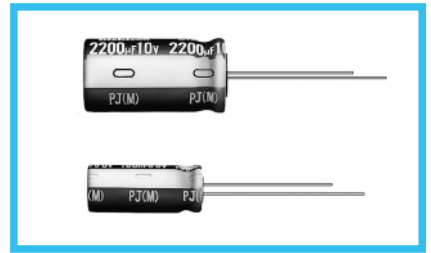
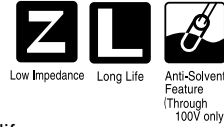


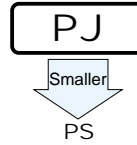
# ALUMINUM ELECTROLYTIC CAPACITORS



**PJ** series Low Impedance, For Switching Power Supplies



- Low impedance and high reliability withstanding 5000 hours 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.
- Ideally suited for use of switching power supplies.
- Compliant to the RoHS directive (2002/95/EC).

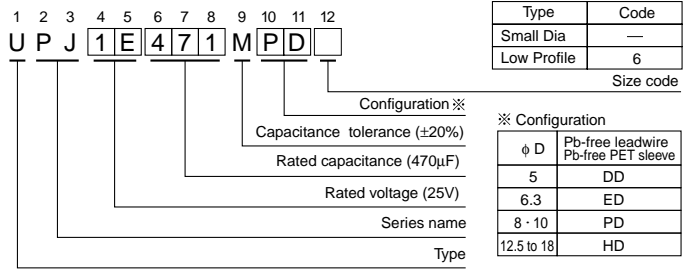
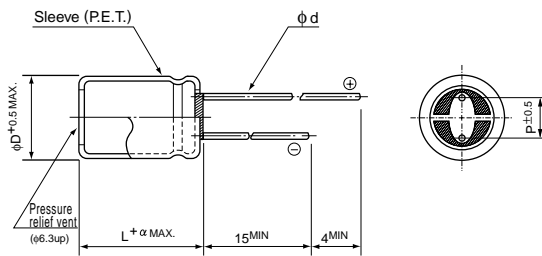


## Specifications

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)	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	
	For capacitance of more than 1000μF, add 0.02 for every increase of 1000μF.										
Stability at Low Temperature	Impedance ratio (MAX.)	Rated voltage (V)	6.3 · 10	16	25 · 35	50 to 100	160 · 200	250	315 · 350	400	450
		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									
	Leakage current	Less than or equal to 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 specified values for the endurance characteristics listed above.										
	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

## Type numbering system (Example : 25V 470μF)



α	(φD < 10) 1.0
	(φD ≥ 10) 1.5

	(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 <sup>9)</sup>	0.8	0.8

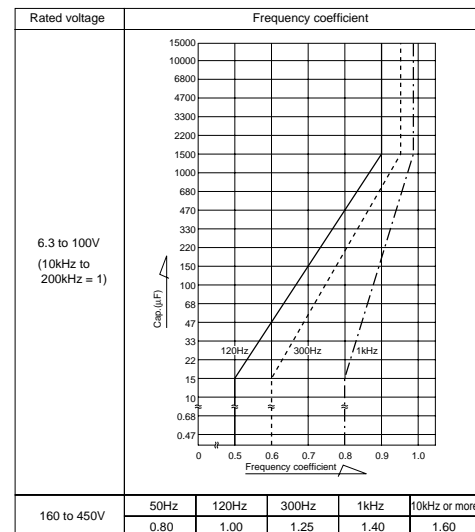
※ In case L > 25 for the φ12.5 dia. unit, lead dia. φ d=0.8mm.

- Frequency coefficient of rated ripple current

● 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 pages.



## ■ Dimensions

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 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 12.5 × 15
330	331	6.3 × 15			8 × 11.5		8 × 15	10 × 12.5	8 × 20	10 × 15	10 × 20 12.5 × 15
390	391	8 × 11.5			8 × 15	10 × 12.5	8 × 20	10 × 15	10 × 20	12.5 × 15	10 × 25 12.5 × 15
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	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									φD × L (mm)
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	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							φD × L (mm)

※ 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 187 page.

## Standard Ratings

Cap. (μF)	V (Code)	Size code	6.3 (0J)										
			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
100	101	5 × 11	1.40	3.50	150	99							
120	121	5 × 11	1.10	2.80	175	115							
150	151	6.3 × 11	0.78	2.10	225	155							
180	181	6.3 × 11	0.60	1.50	250	175							
220	221	6.3 × 11	0.48	1.20	285	205							
270	271	6.3 × 15	0.39	1.00	370	275							
330	331	6.3 × 15	0.32	0.80	405	310							
390	391	8 × 11.5	0.27	0.68	445	345							
470	471	8 × 15	0.22	0.55	550	435	10 × 12.5	0.23	0.58	575	455		
560	561	8 × 15	0.19	0.48	595	480	10 × 12.5	0.21	0.53	600	485		
680	681	8 × 20	0.16	0.40	730	605	10 × 15	0.18	0.45	700	580		
820	821	8 × 20	0.13	0.33	795	670	10 × 15	0.15	0.38	750	635		
1000	102	10 × 20	0.12	0.30	950	820	12.5 × 15	0.13	0.33	890	765		
1200	122	10 × 20	0.10	0.25	1020	895	12.5 × 15	0.12	0.30	950	835		
1500	152	10 × 25	0.084	0.21	1220	1090	12.5 × 15	0.10	0.25	1020	915		
1800	182	10 × 31.5	0.078	0.20	1370	1230	16 × 15	0.084	0.21	1270	1140		
2200	222	10 × 31.5	0.066	0.17	1470	1320	16 × 15	0.078	0.20	1340	1200		
2700	272	12.5 × 25	0.051	0.14	1590	1430	18 × 15	0.072	0.18	1500	1350		
3300	332	12.5 × 25	0.045	0.11	1710	1530	18 × 15	0.065	0.16	1600	1440		
3900	392	12.5 × 31.5	0.037	0.093	1910	1710	16 × 20	0.056	0.14	1720	1540		
4700	472	12.5 × 35.5	0.034	0.085	2100	1890	18 × 20	0.050	0.13	1920	1720		
5600	562	12.5 × 40	0.031	0.078	2270	2040	18 × 20	0.047	0.12	1980	1780		
6800	682	16 × 31.5	0.029	0.073	2370	2130	18 × 25	0.039	0.098	2210	1980		
8200	822	16 × 35.5	0.027	0.068	2550	2290	18 × 31.5	0.031	0.078	2390	2150		
10000	103	16 × 40	0.025	0.063	2750	2470	18 × 31.5	0.028	0.070	2490	2240		
12000	123	18 × 35.5	0.023	0.058	2820	2530							
15000	153	18 × 40	0.022	0.055	2960	2660							

Cap. (μF)	V (Code)	Size code	10 (1A)										
			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
68	680	5 × 11	1.30	3.30	155	97							
82	820	5 × 11	1.10	2.80	175	110							
100	101	6.3 × 11	0.84	2.10	210	135							
120	121	6.3 × 11	0.72	1.80	235	160							
150	151	6.3 × 11	0.55	1.40	265	185							
180	181	6.3 × 11	0.46	1.20	290	205							
220	221	6.3 × 15	0.38	0.95	370	270							
270	271	6.3 × 15	0.31	0.78	405	300							
330	331	8 × 11.5	0.26	0.65	460	350							
390	391	8 × 15	0.22	0.55	550	430	10 × 12.5	0.24	0.60	555	430		
470	471	8 × 15	0.19	0.48	595	475	10 × 12.5	0.21	0.53	600	475		
560	561	8 × 20	0.16	0.40	730	590	10 × 15	0.18	0.45	700	565		
680	681	8 × 20	0.13	0.33	795	660	10 × 15	0.14	0.35	770	635		
820	821	10 × 20	0.11	0.28	985	835	12.5 × 15	0.13	0.33	920	780		
1000	102	10 × 20	0.096	0.24	1060	915	12.5 × 15	0.10	0.25	1040	895		
1200	122	10 × 25	0.078	0.20	1280	1120	12.5 × 15	0.096	0.24	1060	930		
1500	152	10 × 31.5	0.072	0.18	1440	1290	16 × 15	0.078	0.20	1330	1190		
1800	182	12.5 × 20	0.057	0.14	1470	1320	16 × 15	0.072	0.18	1420	1270		
2200	222	12.5 × 25	0.045	0.11	1710	1530	18 × 15	0.060	0.15	1600	1440		
2700	272	12.5 × 31.5	0.036	0.090	1940	1740	16 × 20	0.051	0.13	1740	1560		
3300	332	12.5 × 35.5	0.032	0.080	2180	1960	16 × 20	0.045	0.11	1850	1660		
3900	392	12.5 × 40	0.030	0.075	2360	2120	18 × 20	0.041	0.10	2050	1840		
4700	472	16 × 31.5	0.028	0.070	2420	2170	18 × 25	0.035	0.088	2250	2020		
5600	562	16 × 35.5	0.026	0.065	2610	2340	18 × 25	0.033	0.083	2340	2100		
6800	682	16 × 35.5	0.024	0.060	2680	2410	18 × 31.5	0.027	0.068	2540	2280		
8200	822	16 × 40	0.023	0.058	2820	2530	18 × 35.5	0.025	0.063	2690	2420		
10000	103	18 × 40	0.021	0.053	3040	2730							

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



## Standard Ratings

Cap. (μF)		V (Code)		16 (1C)									
		Size code		—						6			
		Item		Case size φD × L (mm)	Impedance (Ω) MAX.		Rated ripple (mA rms)		Case size φD × L (mm)	Impedance (Ω) MAX.		Rated ripple (mA rms)	
		Code	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	
47	470	5 × 11	1.30	3.30	155	92							
56	560	5 × 11	1.10	2.80	175	105							
68	680	6.3 × 11	0.78	2.00	220	135							
82	820	6.3 × 11	0.66	1.70	240	155							
100	101	6.3 × 11	0.55	1.40	265	175							
120	121	6.3 × 11	0.45	1.10	290	195							
150	151	6.3 × 15	0.37	0.93	375	260							
180	181	6.3 × 15	0.31	0.78	405	285							
220	221	8 × 11.5	0.26	0.65	460	335							
270	271	8 × 15	0.22	0.55	550	410	10 × 12.5	0.22	0.55	575	430		
330	331	8 × 15	0.18	0.45	595	455	10 × 12.5	0.18	0.45	625	480		
390	391	8 × 20	0.16	0.40	730	570	10 × 15	0.16	0.40	730	570		
470	471	8 × 20	0.14	0.35	770	615	10 × 15	0.14	0.35	770	615		
560	561	10 × 20	0.12	0.30	950	770	12.5 × 15	0.13	0.33	920	745		
680	681	10 × 20	0.10	0.25	1020	845	12.5 × 15	0.11	0.28	985	815		
820	821	10 × 25	0.084	0.21	1220	1030	12.5 × 15	0.096	0.24	1060	895		
1000	102	10 × 31.5	0.072	0.18	1410	1210	16 × 15	0.084	0.21	1270	1090		
1200	122	12.5 × 20	0.060	0.15	1430	1250	16 × 15	0.072	0.18	1390	1220		
1500	152	12.5 × 25	0.048	0.12	1660	1490	18 × 15	0.066	0.17	1560	1400		
1800	182	12.5 × 31.5	0.039	0.10	1880	1690	16 × 20	0.054	0.14	1700	1530		
2200	222	12.5 × 31.5	0.034	0.085	2010	1800	16 × 20	0.048	0.12	1800	1620		
2700	272	12.5 × 35.5	0.031	0.078	2220	1990	16 × 25	0.040	0.10	2010	1800		
3300	332	12.5 × 40	0.028	0.070	2410	2160	18 × 20	0.039	0.10	2090	1880		
3900	392	16 × 31.5	0.027	0.068	2470	2220	18 × 25	0.034	0.085	2290	2060		
4700	472	16 × 35.5	0.025	0.063	2680	2410	18 × 31.5	0.028	0.070	2490	2240		
5600	562	16 × 40	0.024	0.060	2820	2530	18 × 35.5	0.027	0.068	2620	2350		
6800	682	18 × 35.5	0.022	0.055	2900	2610							
8200	822	18 × 40	0.021	0.053	3040	2730							

Cap. (μF)		V (Code)		25 (1E)									
		Size code		—						6			
		Item		Case size φD × L (mm)	Impedance (Ω) MAX.		Rated ripple (mA rms)		Case size φD × L (mm)	Impedance (Ω) MAX.		Rated ripple (mA rms)	
		Code	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	
33	330	5 × 11	1.30	3.30	155	88							
39	390	5 × 11	1.10	2.80	175	100							
47	470	6.3 × 11	0.84	2.10	210	125							
56	560	6.3 × 11	0.72	1.80	235	140							
68	680	6.3 × 11	0.57	1.40	260	160							
82	820	6.3 × 11	0.47	1.20	285	180							
100	101	6.3 × 15	0.39	0.98	370	245							
120	121	6.3 × 15	0.32	0.80	405	275							
150	151	8 × 11.5	0.26	0.65	460	320							
180	181	8 × 15	0.22	0.55	550	390	10 × 12.5	0.24	0.60	555	395		
220	221	8 × 15	0.18	0.45	625	455	10 × 12.5	0.21	0.53	600	435		
270	271	8 × 20	0.15	0.38	750	560	10 × 15	0.18	0.45	700	525		
330	331	8 × 20	0.13	0.33	795	610	10 × 15	0.15	0.38	750	575		
390	391	10 × 20	0.11	0.28	985	770	12.5 × 15	0.13	0.33	920	720		
470	471	10 × 20	0.10	0.25	1020	810	12.5 × 15	0.11	0.28	985	785		
560	561	10 × 25	0.084	0.21	1220	990	12.5 × 15	0.10	0.25	1060	860		
680	681	10 × 31.5	0.072	0.18	1420	1180	16 × 15	0.084	0.21	1270	1050		
820	821	12.5 × 20	0.059	0.15	1430	1210	16 × 15	0.079	0.20	1340	1130		
1000	102	12.5 × 25	0.048	0.12	1660	1430	18 × 15	0.066	0.17	1520	1310		
1200	122	12.5 × 25	0.043	0.11	1760	1550	18 × 15	0.061	0.15	1600	1400		
1500	152	12.5 × 31.5	0.035	0.088	1980	1780	16 × 20	0.050	0.13	1770	1590		
1800	182	12.5 × 35.5	0.032	0.080	2180	1960	16 × 25	0.041	0.10	1980	1780		
2200	222	12.5 × 40	0.029	0.073	2360	2120	18 × 20	0.040	0.10	2050	1840		
2700	272	16 × 31.5	0.027	0.068	2470	2220	18 × 25	0.034	0.085	2290	2060		
3300	332	16 × 35.5	0.025	0.063	2680	2410	18 × 31.5	0.029	0.073	2490	2240		
3900	392	16 × 40	0.023	0.058	2820	2530	18 × 35.5	0.026	0.065	2690	2420		
4700	472	18 × 40	0.022	0.055	2960	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 (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
22	220	5 × 11	1.30	3.30	160	85							
27	270	5 × 11	1.00	2.50	180	99							
33	330	6.3 × 11	0.78	2.00	225	125							
39	390	6.3 × 11	0.66	1.70	245	140							
47	470	6.3 × 11	0.54	1.40	270	160							
56	560	6.3 × 11	0.45	1.10	295	180							
68	680	6.3 × 15	0.37	0.93	370	230							
82	820	6.3 × 15	0.31	0.78	415	265							
100	101	8 × 11.5	0.26	0.65	460	305							
120	121	8 × 15	0.22	0.55	550	370	10 × 12.5	0.24	0.60	555	375		
150	151	8 × 15	0.18	0.45	595	415	10 × 12.5	0.20	0.50	625	435		
180	181	8 × 20	0.16	0.40	730	520	10 × 15	0.18	0.45	700	500		
220	221	8 × 20	0.13	0.33	795	580	10 × 15	0.14	0.35	770	560		
270	271	10 × 20	0.11	0.28	985	735	12.5 × 15	0.13	0.33	920	690		
330	331	10 × 20	0.096	0.24	1060	810	12.5 × 15	0.10	0.25	1020	780		
390	391	10 × 25	0.084	0.21	1220	955	12.5 × 15	0.096	0.24	1060	825		
470	471	10 × 31.5	0.072	0.18	1420	1130	16 × 15	0.084	0.21	1270	1010		
560	561	12.5 × 20	0.059	0.15	1430	1160	16 × 15	0.075	0.19	1360	1100		
680	681	12.5 × 25	0.048	0.12	1660	1370	18 × 15	0.066	0.17	1540	1270		
820	821	12.5 × 25	0.042	0.11	1760	1490	18 × 15	0.060	0.15	1620	1370		
1000	102	12.5 × 31.5	0.035	0.088	1980	1710	16 × 20	0.050	0.13	1770	1530		
1200	122	12.5 × 35.5	0.031	0.078	2180	1920	16 × 25	0.041	0.10	1980	1740		
1500	152	12.5 × 40	0.029	0.073	2360	2120	18 × 20	0.040	0.10	2050	1840		
1800	182	16 × 31.5	0.027	0.068	2470	2220	18 × 25	0.034	0.085	2290	2060		
2200	222	16 × 35.5	0.024	0.060	2680	2410	18 × 31.5	0.028	0.070	2490	2240		
2700	272	16 × 40	0.022	0.055	2900	2610	18 × 35.5	0.026	0.065	2690	2420		
3300	332	18 × 40	0.021	0.053	3040	2730							

Cap. (μF)	V (Code)	Size code	Item	50 (1H)									
				—						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	31.0	80.0	22	11							
0.68	R68	5 × 11	21.0	55.0	28	14							
1	010	5 × 11	14.0	38.0	36	18							
1.5	1R5	5 × 11	9.80	28.0	45	22							
2.2	2R2	5 × 11	6.50	18.0	54	27							
3.3	3R3	5 × 11	4.60	12.0	66	33							
4.7	4R7	5 × 11	3.10	7.80	81	40							
6.8	6R8	5 × 11	2.50	6.30	91	45							
10	100	5 × 11	2.00	5.00	115	57							
12	120	5 × 11	1.70	4.30	125	62							
15	150	5 × 11	1.30	3.30	145	72							
18	180	5 × 11	1.10	2.80	155	79							
22	220	6.3 × 11	0.91	2.30	195	100							
27	270	6.3 × 11	0.74	1.90	215	115							
33	330	6.3 × 11	0.60	1.50	240	135							
39	390	6.3 × 11	0.50	1.30	260	150							
47	470	6.3 × 15	0.42	1.10	330	195							
56	560	6.3 × 15	0.35	0.88	360	220							
68	680	8 × 11.5	0.28	0.70	410	255							
82	820	8 × 15	0.22	0.55	500	320	10 × 12.5	0.23	0.58	510	330		
100	101	8 × 20	0.18	0.45	620	410	10 × 15	0.21	0.53	580	385		
120	121	8 × 20	0.16	0.40	670	455	10 × 15	0.17	0.43	640	435		
150	151	10 × 20	0.13	0.33	820	570	12.5 × 15	0.14	0.35	785	545		
180	181	10 × 20	0.11	0.28	890	635	12.5 × 15	0.12	0.31	845	605		
220	221	10 × 25	0.098	0.25	1040	760	12.5 × 15	0.10	0.25	920	670		
270	271	10 × 31.5	0.085	0.21	1200	900	16 × 15	0.091	0.23	1120	840		
330	331	10 × 31.5	0.072	0.18	1300	995	16 × 15	0.078	0.20	1210	925		
390	391	12.5 × 25	0.053	0.13	1440	1120	16 × 15	0.072	0.18	1270	990		
470	471	12.5 × 25	0.048	0.12	1500	1190	18 × 15	0.060	0.15	1470	1170		
560	561	12.5 × 31.5	0.040	0.10	1680	1360	16 × 20	0.053	0.13	1550	1260		
680	681	12.5 × 35.5	0.036	0.090	1850	1530	16 × 20	0.048	0.12	1630	1350		
820	821	12.5 × 40	0.033	0.083	2010	1700	18 × 20	0.043	0.11	1810	1530		
1000	102	16 × 31.5	0.030	0.075	2120	1830	18 × 25	0.036	0.090	2000	1730		
1200	122	16 × 35.5	0.028	0.070	2260	1990	18 × 31.5	0.031	0.078	2140	1880		
1500	152	16 × 40	0.026	0.065	2410	2170	18 × 31.5	0.029	0.073	2220	1990		
1800	182	18 × 35.5	0.025	0.063	2460	2210							
2200	222	18 × 40	0.024	0.060	2560	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	63 (1J)									
				—				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
10	100	5 × 11	1.60	4.00	135	67							
12	120	5 × 11	1.40	3.50	145	72							
15	150	6.3 × 11	1.10	2.80	185	92							
18	180	6.3 × 11	0.95	2.40	195	100							
22	220	6.3 × 11	0.78	2.00	215	110							
27	270	6.3 × 11	0.64	1.60	240	130							
33	330	6.3 × 15	0.52	1.30	305	170							
39	390	6.3 × 15	0.45	1.10	330	190							
47	470	8 × 11.5	0.37	0.93	365	215							
56	560	8 × 15	0.31	0.78	450	275	10 × 12.5	0.34	0.85	450	275		
68	680	8 × 15	0.26	0.65	500	315	10 × 12.5	0.28	0.70	495	310		
82	820	8 × 20	0.22	0.55	600	385	10 × 15	0.24	0.60	580	375		
100	101	10 × 20	0.18	0.45	750	495	12.5 × 15	0.20	0.50	695	460		
120	121	10 × 20	0.15	0.38	820	555	12.5 × 15	0.18	0.45	750	510		
150	151	10 × 25	0.13	0.33	950	665	12.5 × 15	0.14	0.35	845	590		
180	181	10 × 31.5	0.11	0.28	1110	790	16 × 15	0.12	0.30	1050	750		
220	221	12.5 × 20	0.094	0.24	1140	835	16 × 15	0.10	0.25	1120	820		
270	271	12.5 × 25	0.081	0.20	1340	1000	18 × 15	0.088	0.22	1290	965		
330	331	12.5 × 25	0.072	0.18	1420	1090	18 × 15	0.078	0.20	1410	1080		
390	391	12.5 × 31.5	0.059	0.15	1620	1260	16 × 20	0.070	0.18	1500	1170		
470	471	12.5 × 35.5	0.052	0.13	1780	1420	16 × 25	0.063	0.16	1700	1350		
560	561	12.5 × 40	0.047	0.12	1950	1580	18 × 20	0.058	0.15	1730	1400		
680	681	16 × 31.5	0.043	0.11	2050	1700	18 × 25	0.051	0.13	1940	1610		
820	821	16 × 35.5	0.040	0.10	2220	1880	18 × 31.5	0.043	0.12	2110	1780		
1000	102	16 × 40	0.037	0.093	2370	2050	18 × 35.5	0.040	0.10	2280	1970		
1200	122	18 × 40	0.034	0.085	2510	2210							

Cap. (μF)	V (Code)	Size code	Item	80 (1K)									
				—				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
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	114	58							
22	220	6.3 × 15	0.77	2.10	135	71							
27	270	6.3 × 15	0.63	1.70	149	80							
33	330	8 × 11.5	0.53	1.40	234	132							
39	390	8 × 15	0.46	1.20	272	156	10 × 12.5	0.49	1.30	271	155		
47	470	8 × 15	0.39	1.10	295	175	10 × 12.5	0.42	1.10	293	174		
56	560	8 × 20	0.34	0.92	347	208	10 × 15	0.36	0.97	337	202		
68	680	10 × 20	0.28	0.76	426	264	12.5 × 15	0.31	0.84	402	249		
82	820	10 × 20	0.25	0.68	447	284	12.5 × 15	0.27	0.73	430	273		
100	101	10 × 25	0.21	0.57	526	347	12.5 × 15	0.23	0.62	466	308		
120	121	10 × 31.5	0.18	0.49	606	406	16 × 15	0.20	0.54	663	444		
150	151	10 × 31.5	0.15	0.41	663	459	16 × 15	0.18	0.47	699	484		
180	181	12.5 × 25	0.13	0.35	734	520	16 × 15	0.15	0.41	766	543		
220	221	12.5 × 31.5	0.12	0.32	816	595	18 × 15	0.13	0.35	881	643		
270	271	12.5 × 31.5	0.10	0.27	894	667	16 × 20	0.11	0.30	995	742		
330	331	12.5 × 35.5	0.088	0.24	1000	767	16 × 25	0.099	0.27	1140	874		
390	391	12.5 × 40	0.078	0.21	1060	822	18 × 20	0.089	0.24	1170	908		
470	471	16 × 31.5	0.069	0.19	1450	1150	18 × 25	0.080	0.22	1330	1060		
560	561	16 × 35.5	0.062	0.17	1600	1300	18 × 31.5	0.072	0.19	1490	1210		
680	681	16 × 40	0.055	0.15	1770	1470	18 × 31.5	0.065	0.18	1560	1300		
820	821	18 × 35.5	0.049	0.13	1890	1590							
1000	102	18 × 40	0.044	0.12	2080	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	114	57								
15	150	6.3 × 15	0.81	2.20	131	65								
18	180	6.3 × 15	0.67	1.80	155	80								
22	220	8 × 11.5	0.55	1.50	230	122								
27	270	8 × 15	0.47	1.30	269	146	10 × 12.5	0.50	1.40	268	145			
33	330	8 × 15	0.38	1.00	299	169	10 × 12.5	0.42	1.10	293	166			
39	390	8 × 20	0.33	0.89	352	202	10 × 15	0.36	0.97	337	193			
47	470	10 × 20	0.28	0.76	423	252	12.5 × 15	0.31	0.84	402	239			
56	560	10 × 20	0.24	0.65	456	274	12.5 × 15	0.27	0.73	430	258			
68	680	10 × 25	0.21	0.57	526	326	12.5 × 15	0.23	0.62	466	289			
82	820	10 × 31.5	0.18	0.49	606	386	16 × 15	0.19	0.51	681	433			
100	101	10 × 31.5	0.15	0.41	663	438	16 × 15	0.17	0.46	719	475			
120	121	12.5 × 25	0.13	0.35	774	519	16 × 15	0.14	0.38	793	531			
150	151	12.5 × 25	0.11	0.30	798	553	18 × 15	0.12	0.32	917	635			
180	181	12.5 × 31.5	0.098	0.26	904	641	16 × 20	0.11	0.30	995	706			
220	221	12.5 × 35.5	0.087	0.23	1000	730	16 × 25	0.093	0.25	1170	854			
270	271	12.5 × 40	0.072	0.19	1130	843	18 × 20	0.080	0.22	1230	918			
330	331	16 × 31.5	0.062	0.17	1520	1160	18 × 25	0.070	0.19	1420	1080			
390	391	16 × 35.5	0.053	0.14	1730	1340	18 × 31.5	0.062	0.17	1600	1240			
470	471	16 × 40	0.047	0.13	1920	1530	18 × 35.5	0.056	0.15	1770	1410			
560	561	18 × 35.5	0.041	0.11	2070	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	※ 1

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