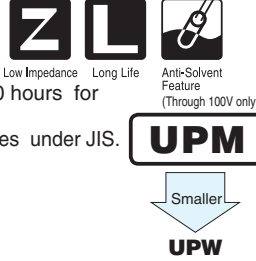


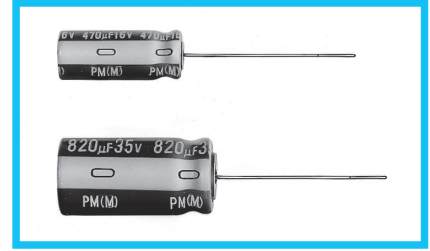
ALUMINUM ELECTROLYTIC CAPACITORS

UPM

Low Impedance, High Reliability



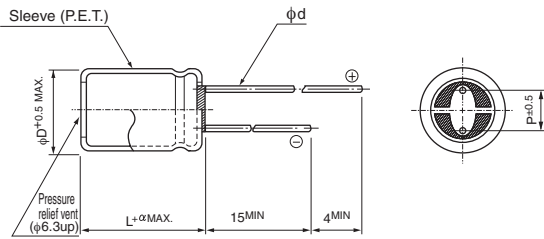
- High reliability withstanding 5000 hour load life at +105°C (3000/2000 hours for smaller case sizes as specified below).
- Capacitance ranges available based on the numerical values in E12 series under JIS.
- Compliant to the RoHS directive (2011/65/EU).



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	1 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	120Hz
	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



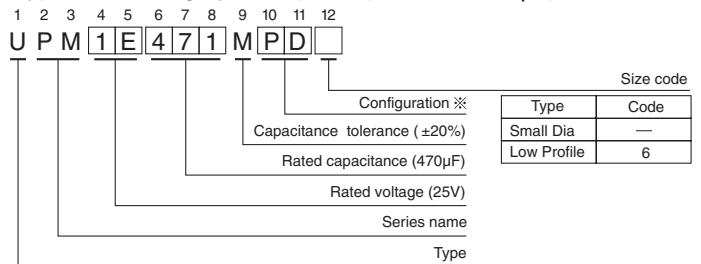
α	φD < 10	1.5
	φD ≥ 10	2.0

	(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. φd = 0.8mm.

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

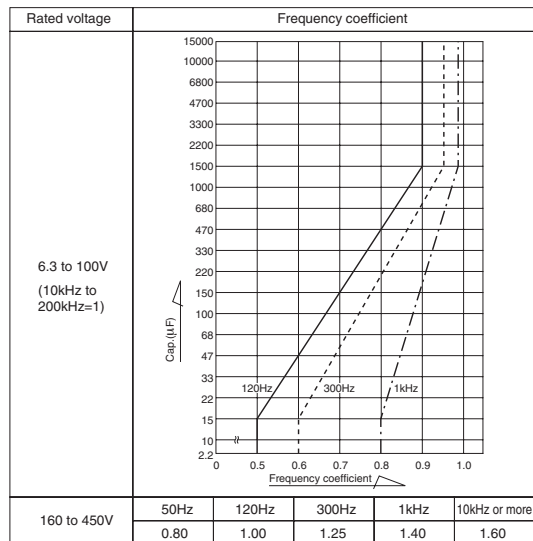
Type numbering system (Example : 25V 470µF)



※ 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

φD×L (mm)

Cap.(μF)	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										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 × 16	10 × 20
330	331	6.3 × 15			8 × 11.5		8 × 15	10 × 12.5	8 × 20	10 × 16	10 × 20
390	391	8 × 11.5			8 × 15	10 × 12.5	8 × 20	10 × 16	10 × 20	12.5 × 15	10 × 25
470	471	8 × 15	10 × 12.5		8 × 15	10 × 12.5	8 × 20	10 × 16	10 × 20	12.5 × 15	10 × 31.5
560	561	8 × 15	10 × 12.5		8 × 20	10 × 16	10 × 20	12.5 × 15	10 × 25	12.5 × 15	12.5 × 20
680	681	8 × 20	10 × 16		8 × 20	10 × 16	10 × 20	12.5 × 15	10 × 31.5	16 × 15	12.5 × 25
820	821	8 × 20	10 × 16		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	50 (1H)		63 (1J)		80 (1K)		100 (2A)	
		—	6	—	6	—	6	—	6
2.2	2R2	5 × 11						5 × 11	
3.3	3R3	5 × 11						5 × 11	
4.7	4R7	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 × 16	12.5 × 15
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 × 16	10 × 20	12.5 × 15	10 × 31.5
100	101	8 × 20	10 × 16		10 × 20	12.5 × 15	10 × 25	12.5 × 15	10 × 31.5
120	121	8 × 20	10 × 16		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

V(Code) Size code Item Code Cap.(μF)		6.3 (0J)										
		—					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			
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	440	10 × 12.5	0.14	0.28	635	505	
560	561	8 × 15	0.12	0.24	595	485	10 × 12.5	0.13	0.26	670	545	
680	681	8 × 20	0.10	0.20	730	605	10 × 16	0.11	0.22	825	685	
820	821	8 × 20	0.085	0.17	795	675	10 × 16	0.095	0.19	840	715	
1000	102	10 × 20	0.075	0.15	950	820	12.5 × 15	0.085	0.17	890	770	
1200	122	10 × 20	0.065	0.13	1060	930	12.5 × 15	0.075	0.15	950	835	
1500	152	10 × 25	0.055	0.11	1260	1130	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	1530	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	1780	16 × 20	0.036	0.072	1770	1590	
4700	472	12.5 × 35.5	0.028	0.056	2230	2000	18 × 20	0.032	0.064	1920	1720	
5600	562	12.5 × 40	0.026	0.052	2460	2210	18 × 20	0.030	0.060	1980	1780	
6800	682	16 × 31.5	0.024	0.048	2510	2250	18 × 25	0.027	0.054	2350	2110	
8200	822	16 × 35.5	0.022	0.044	2770	2490	18 × 31.5	0.025	0.050	2600	2340	
10000	103	16 × 40	0.020	0.040	3110	2790	18 × 31.5	0.023	0.046	2720	2440	
12000	123	18 × 35.5	0.019	0.038	3050	2740						
15000	153	18 × 40	0.018	0.036	3300	2970						

V(Code) Size code Item Code Cap.(μF)		10 (1A)										
		—					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			
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	490	
470	471	8 × 15	0.12	0.24	595	475	10 × 12.5	0.13	0.26	670	535	
560	561	8 × 20	0.10	0.20	730	595	10 × 16	0.11	0.22	700	570	
680	681	8 × 20	0.085	0.17	795	660	10 × 16	0.090	0.18	825	685	
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	900	
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	1300	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	1780	16 × 20	0.035	0.070	1740	1560	
3300	332	12.5 × 35.5	0.026	0.052	2230	2000	16 × 20	0.031	0.062	1850	1660	
3900	392	12.5 × 40	0.024	0.048	2460	2210	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	2110	
5600	562	16 × 35.5	0.021	0.042	2610	2340	18 × 25	0.024	0.048	2440	2190	
6800	682	16 × 35.5	0.020	0.040	2770	2490	18 × 31.5	0.022	0.044	2720	2440	
8200	822	16 × 40	0.019	0.038	3110	2790	18 × 35.5	0.021	0.042	3050	2740	
10000	103	18 × 40	0.017	0.034	3300	2970						

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



■ Standard Ratings

V(Code) Size Code		16 (1C)																				
		Item Code	Case size φ D × L (mm)	Impedance (Ω) MAX.		Rated ripple (mArms)		6														
				20°C / 100kHz	-10°C / 100kHz	105°C / $\frac{10kHz}{200kHz}$	105°C / 120Hz	Case size φ D × L (mm)	Impedance (Ω) MAX.		Rated ripple (mArms)											
Cap.(μF)																						
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	470											
330	331	8 × 15	0.12	0.24	595	455	10 × 12.5	0.12	0.24	670	510											
390	391	8 × 20	0.10	0.20	730	570	10 × 16	0.10	0.20	730	570											
470	471	8 × 20	0.090	0.18	770	615	10 × 16	0.090	0.18	825	660											
560	561	10 × 20	0.075	0.15	950	775	12.5 × 15	0.080	0.16	920	750											
680	681	10 × 20	0.065	0.13	1060	880	12.5 × 15	0.070	0.14	985	820											
820	821	10 × 25	0.055	0.11	1260	1070	12.5 × 15	0.060	0.12	1060	900											
1000	102	10 × 31.5	0.047	0.094	1410	1220	16 × 15	0.055	0.11	1270	1100											
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	1530	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	2000	16 × 25	0.030	0.060	2190	1970											
3300	332	12.5 × 40	0.023	0.046	2460	2210	18 × 20	0.027	0.054	2090	1880											
3900	392	16 × 31.5	0.022	0.044	2510	2250	18 × 25	0.025	0.050	2350	2110											
4700	472	16 × 35.5	0.020	0.040	2770	2490	18 × 31.5	0.023	0.046	2720	2440											
5600	562	16 × 40	0.019	0.038	3110	2790	18 × 35.5	0.022	0.044	2620	2350											
6800	682	18 × 35.5	0.018	0.036	3050	2740																
8200	822	18 × 40	0.017	0.034	3300	2970																

V(Code) Size Code		25 (1E)																				
		Item Code	Case size φ D × L (mm)	Impedance (Ω) MAX.		Rated ripple (mArms)		6														
				20°C / 100kHz	-10°C / 100kHz	105°C / $\frac{10kHz}{200kHz}$	105°C / 120Hz	Case size φ D × L (mm)	Impedance (Ω) MAX.		Rated ripple (mArms)											
Cap.(μF)																						
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	450											
220	221	8 × 15	0.11	0.22	625	455	10 × 12.5	0.13	0.26	670	485											
270	271	8 × 20	0.095	0.19	750	560	10 × 16	0.11	0.22	700	525											
330	331	8 × 20	0.085	0.17	795	610	10 × 16	0.095	0.19	825	630											
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	845	12.5 × 15	0.070	0.14	985	785											
560	561	10 × 25	0.055	0.11	1260	1030	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	1220	16 × 15	0.049	0.098	1340	1140											
1000	102	12.5 × 25	0.036	0.072	1700	1470	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	2000	16 × 25	0.031	0.062	2190	1970											
2200	222	12.5 × 40	0.024	0.048	2460	2210	18 × 20	0.028	0.056	2050	1840											
2700	272	16 × 31.5	0.022	0.044	2510	2250	18 × 25	0.025	0.050	2350	2110											
3300	332	16 × 35.5	0.020	0.040	2770	2490	18 × 31.5	0.023	0.046	2720	2440											
3900	392	16 × 40	0.019	0.038	3110	2790	18 × 35.5	0.021	0.042	3050	2740											
4700	472	18 × 40	0.018	0.036	3300	2970																

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	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	220	5 × 11	0.75	1.50	160	85						
27	270	270	5 × 11	0.60	1.20	180	99						
33	330	330	6.3 × 11	0.49	0.98	225	125						
39	390	390	6.3 × 11	0.41	0.82	245	140						
47	470	470	6.3 × 11	0.34	0.68	270	160						
56	560	560	6.3 × 11	0.28	0.56	295	180						
68	680	680	6.3 × 15	0.24	0.48	370	230						
82	820	820	6.3 × 15	0.19	0.38	415	265						
100	101	101	8 × 11.5	0.16	0.32	460	305						
120	121	121	8 × 15	0.14	0.28	550	370	10 × 12.5	0.15	0.30	635	425	
150	151	151	8 × 15	0.12	0.24	595	415	10 × 12.5	0.12	0.24	680	475	
180	181	181	8 × 20	0.10	0.20	730	520	10 × 16	0.11	0.22	700	500	
220	221	221	8 × 20	0.085	0.17	795	580	10 × 16	0.090	0.18	825	600	
270	271	271	10 × 20	0.070	0.14	985	735	12.5 × 15	0.080	0.16	920	690	
330	331	331	10 × 20	0.060	0.12	1060	810	12.5 × 15	0.065	0.13	1020	780	
390	391	391	10 × 25	0.055	0.11	1260	980	12.5 × 15	0.060	0.12	1060	825	
470	471	471	10 × 31.5	0.046	0.092	1450	1160	16 × 15	0.055	0.11	1270	1010	
560	561	561	12.5 × 20	0.041	0.082	1430	1170	16 × 15	0.048	0.096	1360	1110	
680	681	681	12.5 × 25	0.036	0.072	1700	1410	18 × 15	0.042	0.084	1540	1280	
820	821	821	12.5 × 25	0.032	0.064	1760	1490	18 × 15	0.038	0.076	1620	1380	
1000	102	102	12.5 × 31.5	0.029	0.058	1980	1710	16 × 20	0.034	0.068	1770	1530	
1200	122	122	12.5 × 35.5	0.026	0.052	2230	1960	16 × 25	0.031	0.062	2190	1920	
1500	152	152	12.5 × 40	0.024	0.048	2460	2210	18 × 20	0.028	0.056	2050	1840	
1800	182	182	16 × 31.5	0.022	0.044	2510	2250	18 × 25	0.025	0.050	2350	2110	
2200	222	222	16 × 35.5	0.020	0.040	2770	2490	18 × 31.5	0.023	0.046	2720	2440	
2700	272	272	16 × 40	0.018	0.036	3110	2790	18 × 35.5	0.021	0.042	3050	2740	
3300	332	332	18 × 40	0.017	0.034	3300	2970						

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				
2.2	2R2	2R2	5 × 11	5.00	10.0	54	27						
3.3	3R3	3R3	5 × 11	3.30	6.60	66	33						
4.7	4R7	4R7	5 × 11	2.20	4.40	81	40						
6.8	6R8	6R8	5 × 11	1.80	3.60	91	45						
10	100	100	5 × 11	1.40	2.80	115	57						
12	120	120	5 × 11	1.20	2.40	125	62						
15	150	150	5 × 11	0.93	1.86	145	72						
18	180	180	5 × 11	0.80	1.60	165	79						
22	220	220	6.3 × 11	0.65	1.30	195	100						
27	270	270	6.3 × 11	0.53	1.06	215	115						
33	330	330	6.3 × 11	0.43	0.86	240	135						
39	390	390	6.3 × 11	0.36	0.72	260	150						
47	470	470	6.3 × 15	0.30	0.60	330	195						
56	560	560	6.3 × 15	0.25	0.50	360	220						
68	680	680	8 × 11.5	0.20	0.40	415	260						
82	820	820	8 × 15	0.17	0.34	505	320	10 × 12.5	0.18	0.36	530	340	
100	101	101	8 × 20	0.14	0.28	620	410	10 × 16	0.16	0.32	580	385	
120	121	121	8 × 20	0.12	0.24	755	510	10 × 16	0.13	0.26	755	510	
150	151	151	10 × 20	0.10	0.20	820	570	12.5 × 15	0.11	0.22	785	545	
180	181	181	10 × 20	0.085	0.17	945	670	12.5 × 15	0.095	0.19	845	605	
220	221	221	10 × 25	0.075	0.15	1150	840	12.5 × 15	0.080	0.16	920	670	
270	271	271	10 × 31.5	0.065	0.13	1200	900	16 × 15	0.070	0.14	1120	840	
330	331	331	10 × 31.5	0.055	0.11	1300	995	16 × 15	0.060	0.12	1210	925	
390	391	391	12.5 × 25	0.048	0.096	1440	1120	16 × 15	0.055	0.11	1270	990	
470	471	471	12.5 × 25	0.044	0.088	1500	1200	18 × 15	0.046	0.092	1470	1170	
560	561	561	12.5 × 31.5	0.040	0.080	1720	1410	16 × 20	0.044	0.088	1550	1270	
680	681	681	12.5 × 35.5	0.036	0.072	1900	1580	16 × 20	0.040	0.080	1630	1350	
820	821	821	12.5 × 40	0.033	0.066	2120	1800	18 × 20	0.036	0.072	1810	1540	
1000	102	102	16 × 31.5	0.030	0.060	2150	1860	18 × 25	0.033	0.066	2020	1750	
1200	122	122	16 × 35.5	0.028	0.056	2320	2040	18 × 31.5	0.031	0.062	2140	1880	
1500	152	152	16 × 40	0.026	0.052	2650	2380	18 × 31.5	0.029	0.058	2340	2100	
1800	182	182	18 × 35.5	0.025	0.050	2620	2350						
2200	222	222	18 × 40	0.024	0.048	2790	2510						

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)									
			—				6					
			Case size φ D × L (mm)	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 × 16	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	1360	
560	561	12.5 × 40	0.035	0.070	1950	1590	18 × 20	0.039	0.78	1730	1410	
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	1890	18 × 31.5	0.032	0.064	2110	1790	
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)									
			—				6					
			Case size φ D × L (mm)	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	78						
22	220	6.3 × 15	0.77	2.10	180	95						
27	270	6.3 × 15	0.63	1.70	220	115						
33	330	8 × 11.5	0.53	1.40	275	150						
39	390	8 × 15	0.46	1.20	300	170	10 × 12.5	0.49	1.30	380	215	
47	470	8 × 15	0.39	1.10	360	215	10 × 12.5	0.42	1.10	410	245	
56	560	8 × 20	0.34	0.92	490	295	10 × 16	0.36	0.97	500	305	
68	680	10 × 20	0.28	0.76	570	355	12.5 × 15	0.31	0.84	520	325	
82	820	10 × 20	0.25	0.68	620	395	12.5 × 15	0.27	0.73	560	355	
100	101	10 × 25	0.21	0.57	795	525	12.5 × 15	0.23	0.62	605	400	
120	121	10 × 31.5	0.18	0.49	870	585	16 × 15	0.20	0.54	663	445	
150	151	10 × 31.5	0.15	0.41	955	665	16 × 15	0.18	0.47	699	470	
180	181	12.5 × 25	0.13	0.35	1040	735	16 × 15	0.15	0.41	766	545	
220	221	12.5 × 31.5	0.12	0.32	1160	845	18 × 15	0.13	0.35	881	645	
270	271	12.5 × 31.5	0.10	0.27	1270	945	16 × 20	0.11	0.30	1240	920	
330	331	12.5 × 35.5	0.088	0.24	1450	1100	16 × 25	0.099	0.27	1440	1100	
390	391	12.5 × 40	0.078	0.21	1610	1250	18 × 20	0.089	0.24	1450	1120	
470	471	16 × 31.5	0.069	0.19	1790	1430	18 × 25	0.080	0.22	1650	1320	
560	561	16 × 35.5	0.062	0.17	2000	1640	18 × 31.5	0.072	0.19	1750	1430	
680	681	16 × 40	0.055	0.15	2200	1830	18 × 31.5	0.065	0.18	1850	1540	
820	821	18 × 35.5	0.049	0.13	2250	1910						
1000	102	18 × 40	0.044	0.12	2370	2050						

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 Code	Item	100 (2A)										
			Case size ϕ D \times L (mm)	—				6					
				Impedance (Ω) MAX.		Rated ripple (mA rms)		Case size ϕ D \times 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	
2.2	2R2	5 \times 11	6.60	18.0	43	21							
3.3	3R3	5 \times 11	4.10	11.0	54	27							
4.7	4R7	6.3 \times 11	2.80	7.60	68	34							
6.8	6R8	6.3 \times 11	1.90	5.10	83	41							
10	100	6.3 \times 11	1.20	3.20	104	52							
12	120	6.3 \times 11	1.00	2.70	150	75							
15	150	6.3 \times 15	0.81	2.20	180	90							
18	180	6.3 \times 15	0.67	1.80	220	110							
22	220	8 \times 11.5	0.55	1.50	275	145							
27	270	8 \times 15	0.47	1.30	300	160	10 \times 12.5	0.50	1.40		380	205	
33	330	8 \times 15	0.38	1.00	360	200	10 \times 12.5	0.42	1.10		410	230	
39	390	8 \times 20	0.33	0.89	490	280	10 \times 16	0.36	0.97		500	285	
47	470	10 \times 20	0.28	0.76	570	340	12.5 \times 15	0.31	0.84		520	310	
56	560	10 \times 20	0.24	0.65	620	375	12.5 \times 15	0.27	0.73		560	340	
68	680	10 \times 25	0.21	0.57	795	500	12.5 \times 15	0.23	0.62		605	380	
82	820	10 \times 31.5	0.18	0.49	870	555	16 \times 15	0.19	0.51		681	435	
100	101	10 \times 31.5	0.15	0.41	955	635	16 \times 15	0.17	0.46		719	475	
120	121	12.5 \times 25	0.13	0.35	1040	700	16 \times 15	0.14	0.38		793	535	
150	151	12.5 \times 25	0.11	0.30	1120	780	18 \times 15	0.12	0.32		917	640	
180	181	12.5 \times 31.5	0.098	0.26	1270	900	16 \times 20	0.11	0.30		1240	880	
220	221	12.5 \times 35.5	0.087	0.23	1450	1050	16 \times 25	0.093	0.25		1440	1050	
270	271	12.5 \times 40	0.072	0.19	1610	1200	18 \times 20	0.080	0.22		1450	1080	
330	331	16 \times 31.5	0.062	0.17	1790	1370	18 \times 25	0.070	0.19		1650	1260	
390	391	16 \times 35.5	0.053	0.14	2000	1550	18 \times 31.5	0.062	0.17		1850	1430	
470	471	16 \times 40	0.047	0.13	2200	1760	18 \times 35.5	0.056	0.15		1970	1570	
560	561	18 \times 35.5	0.041	0.11	2250	1840							
680	681	18 \times 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.(μ F)	V(Code) Code	160		200		250		315		350		400		450	
		2C		2D		2E		2F		2V		2G		2W	
1	010	8 \times 11.5	19	8 \times 11.5	19	8 \times 11.5	19	8 \times 11.5	19	10 \times 12.5	21	10 \times 12.5	17	10 \times 16	17
2.2	2R2	8 \times 11.5	30	8 \times 11.5	30	10 \times 12.5	32	10 \times 12.5	32	10 \times 16	34	10 \times 16	28	10 \times 20	28
3.3	3R3	10 \times 12.5	50	10 \times 12.5	50	10 \times 16	52	10 \times 16	52	10 \times 20	54	10 \times 20	47	12.5 \times 20	48
4.7	4R7	10 \times 12.5	57	10 \times 16	60	10 \times 16	60	10 \times 20	65	10 \times 20	65	12.5 \times 20	55	12.5 \times 25	55
10	100	10 \times 16	90	10 \times 20	95	12.5 \times 20	98	12.5 \times 20	98	12.5 \times 25	100	12.5 \times 25	85	16 \times 25	90
22	220	12.5 \times 20	140	12.5 \times 25	145	16 \times 25	150	16 \times 25	150	16 \times 25	150	16 \times 31.5	130	16 \times 35.5	135
33	330	12.5 \times 25	175	16 \times 25	180	16 \times 25	180	16 \times 31.5	185	16 \times 35.5	190	18 \times 35.5	170	18 \times 40	170
47	470	16 \times 25	220	16 \times 25	220	16 \times 31.5	225	18 \times 35.5	235	18 \times 40	240				
100	101	16 \times 35.5	330	18 \times 40	345	18 \times 40	345							Case size ϕ D \times L (mm)	※1

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

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