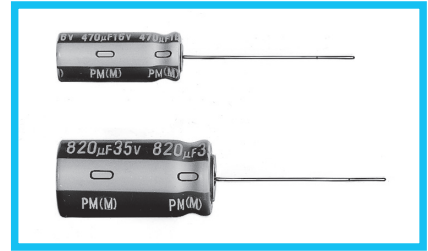
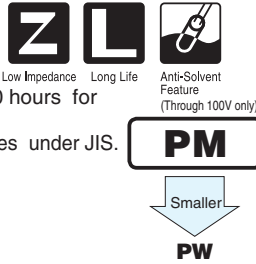


ALUMINUM ELECTROLYTIC CAPACITORS

PM series Low Impedance, High Reliability

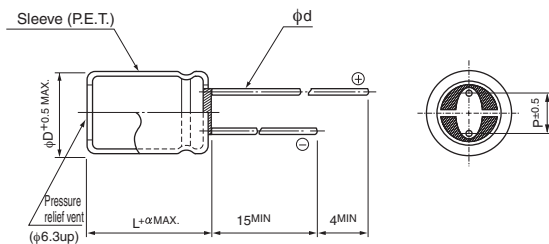


- High reliability withstanding 5000 hour load life at +105°C (3000/2000 hours for smaller case sizes as specified below).
- Capacitance ranges available based on the numerical values in E12 series under JIS.
- Compliant to the RoHS directive (2011/65/EU).

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 at 20°C, leakage current is not more than 0.03CV or 4 (µA), whichever is greater. CV ≤ 1000 : I = 0.1CV+40 (µA) max. CV > 1000 : I = 0.04CV+100 (µA) max.	
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	
	tan δ (MAX.)	0.22 0.19 0.16 0.14 0.12 0.10 0.08 0.20 0.25	
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	
Leakage current	Less than or equal to 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

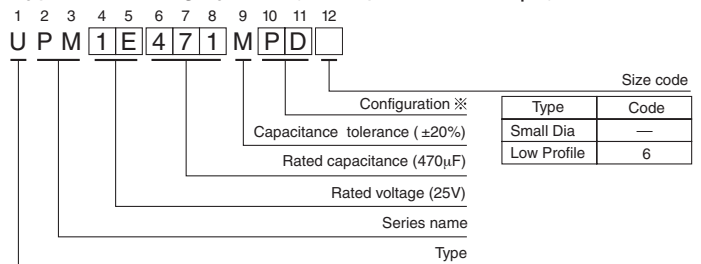
*In case L > 25 for the φ12.5 dia. unit, lead dia. φ d = 0.8mm.

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

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.

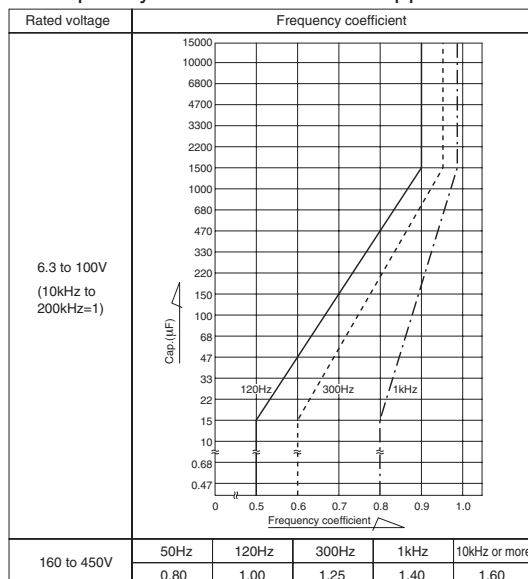
Type numbering system (Example : 25V 470µF)



※ 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





■ Dimensions

φD×L (mm)

Cap.(μF)	V(Code) Size code 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
150	151	6.3 × 11			6.3 × 11		6.3 × 15		8 × 11.5		8 × 15
180	181	6.3 × 11			6.3 × 11		6.3 × 15		8 × 15	10 × 12.5	8 × 20
220	221	6.3 × 11			6.3 × 15		8 × 11.5		8 × 15	10 × 12.5	8 × 20
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
560	561	8 × 15	10 × 12.5		8 × 20	10 × 15	10 × 20	12.5 × 15	10 × 25	12.5 × 15	12.5 × 20
680	681	8 × 20	10 × 15		8 × 20	10 × 15	10 × 20	12.5 × 15	10 × 31.5	16 × 15	12.5 × 25
820	821	8 × 20	10 × 15		10 × 20	12.5 × 15	10 × 25	12.5 × 15	12.5 × 20	16 × 15	12.5 × 25
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
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
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
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
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
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
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)	V(Code) Size code 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
47	470	6.3 × 15			8 × 11.5		8 × 15	10 × 12.5	10 × 20
56	560	6.3 × 15			8 × 15	10 × 12.5	8 × 20	10 × 15	10 × 20
68	680	8 × 11.5			8 × 15	10 × 12.5	10 × 20	12.5 × 15	10 × 25
82	820	8 × 15	10 × 12.5		8 × 20	10 × 15	10 × 20	12.5 × 15	10 × 31.5
100	101	8 × 20	10 × 15		10 × 20	12.5 × 15	10 × 25	12.5 × 15	10 × 31.5
120	121	8 × 20	10 × 15		10 × 20	12.5 × 15	10 × 31.5	16 × 15	12.5 × 25
150	151	10 × 20	12.5 × 15		10 × 25	12.5 × 15	10 × 31.5	16 × 15	12.5 × 25
180	181	10 × 20	12.5 × 15		10 × 31.5	16 × 15	12.5 × 25	16 × 15	12.5 × 31.5
220	221	10 × 25	12.5 × 15		12.5 × 20	16 × 15	12.5 × 31.5	18 × 15	12.5 × 35.5
270	271	10 × 31.5	16 × 15		12.5 × 25	18 × 15	12.5 × 31.5	16 × 20	12.5 × 40
330	331	10 × 31.5	16 × 15		12.5 × 25	18 × 15	12.5 × 35.5	16 × 25	16 × 31.5
390	391	12.5 × 25	16 × 15		12.5 × 31.5	16 × 20	12.5 × 40	18 × 20	16 × 35.5
470	471	12.5 × 25	18 × 15		12.5 × 35.5	16 × 25	16 × 31.5	18 × 25	16 × 40
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 204 page.



Standard Ratings

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

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

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

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

※ 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 Item		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		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	18 × 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)	V(Code) Size code Item Code	63 (1J)									
		Case size φ D × L (mm)	—				6				
			Impedance (Ω) MAX.		Rated ripple (mArms)		Case size φ D × 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
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)	V(Code) Size code Item Code	80 (1K)									
		Case size φ D × L (mm)	—				6				
			Impedance (Ω) MAX.		Rated ripple (mArms)		Case size φ D × 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
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	Item	100 (2A)										
				Case size φD × L (mm)	—				6					
					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	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)	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 (mArms) at 105°C 120Hz

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[UPM1A102MHD6TO](#) [UPM1A102MPD](#) [UPM1A102MPD1TD](#) [UPM1A103MHD](#) [UPM1A221MED](#) [UPM1A222MHD](#)
[UPM1A222MHD1CV](#) [UPM1A222MHD1TO](#) [UPM1A222MHD6](#) [UPM0J472MHD](#) [UPM0J472MHD6](#) [UPM0J561MPD](#)
[UPM0J822MHD](#) [UPM0J822MHD6](#) [UPM1A101MED](#) [UPM1A152MPD](#) [UPM1A181MED](#) [UPM1A182MHD](#)
[UPM1A182MHD6](#) [UPM1A332MHD6](#) [UPM1A332MHD6TN](#) [UPM1A391MPD](#) [UPM1A391MPD6](#) [UPM1A561MPD](#)
[UPM1A561MPD6](#) [UPM1A562MHD](#) [UPM1A562MHD6](#) [UPM1A822MHD](#) [UPM1A822MHD6](#) [UPM1C101MED](#)
[UPM1C101MED1TA](#) [UPM1C101MED1TD](#) [UPM1C182MHD](#) [UPM1C182MHD6](#) [UPM1C221MPD](#) [UPM1C332MHD](#)
[UPM1C332MHD1AA](#) [UPM1C332MHD6](#) [UPM1C391MPD](#) [UPM1C391MPD6](#) [UPM1A271MED](#) [UPM1A271MED1TD](#)
[UPM1A272MHD](#) [UPM1A272MHD6](#) [UPM1A471MPD6](#) [UPM1A472MHD](#)