PD
12.5 to 18	HD

Frequency coefficient of rated ripple current



Please refer to page 20, 21, 22 about the formed or taped product spec.
Please refer to page 4 for the minimum order quantity.

- Dimension table in next page.

Dimensions

$\phi D \times L$ (mm)

Cap. (μF)	Code	V(Code) Size code	6.3 (0J)		10 (1A)		16 (1C)		25 (1E)		35 (1V)	
			—	6	—	6	—	6	—	6	—	6
22	220										5 × 11	
27	270										5 × 11	
33	330								5 × 11		6.3 × 11	
39	390								5 × 11		6.3 × 11	
47	470							5 × 11	6.3 × 11		6.3 × 11	
56	560							5 × 11	6.3 × 11		6.3 × 11	
68	680				5 × 11			6.3 × 11	6.3 × 11		6.3 × 15	
82	820				5 × 11			6.3 × 11	6.3 × 11		6.3 × 15	
100	101		5 × 11		6.3 × 11			6.3 × 11	6.3 × 15		8 × 11.5	
120	121		5 × 11		6.3 × 11			6.3 × 11	6.3 × 15		8 × 15	10 × 12.5
150	151		6.3 × 11		6.3 × 11			6.3 × 15	8 × 11.5		8 × 15	10 × 12.5
180	181		6.3 × 11		6.3 × 11			6.3 × 15	8 × 15	10 × 12.5	8 × 20	10 × 15
220	221		6.3 × 11		6.3 × 15			8 × 11.5	8 × 15	10 × 12.5	8 × 20	10 × 15
270	271		6.3 × 15		6.3 × 15			8 × 15	10 × 12.5	8 × 20	10 × 15	10 × 20
330	331		6.3 × 15		8 × 11.5			8 × 15	10 × 12.5	8 × 20	10 × 15	10 × 20
390	391		8 × 11.5		8 × 15	10 × 12.5		8 × 20	10 × 15	10 × 20	12.5 × 15	10 × 25
470	471		8 × 15	10 × 12.5	8 × 15	10 × 12.5	8 × 20	10 × 15	10 × 20	12.5 × 15	10 × 31.5	16 × 15
560	561		8 × 15	10 × 12.5	8 × 20	10 × 15	10 × 20	12.5 × 15	10 × 25	12.5 × 15	12.5 × 20	16 × 15
680	681		8 × 20	10 × 15	8 × 20	10 × 15	10 × 20	12.5 × 15	10 × 31.5	16 × 15	12.5 × 25	18 × 15
820	821		8 × 20	10 × 15	10 × 20	12.5 × 15	10 × 25	12.5 × 15	12.5 × 20	16 × 15	12.5 × 25	18 × 15
1000	102		10 × 20	12.5 × 15	10 × 20	12.5 × 15	10 × 31.5	16 × 15	12.5 × 25	18 × 15	12.5 × 31.5	16 × 20
1200	122		10 × 20	12.5 × 15	10 × 25	12.5 × 15	12.5 × 20	16 × 15	12.5 × 25	18 × 15	12.5 × 35.5	16 × 25
1500	152		10 × 25	12.5 × 15	10 × 31.5	16 × 15	12.5 × 25	18 × 15	12.5 × 31.5	16 × 20	12.5 × 40	18 × 20
1800	182		10 × 31.5	16 × 15	12.5 × 20	16 × 15	12.5 × 31.5	16 × 20	12.5 × 35.5	16 × 25	16 × 31.5	18 × 25
2200	222		10 × 31.5	16 × 15	12.5 × 25	18 × 15	12.5 × 31.5	16 × 20	12.5 × 40	18 × 20	16 × 35.5	18 × 31.5
2700	272		12.5 × 25	18 × 15	12.5 × 31.5	16 × 20	12.5 × 35.5	16 × 25	16 × 31.5	18 × 25	16 × 40	18 × 35.5
3300	332		12.5 × 25	18 × 15	12.5 × 35.5	16 × 20	12.5 × 40	18 × 20	16 × 35.5	18 × 31.5	18 × 40	
3900	392		12.5 × 31.5	16 × 20	12.5 × 40	18 × 20	16 × 31.5	18 × 25	16 × 40	18 × 35.5		
4700	472		12.5 × 35.5	18 × 20	16 × 31.5	18 × 25	16 × 35.5	18 × 31.5	18 × 40			
5600	562		12.5 × 40	18 × 20	16 × 35.5	18 × 25	16 × 40	18 × 35.5				
6800	682		16 × 31.5	18 × 25	16 × 35.5	18 × 31.5	18 × 35.5					
8200	822		16 × 35.5	18 × 31.5	16 × 40	18 × 35.5	18 × 40					
10000	103		16 × 40	18 × 31.5	18 × 40							
12000	123		18 × 35.5									
15000	153		18 × 40									

Cap. (μF)	Code	V(Code) Size code	50 (1H)		63 (1J)		80 (1K)		100 (2A)	
			—	6	—	6	—	6	—	6
0.47	R47		5 × 11						5 × 11	
0.68	R68		5 × 11						5 × 11	
1	010		5 × 11						5 × 11	
1.5	1R5		5 × 11						5 × 11	
2.2	2R2		5 × 11						5 × 11	
3.3	3R3		5 × 11						5 × 11	
4.7	4R7		5 × 11					5 × 11	6.3 × 11	
6.8	6R8		5 × 11					5 × 11	6.3 × 11	
10	100		5 × 11		5 × 11		6.3 × 11		6.3 × 11	
12	120		5 × 11		5 × 11		6.3 × 11		6.3 × 11	
15	150		5 × 11		6.3 × 11		6.3 × 11		6.3 × 15	
18	180		5 × 11		6.3 × 11		6.3 × 11		6.3 × 15	
22	220		6.3 × 11		6.3 × 11		6.3 × 15		8 × 11.5	
27	270		6.3 × 11		6.3 × 11		6.3 × 15		8 × 15	10 × 12.5
33	330		6.3 × 11		6.3 × 15		8 × 11.5		8 × 15	10 × 12.5
39	390		6.3 × 11		6.3 × 15		8 × 15	10 × 12.5	8 × 20	10 × 15
47	470		6.3 × 15		8 × 11.5		8 × 15	10 × 12.5	10 × 20	12.5 × 15
56	560		6.3 × 15		8 × 15	10 × 12.5	8 × 20	10 × 15	10 × 20	12.5 × 15
68	680		8 × 11.5		8 × 15	10 × 12.5	10 × 20	12.5 × 15	10 × 25	12.5 × 15
82	820		8 × 15	10 × 12.5	8 × 20	10 × 15	10 × 20	12.5 × 15	10 × 31.5	16 × 15
100	101		8 × 20	10 × 15	10 × 20	12.5 × 15	10 × 25	12.5 × 15	10 × 31.5	16 × 15
120	121		8 × 20	10 × 15	10 × 20	12.5 × 15	10 × 31.5	16 × 15	12.5 × 25	16 × 15
150	151		10 × 20	12.5 × 15	10 × 25	12.5 × 15	10 × 31.5	16 × 15	12.5 × 25	18 × 15
180	181		10 × 20	12.5 × 15	10 × 31.5	16 × 15	12.5 × 25	16 × 15	12.5 × 31.5	16 × 20
220	221		10 × 25	12.5 × 15	12.5 × 20	16 × 15	12.5 × 31.5	18 × 15	12.5 × 35.5	16 × 25
270	271		10 × 31.5	16 × 15	12.5 × 25	18 × 15	12.5 × 31.5	16 × 20	12.5 × 40	18 × 20
330	331		10 × 31.5	16 × 15	12.5 × 25	18 × 15	12.5 × 35.5	16 × 25	16 × 31.5	18 × 25
390	391		12.5 × 25	16 × 15	12.5 × 31.5	16 × 20	12.5 × 40	18 × 20	16 × 35.5	18 × 31.5
470	471		12.5 × 25	18 × 15	12.5 × 35.5	16 × 25	16 × 31.5	18 × 25	16 × 40	18 × 35.5
560	561		12.5 × 31.5	16 × 20	12.5 × 40	18 × 20	16 × 35.5	18 × 31.5	18 × 35.5	
680	681		12.5 × 35.5	16 × 20	16 × 31.5	18 × 25	16 × 40	18 × 31.5	18 × 40	
820	821		12.5 × 40	18 × 20	16 × 35.5	18 × 31.5	18 × 35.5			
1000	102		16 × 31.5	18 × 25	16 × 40	18 × 35.5	18 × 40			
1200	122		16 × 35.5	18 × 31.5	18 × 40					
1500	152		16 × 40	18 × 31.5						
1800	182		18 × 35.5							
2200	222		18 × 40							

※ In case of low profile type, 6 will be put at 12th digit of type numbering system.

Dimension table for 160 to 450V products are shown in 160 page.

Standard Ratings

V(Code) Size code		6.3 (0J)									
Cap.(μF)	Item Code	Case size φD × L (mm)	—				6				
			Impedance (Ω) MAX.		Rated ripple (mArms)		Impedance (Ω) MAX.		Rated ripple (mArms)		
			20°C / 100kHz	-10°C / 100kHz	105°C / 10kHz to 200kHz	105°C / 120Hz	20°C / 100kHz	-10°C / 100kHz	105°C / 10kHz to 200kHz	105°C / 120Hz	
100	101	5 × 11	0.85	1.70	150	99					
120	121	5 × 11	0.65	1.30	175	115					
150	151	6.3 × 11	0.49	0.98	225	155					
180	181	6.3 × 11	0.39	0.78	250	175					
220	221	6.3 × 11	0.30	0.60	285	205					
270	271	6.3 × 15	0.24	0.48	370	275					
330	331	6.3 × 15	0.20	0.40	405	310					
390	391	8 × 11.5	0.17	0.34	445	345					
470	471	8 × 15	0.14	0.28	550	435	10 × 12.5	0.14	0.28	635	455
560	561	8 × 15	0.12	0.24	595	480	10 × 12.5	0.13	0.26	670	485
680	681	8 × 20	0.10	0.20	730	605	10 × 15	0.11	0.22	825	580
820	821	8 × 20	0.085	0.17	795	670	10 × 15	0.095	0.19	840	635
1000	102	10 × 20	0.075	0.15	950	820	12.5 × 15	0.085	0.17	890	765
1200	122	10 × 20	0.065	0.13	1060	895	12.5 × 15	0.075	0.15	950	835
1500	152	10 × 25	0.055	0.11	1260	1090	12.5 × 15	0.065	0.13	1020	915
1800	182	10 × 31.5	0.050	0.10	1370	1230	16 × 15	0.055	0.11	1270	1140
2200	222	10 × 31.5	0.043	0.086	1470	1320	16 × 15	0.049	0.098	1340	1200
2700	272	12.5 × 25	0.038	0.076	1700	1430	18 × 15	0.044	0.088	1500	1350
3300	332	12.5 × 25	0.034	0.068	1710	1530	18 × 15	0.039	0.078	1600	1440
3900	392	12.5 × 31.5	0.031	0.062	1980	1710	16 × 20	0.036	0.072	1770	1540
4700	472	12.5 × 35.5	0.028	0.056	2230	1890	18 × 20	0.032	0.064	1920	1720
5600	562	12.5 × 40	0.026	0.052	2460	2040	18 × 20	0.030	0.060	1980	1780
6800	682	16 × 31.5	0.024	0.048	2510	2130	18 × 25	0.027	0.054	2350	1980
8200	822	16 × 35.5	0.022	0.044	2770	2290	18 × 31.5	0.025	0.050	2600	2150
10000	103	16 × 40	0.020	0.040	3110	2470	18 × 31.5	0.023	0.046	2720	2240
12000	123	18 × 35.5	0.019	0.038	3050	2530					
15000	153	18 × 40	0.018	0.036	3300	2660					

V(Code) Size code		10 (1A)									
Cap.(μF)	Item Code	Case size φD × L (mm)	—				6				
			Impedance (Ω)MAX.		Rated ripple (mArms)		Impedance (Ω) MAX.		Rated ripple (mArms)		
			20°C / 100kHz	-10°C / 100kHz	105°C / 10kHz to 200kHz	105°C / 120Hz	20°C / 100kHz	-10°C / 100kHz	105°C / 10kHz to 200kHz	105°C / 120Hz	
68	680	5 × 11	0.80	1.60	155	97					
82	820	5 × 11	0.65	1.30	175	110					
100	101	6.3 × 11	0.55	1.10	210	135					
120	121	6.3 × 11	0.44	0.88	235	160					
150	151	6.3 × 11	0.35	0.70	265	185					
180	181	6.3 × 11	0.29	0.58	290	205					
220	221	6.3 × 15	0.24	0.48	370	270					
270	271	6.3 × 15	0.20	0.40	405	300					
330	331	8 × 11.5	0.16	0.32	460	350					
390	391	8 × 15	0.14	0.28	550	430	10 × 12.5	0.15	0.30	635	430
470	471	8 × 15	0.12	0.24	595	475	10 × 12.5	0.13	0.26	670	475
560	561	8 × 20	0.10	0.20	730	590	10 × 15	0.11	0.22	700	565
680	681	8 × 20	0.085	0.17	795	660	10 × 15	0.090	0.18	825	635
820	821	10 × 20	0.070	0.14	985	835	12.5 × 15	0.080	0.16	920	780
1000	102	10 × 20	0.060	0.12	1060	915	12.5 × 15	0.065	0.13	1040	895
1200	122	10 × 25	0.050	0.10	1260	1120	12.5 × 15	0.060	0.12	1060	930
1500	152	10 × 31.5	0.045	0.090	1450	1290	16 × 15	0.050	0.10	1330	1190
1800	182	12.5 × 20	0.039	0.078	1470	1320	16 × 15	0.044	0.088	1420	1270
2200	222	12.5 × 25	0.034	0.068	1710	1530	18 × 15	0.039	0.078	1600	1440
2700	272	12.5 × 31.5	0.030	0.060	1980	1740	16 × 20	0.035	0.070	1740	1560
3300	332	12.5 × 35.5	0.026	0.052	2230	1960	16 × 20	0.031	0.062	1850	1660
3900	392	12.5 × 40	0.024	0.048	2460	2120	18 × 20	0.028	0.056	2050	1840
4700	472	16 × 31.5	0.023	0.046	2420	2170	18 × 25	0.026	0.052	2350	2020
5600	562	16 × 35.5	0.021	0.042	2610	2340	18 × 25	0.024	0.048	2440	2100
6800	682	16 × 35.5	0.020	0.040	2770	2410	18 × 31.5	0.022	0.044	2720	2280
8200	822	16 × 40	0.019	0.038	3110	2530	18 × 35.5	0.021	0.042	3050	2420
10000	103	18 × 40	0.017	0.034	3300	2730					

※In case of low profile type, ⑥ will be put at 12th digit of type numbering system.

Standard Ratings

Cap.(μ F)	V(Code) Size Code Item Code	16 (1C)									
		Case size ϕ D \times L (mm)	—				6				
			Impedance (Ω) MAX.		Rated ripple (mArms)		Case size ϕ D \times L (mm)	Impedance (Ω) MAX.		Rated ripple (mArms)	
			20°C / 100kHz	-10°C / 100kHz	105°C / $\frac{10\text{kHz}}{200\text{kHz}}$ ¹⁰	105°C / 120Hz		20°C / 100kHz	-10°C / 100kHz	105°C / $\frac{10\text{kHz}}{200\text{kHz}}$ ¹⁰	105°C / 120Hz
47	470	5 \times 11	0.80	1.60	155	92					
56	560	5 \times 11	0.65	1.30	175	105					
68	680	6.3 \times 11	0.50	1.00	220	135					
82	820	6.3 \times 11	0.42	0.84	240	155					
100	101	6.3 \times 11	0.35	0.70	265	175					
120	121	6.3 \times 11	0.29	0.58	290	195					
150	151	6.3 \times 15	0.23	0.46	375	260					
180	181	6.3 \times 15	0.20	0.40	405	285					
220	221	8 \times 11.5	0.16	0.32	460	335					
270	271	8 \times 15	0.14	0.28	550	410	10 \times 12.5	0.14	0.28	635	430
330	331	8 \times 15	0.12	0.24	595	455	10 \times 12.5	0.12	0.24	670	480
390	391	8 \times 20	0.10	0.20	730	570	10 \times 15	0.10	0.20	730	570
470	471	8 \times 20	0.090	0.18	770	615	10 \times 15	0.090	0.18	825	615
560	561	10 \times 20	0.075	0.15	950	770	12.5 \times 15	0.080	0.16	920	745
680	681	10 \times 20	0.065	0.13	1060	845	12.5 \times 15	0.070	0.14	985	815
820	821	10 \times 25	0.055	0.11	1260	1030	12.5 \times 15	0.060	0.12	1060	895
1000	102	10 \times 31.5	0.047	0.094	1410	1210	16 \times 15	0.055	0.11	1270	1090
1200	122	12.5 \times 20	0.041	0.082	1430	1250	16 \times 15	0.046	0.092	1390	1220
1500	152	12.5 \times 25	0.036	0.072	1700	1490	18 \times 15	0.041	0.082	1560	1400
1800	182	12.5 \times 31.5	0.032	0.064	1880	1690	16 \times 20	0.037	0.074	1700	1530
2200	222	12.5 \times 31.5	0.028	0.056	2010	1800	16 \times 20	0.033	0.066	1800	1620
2700	272	12.5 \times 35.5	0.025	0.050	2230	1990	16 \times 25	0.030	0.060	2190	1800
3300	332	12.5 \times 40	0.023	0.046	2460	2160	18 \times 20	0.027	0.054	2090	1880
3900	392	16 \times 31.5	0.022	0.044	2510	2220	18 \times 25	0.025	0.050	2350	2060
4700	472	16 \times 35.5	0.020	0.040	2770	2410	18 \times 31.5	0.023	0.046	2720	2240
5600	562	16 \times 40	0.019	0.038	3110	2530	18 \times 35.5	0.022	0.044	2620	2350
6800	682	18 \times 35.5	0.018	0.036	3050	2610					
8200	822	18 \times 40	0.017	0.034	3300	2730					

Cap.(μ F)	V(Code) Size Code Item Code	25 (1E)									
		Case size ϕ D \times L (mm)	—				6				
			Impedance (Ω) MAX.		Rated ripple (mArms)		Case size ϕ D \times L (mm)	Impedance (Ω) MAX.		Rated ripple (mArms)	
			20°C / 100kHz	-10°C / 100kHz	105°C / $\frac{10\text{kHz}}{200\text{kHz}}$ ¹⁰	105°C / 120Hz		20°C / 100kHz	-10°C / 100kHz	105°C / $\frac{10\text{kHz}}{200\text{kHz}}$ ¹⁰	105°C / 120Hz
33	330	5 \times 11	0.80	1.60	155	88					
39	390	5 \times 11	0.65	1.30	175	100					
47	470	6.3 \times 11	0.55	1.10	210	125					
56	560	6.3 \times 11	0.44	0.88	235	140					
68	680	6.3 \times 11	0.36	0.72	260	160					
82	820	6.3 \times 11	0.30	0.60	285	180					
100	101	6.3 \times 15	0.24	0.48	370	245					
120	121	6.3 \times 15	0.20	0.40	405	275					
150	151	8 \times 11.5	0.16	0.32	460	320					
180	181	8 \times 15	0.14	0.28	550	390	10 \times 12.5	0.15	0.30	635	395
220	221	8 \times 15	0.11	0.22	625	455	10 \times 12.5	0.13	0.26	670	435
270	271	8 \times 20	0.095	0.19	750	560	10 \times 15	0.11	0.22	700	525
330	331	8 \times 20	0.085	0.17	795	610	10 \times 15	0.095	0.19	825	575
390	391	10 \times 20	0.070	0.14	985	770	12.5 \times 15	0.080	0.16	920	720
470	471	10 \times 20	0.065	0.13	1060	810	12.5 \times 15	0.070	0.14	985	785
560	561	10 \times 25	0.055	0.11	1260	990	12.5 \times 15	0.060	0.12	1060	860
680	681	10 \times 31.5	0.046	0.092	1420	1180	16 \times 15	0.055	0.11	1270	1050
820	821	12.5 \times 20	0.041	0.082	1440	1210	16 \times 15	0.049	0.098	1340	1130
1000	102	12.5 \times 25	0.036	0.072	1700	1430	18 \times 15	0.043	0.086	1520	1310
1200	122	12.5 \times 25	0.032	0.064	1760	1550	18 \times 15	0.039	0.078	1600	1400
1500	152	12.5 \times 31.5	0.029	0.058	1980	1780	16 \times 20	0.034	0.068	1770	1590
1800	182	12.5 \times 35.5	0.026	0.052	2230	1960	16 \times 25	0.031	0.062	2190	1780
2200	222	12.5 \times 40	0.024	0.048	2460	2120	18 \times 20	0.028	0.056	2050	1840
2700	272	16 \times 31.5	0.022	0.044	2510	2220	18 \times 25	0.025	0.050	2350	2060
3300	332	16 \times 35.5	0.020	0.040	2770	2410	18 \times 31.5	0.023	0.046	2720	2240
3900	392	16 \times 40	0.019	0.038	3110	2530	18 \times 35.5	0.021	0.042	3050	2420
4700	472	18 \times 40	0.018	0.036	3300	2660					

※ In case of low profile type, [6] will be put at 12th digit of type numbering system.

ALUMINUM ELECTROLYTIC CAPACITORS

PM_{series}

■ Standard Ratings

Cap.(µF)	V(Code) Size code Item Code	35 (1V)										
		—					6					
		Case size φD × L (mm)	Impedance (Ω) MAX.		Rated ripple (mArms)		Case size φD × L (mm)	Impedance (Ω) MAX.		Rated ripple (mArms)		
20°C / 100kHz	-10°C / 100kHz		105°C / ^{10kHz to} 200kHz	105°C / 120Hz	20°C / 100kHz	-10°C / 100kHz		105°C / ^{10kHz to} 200kHz	105°C / 120Hz			
22	220	5 × 11	0.75	1.50	160	85						
27	270	5 × 11	0.60	1.20	180	99						
33	330	6.3 × 11	0.49	0.98	225	125						
39	390	6.3 × 11	0.41	0.82	245	140						
47	470	6.3 × 11	0.34	0.68	270	160						
56	560	6.3 × 11	0.28	0.56	295	180						
68	680	6.3 × 15	0.24	0.48	370	230						
82	820	6.3 × 15	0.19	0.38	415	265						
100	101	8 × 11.5	0.16	0.32	460	305						
120	121	8 × 15	0.14	0.28	550	370	10 × 12.5	0.15	0.30	635	375	
150	151	8 × 15	0.12	0.24	595	415	10 × 12.5	0.12	0.24	680	435	
180	181	8 × 20	0.10	0.20	730	520	10 × 15	0.11	0.22	700	500	
220	221	8 × 20	0.085	0.17	795	580	10 × 15	0.090	0.18	825	560	
270	271	10 × 20	0.070	0.14	985	735	12.5 × 15	0.080	0.16	920	690	
330	331	10 × 20	0.060	0.12	1060	810	12.5 × 15	0.065	0.13	1020	780	
390	391	10 × 25	0.055	0.11	1260	955	12.5 × 15	0.060	0.12	1060	825	
470	471	10 × 31.5	0.046	0.092	1450	1130	16 × 15	0.055	0.11	1270	1010	
560	561	12.5 × 20	0.041	0.082	1430	1160	16 × 15	0.048	0.096	1360	1100	
680	681	12.5 × 25	0.036	0.072	1700	1370	18 × 15	0.042	0.084	1540	1270	
820	821	12.5 × 25	0.032	0.064	1760	1490	18 × 15	0.038	0.076	1620	1370	
1000	102	12.5 × 31.5	0.029	0.058	1980	1710	16 × 20	0.034	0.068	1770	1530	
1200	122	12.5 × 35.5	0.026	0.052	2230	1920	16 × 25	0.031	0.062	2190	1740	
1500	152	12.5 × 40	0.024	0.048	2460	2120	18 × 20	0.028	0.056	2050	1840	
1800	182	16 × 31.5	0.022	0.044	2510	2220	18 × 25	0.025	0.050	2350	2060	
2200	222	16 × 35.5	0.020	0.040	2770	2410	18 × 31.5	0.023	0.046	2720	2240	
2700	272	16 × 40	0.018	0.036	3110	2610	18 × 35.5	0.021	0.042	3050	2420	
3300	332	18 × 40	0.017	0.034	3300	2730						

Cap.(µF)	V(Code) Size code Item Code	50 (1H)										
		—					6					
		Case size φD × L (mm)	Impedance (Ω) MAX.		Rated ripple (mArms)		Case size φD × L (mm)	Impedance (Ω) MAX.		Rated ripple (mArms)		
20°C / 100kHz	-10°C / 100kHz		105°C / ^{10kHz to} 200kHz	105°C / 120Hz	20°C / 100kHz	-10°C / 100kHz		105°C / ^{10kHz to} 200kHz	105°C / 120Hz			
0.47	R47	5 × 11	23.0	46.0	22	11						
0.68	R68	5 × 11	16.0	32.0	28	14						
1	010	5 × 11	11.0	22.0	36	18						
1.5	1R5	5 × 11	7.50	15.0	45	22						
2.2	2R2	5 × 11	5.00	10.0	54	27						
3.3	3R3	5 × 11	3.30	6.60	66	33						
4.7	4R7	5 × 11	2.20	4.40	81	40						
6.8	6R8	5 × 11	1.80	3.60	91	45						
10	100	5 × 11	1.40	2.80	115	57						
12	120	5 × 11	1.20	2.40	125	62						
15	150	5 × 11	0.93	1.86	145	72						
18	180	5 × 11	0.80	1.60	165	79						
22	220	6.3 × 11	0.65	1.30	195	100						
27	270	6.3 × 11	0.53	1.06	215	115						
33	330	6.3 × 11	0.43	0.86	240	135						
39	390	6.3 × 11	0.36	0.72	260	150						
47	470	6.3 × 15	0.30	0.60	330	195						
56	560	6.3 × 15	0.25	0.50	360	220						
68	680	8 × 11.5	0.20	0.40	415	255						
82	820	8 × 15	0.17	0.34	505	320	10 × 12.5	0.18	0.36	530	330	
100	101	8 × 20	0.14	0.28	620	410	10 × 15	0.16	0.32	580	385	
120	121	8 × 20	0.12	0.24	755	455	10 × 15	0.13	0.26	755	435	
150	151	10 × 20	0.10	0.20	820	570	12.5 × 15	0.11	0.22	785	545	
180	181	10 × 20	0.085	0.17	945	635	12.5 × 15	0.095	0.19	845	605	
220	221	10 × 25	0.075	0.15	1150	760	12.5 × 15	0.080	0.16	920	670	
270	271	10 × 31.5	0.065	0.13	1200	900	16 × 15	0.070	0.14	1120	840	
330	331	10 × 31.5	0.055	0.11	1300	995	16 × 15	0.060	0.12	1210	925	
390	391	12.5 × 25	0.048	0.096	1440	1120	16 × 15	0.055	0.11	1270	990	
470	471	12.5 × 25	0.044	0.088	1500	1190	16 × 15	0.046	0.092	1470	1170	
560	561	12.5 × 31.5	0.040	0.080	1720	1360	16 × 20	0.044	0.088	1550	1260	
680	681	12.5 × 35.5	0.036	0.072	1900	1530	16 × 20	0.040	0.080	1630	1350	
820	821	12.5 × 40	0.033	0.066	2120	1700	18 × 20	0.036	0.072	1810	1530	
1000	102	16 × 31.5	0.030	0.060	2150	1830	18 × 25	0.033	0.066	2020	1730	
1200	122	16 × 35.5	0.028	0.056	2320	1990	18 × 31.5	0.031	0.062	2140	1880	
1500	152	16 × 40	0.026	0.052	2650	2170	18 × 31.5	0.029	0.058	2340	1990	
1800	182	18 × 35.5	0.025	0.050	2620	2210						
2200	222	18 × 40	0.024	0.048	2790	2300						

※ In case of low profile type, [6] will be put at 12th digit of type numbering system.



Standard Ratings

Cap. (μF)	Code	Item	63 (1J)									
			Case size φD × L (mm)	Impedance (Ω) MAX.		Rated ripple (mA rms)		Case size φD × L (mm)	Impedance (Ω) MAX.		Rated ripple (mA rms)	
				—		6			—		6	
				20°C / 100kHz	-10°C / 100kHz	105°C / 10kHz to 200kHz	105°C / 120Hz		20°C / 100kHz	-10°C / 100kHz	105°C / 10kHz to 200kHz	105°C / 120Hz
10	100	5 × 11	1.06	2.12	135	67						
12	120	5 × 11	0.93	1.86	145	72						
15	150	6.3 × 11	0.73	1.46	185	92						
18	180	6.3 × 11	0.63	1.26	195	100						
22	220	6.3 × 11	0.52	1.04	215	110						
27	270	6.3 × 11	0.43	0.86	240	130						
33	330	6.3 × 15	0.35	0.70	305	170						
39	390	6.3 × 15	0.30	0.60	330	190						
47	470	8 × 11.5	0.25	0.50	365	215						
56	560	8 × 15	0.21	0.42	450	275	10 × 12.5	0.23	0.46	450	275	
68	680	8 × 15	0.17	0.34	500	315	10 × 12.5	0.19	0.38	495	310	
82	820	8 × 20	0.15	0.30	600	385	10 × 15	0.16	0.32	580	375	
100	101	10 × 20	0.12	0.24	750	495	12.5 × 15	0.14	0.28	695	460	
120	121	10 × 20	0.10	0.20	820	555	12.5 × 15	0.12	0.24	750	510	
150	151	10 × 25	0.090	0.18	950	665	12.5 × 15	0.095	0.19	845	590	
180	181	10 × 31.5	0.075	0.15	1110	790	16 × 15	0.080	0.16	1050	750	
220	221	12.5 × 20	0.065	0.13	1140	835	16 × 15	0.070	0.14	1120	820	
270	271	12.5 × 25	0.055	0.11	1340	1000	18 × 15	0.060	0.12	1290	965	
330	331	12.5 × 25	0.049	0.098	1420	1090	18 × 15	0.050	0.10	1410	1080	
390	391	12.5 × 31.5	0.043	0.086	1620	1260	16 × 20	0.047	0.094	1500	1170	
470	471	12.5 × 35.5	0.039	0.078	1780	1420	16 × 25	0.042	0.084	1700	1350	
560	561	12.5 × 40	0.035	0.070	1950	1580	18 × 20	0.039	0.078	1730	1400	
680	681	16 × 31.5	0.032	0.064	2050	1700	18 × 25	0.035	0.070	1940	1610	
820	821	16 × 35.5	0.029	0.058	2220	1880	18 × 31.5	0.032	0.064	2110	1780	
1000	102	16 × 40	0.027	0.054	2370	2050	18 × 35.5	0.029	0.058	2280	1970	
1200	122	18 × 40	0.025	0.050	2510	2210						

Cap. (μF)	Code	Item	80 (1K)									
			Case size φD × L (mm)	Impedance (Ω) MAX.		Rated ripple (mA rms)		Case size φD × L (mm)	Impedance (Ω) MAX.		Rated ripple (mA rms)	
				—		6			—		6	
				20°C / 100kHz	-10°C / 100kHz	105°C / 10kHz to 200kHz	105°C / 120Hz		20°C / 100kHz	-10°C / 100kHz	105°C / 10kHz to 200kHz	105°C / 120Hz
4.7	4R7	5 × 11	4.20	11.00	53	26						
6.8	6R8	5 × 11	2.60	7.00	68	34						
10	100	6.3 × 11	1.70	4.60	87	43						
12	120	6.3 × 11	1.40	3.80	96	48						
15	150	6.3 × 11	1.20	3.20	104	52						
18	180	6.3 × 11	1.00	2.70	150	58						
22	220	6.3 × 15	0.77	2.10	180	71						
27	270	6.3 × 15	0.63	1.70	220	80						
33	330	8 × 11.5	0.53	1.40	275	132						
39	390	8 × 15	0.46	1.20	300	156	10 × 12.5	0.49	1.30	380	155	
47	470	8 × 15	0.39	1.10	360	175	10 × 12.5	0.42	1.10	410	174	
56	560	8 × 20	0.34	0.92	490	208	10 × 15	0.36	0.97	500	202	
68	680	10 × 20	0.28	0.76	570	264	12.5 × 15	0.31	0.84	520	249	
82	820	10 × 20	0.25	0.68	620	284	12.5 × 15	0.27	0.73	560	273	
100	101	10 × 25	0.21	0.57	795	347	12.5 × 15	0.23	0.62	605	308	
120	121	10 × 31.5	0.18	0.49	870	406	16 × 15	0.20	0.54	663	444	
150	151	10 × 31.5	0.15	0.41	955	459	16 × 15	0.18	0.47	699	484	
180	181	12.5 × 25	0.13	0.35	1040	520	16 × 15	0.15	0.41	766	543	
220	221	12.5 × 31.5	0.12	0.32	1160	595	18 × 15	0.13	0.35	881	643	
270	271	12.5 × 31.5	0.10	0.27	1270	667	16 × 20	0.11	0.30	1240	742	
330	331	12.5 × 35.5	0.088	0.24	1450	767	16 × 25	0.099	0.27	1440	874	
390	391	12.5 × 40	0.078	0.21	1610	822	18 × 20	0.089	0.24	1450	908	
470	471	16 × 31.5	0.069	0.19	1790	1150	18 × 25	0.080	0.22	1650	1060	
560	561	16 × 35.5	0.062	0.17	2000	1300	18 × 31.5	0.072	0.19	1750	1210	
680	681	16 × 40	0.055	0.15	2200	1470	18 × 31.5	0.065	0.18	1850	1300	
820	821	18 × 35.5	0.049	0.13	2250	1590						
1000	102	18 × 40	0.044	0.12	2370	1790						

※ In case of low profile type, [6] will be put at 12th digit of type numbering system.

Standard Ratings

Cap. (μF)	V(Code)	Size code	100 (2A)										
			Item	—						6			
				Case size φD × L (mm)	Impedance (Ω) MAX.		Rated ripple (mA rms)		Case size φD × L (mm)	Impedance (Ω) MAX.		Rated ripple (mA rms)	
					20°C / 100kHz	-10°C / 100kHz	105°C / 10kHz to 200kHz	105°C / 120Hz		20°C / 100kHz	-10°C / 100kHz	105°C / 10kHz to 200kHz	105°C / 120Hz
0.47	R47	5 × 11	43.0	116.0	17	8							
0.68	R68	5 × 11	23.0	62.0	23	11							
1	010	5 × 11	17.0	46.0	27	13							
1.5	1R5	5 × 11	10.0	27.0	35	17							
2.2	2R2	5 × 11	6.60	18.0	43	21							
3.3	3R3	5 × 11	4.10	11.0	54	27							
4.7	4R7	6.3 × 11	2.80	7.60	68	34							
6.8	6R8	6.3 × 11	1.90	5.10	83	41							
10	100	6.3 × 11	1.20	3.20	104	52							
12	120	6.3 × 11	1.00	2.70	150	57							
15	150	6.3 × 15	0.81	2.20	180	65							
18	180	6.3 × 15	0.67	1.80	220	73							
22	220	8 × 11.5	0.55	1.50	275	122							
27	270	8 × 15	0.47	1.30	300	146	10 × 12.5	0.50	1.40	380	145		
33	330	8 × 15	0.38	1.00	360	169	10 × 12.5	0.42	1.10	410	166		
39	390	8 × 20	0.33	0.89	490	202	10 × 15	0.36	0.97	500	193		
47	470	10 × 20	0.28	0.76	570	252	12.5 × 15	0.31	0.84	520	239		
56	560	10 × 20	0.24	0.65	620	274	12.5 × 15	0.27	0.73	560	258		
68	680	10 × 25	0.21	0.57	795	326	12.5 × 15	0.23	0.62	605	289		
82	820	10 × 31.5	0.18	0.49	870	386	16 × 15	0.19	0.51	681	433		
100	101	10 × 31.5	0.15	0.41	955	438	16 × 15	0.17	0.46	719	475		
120	121	12.5 × 25	0.13	0.35	1040	519	16 × 15	0.14	0.38	793	531		
150	151	12.5 × 25	0.11	0.30	1120	553	18 × 15	0.12	0.32	917	635		
180	181	12.5 × 31.5	0.098	0.26	1270	641	16 × 20	0.11	0.30	1240	706		
220	221	12.5 × 35.5	0.087	0.23	1450	730	16 × 25	0.093	0.25	1440	854		
270	271	12.5 × 40	0.072	0.19	1610	843	18 × 20	0.080	0.22	1450	918		
330	331	16 × 31.5	0.062	0.17	1790	1160	18 × 25	0.070	0.19	1650	1080		
390	391	16 × 35.5	0.053	0.14	2000	1340	18 × 31.5	0.062	0.17	1850	1240		
470	471	16 × 40	0.047	0.13	2200	1530	18 × 35.5	0.056	0.15	1970	1410		
560	561	18 × 35.5	0.041	0.11	2250	1680							
680	681	18 × 40	0.036	0.097	2300	1910							

※ In case of low profile type, 6 will be put at 12th digit of type numbering system.

Cap. (μF)	V(Code)	160		200		250		315		350		400		450	
		2C	2D	2E	2F	2V	2G	2W							
1	010	8 × 11.5	19	8 × 11.5	19	8 × 11.5	19	8 × 11.5	19	10 × 12.5	21	10 × 12.5	17	10 × 15	17
2.2	2R2	8 × 11.5	30	8 × 11.5	30	10 × 12.5	32	10 × 12.5	32	10 × 15	34	10 × 15	28	10 × 20	28
3.3	3R3	10 × 12.5	50	10 × 12.5	50	10 × 15	52	10 × 15	52	10 × 20	54	10 × 20	47	12.5 × 20	48
4.7	4R7	10 × 12.5	57	10 × 15	60	10 × 15	60	10 × 20	65	10 × 20	65	12.5 × 20	55	12.5 × 25	55
10	100	10 × 15	90	10 × 20	95	12.5 × 20	98	12.5 × 20	98	12.5 × 25	100	12.5 × 25	85	16 × 25	90
22	220	12.5 × 20	140	12.5 × 25	145	16 × 25	150	16 × 25	150	16 × 25	150	16 × 31.5	130	16 × 35.5	135
33	330	12.5 × 25	175	16 × 25	180	16 × 25	180	16 × 31.5	185	16 × 35.5	190	18 × 35.5	170	18 × 40	170
47	470	16 × 25	220	16 × 25	220	16 × 31.5	225	18 × 35.5	235	18 × 40	240				
100	101	16 × 35.5	330	18 × 40	345	18 × 40	345							Case size φD × L (mm)	※

※ Rated ripple current (mA rms) at 105°C 120Hz