

ALUMINUM ELECTROLYTIC CAPACITORS

nichicon

PM

Low Impedance, High Reliability

series

- 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).



Low Impedance Long Life

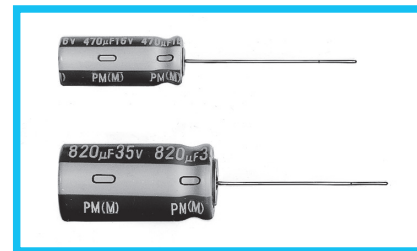


Anti-Solvent Feature
(Through 100V only)

PM

Smaller

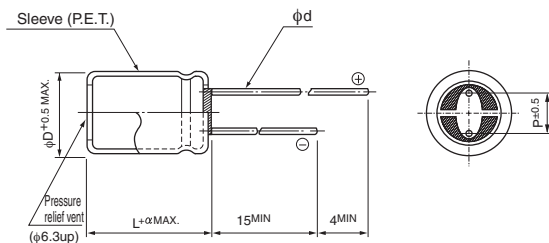
PW



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		
							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 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

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.

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)

1	2	3	4	5	6	7	8	9	10	11	12
U	P	M	1	E	4	7	1	M	P	D	
Type			Series name			Rated voltage (25V)			Rated capacitance (470µF)		
						Capacitance tolerance (±20%)			Configuration ※		

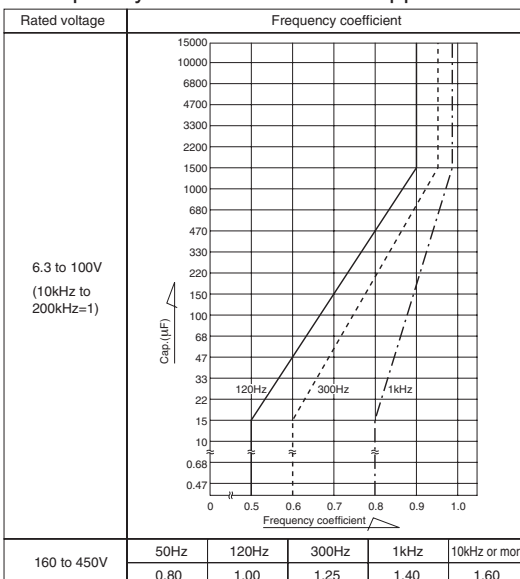
※ Configuration

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

Size code

Type	Code
Small Dia	—
Low Profile	6

Frequency coefficient of rated ripple current



CAT.8100D

■ Dimensions

φ D × 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	—	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	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	—	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	18 × 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 204 page.

Cap. (μF)	Code	Item	10 (1A)									
			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
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						

■ 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 / ^{10kHz to} _{200kHz}	105°C / 120Hz		20°C / 100kHz	−10°C / 100kHz	105°C / ^{10kHz to} _{200kHz}	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 / ^{10kHz to} _{200kHz}	105°C / 120Hz		20°C / 100kHz	−10°C / 100kHz	105°C / ^{10kHz to} _{200kHz}	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)		35 (1V)									
		Size code		—						6			
		Item		Case size φD × L (mm)		Impedance (Ω) MAX.		Rated ripple (mA Arms)		Case size φD × L (mm)		Impedance (Ω) MAX.	
		Code				20°C / 100kHz	-10°C / 100kHz	105°C / 10kHz to 200kHz	105°C / 120Hz			20°C / 100kHz	-10°C / 100kHz
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
150	151			8 × 15		0.12	0.24	595	415	10 × 12.5	0.12	0.24	680
180	181			8 × 20		0.10	0.20	730	520	10 × 15	0.11	0.22	700
220	221			8 × 20		0.085	0.17	795	580	10 × 15	0.090	0.18	825
270	271			10 × 20		0.070	0.14	985	735	12.5 × 15	0.080	0.16	920
330	331			10 × 20		0.060	0.12	1060	810	12.5 × 15	0.065	0.13	1020
390	391			10 × 25		0.055	0.11	1260	955	12.5 × 15	0.060	0.12	1060
470	471			10 × 31.5		0.046	0.092	1450	1130	16 × 15	0.055	0.11	1270
560	561			12.5 × 20		0.041	0.082	1430	1160	16 × 15	0.048	0.096	1360
680	681			12.5 × 25		0.036	0.072	1700	1370	18 × 15	0.042	0.084	1540
820	821			12.5 × 25		0.032	0.064	1760	1490	18 × 15	0.038	0.076	1620
1000	102			12.5 × 31.5		0.029	0.058	1980	1710	16 × 20	0.034	0.068	1770
1200	122			12.5 × 35.5		0.026	0.052	2230	1920	16 × 25	0.031	0.062	2190
1500	152			12.5 × 40		0.024	0.048	2460	2120	18 × 20	0.028	0.056	2050
1800	182			16 × 31.5		0.022	0.044	2510	2220	18 × 25	0.025	0.050	2350
2200	222			16 × 35.5		0.020	0.040	2770	2410	18 × 31.5	0.023	0.046	2720
2700	272			16 × 40		0.018	0.036	3110	2610	18 × 35.5	0.021	0.042	3050
3300	332			18 × 40		0.017	0.034	3300	2730				

Cap.(μF)		V(Code)		50 (1H)									
		Size code		—						6			
		Item		Case size φD × L (mm)		Impedance (Ω) MAX.		Rated ripple (mA Arms)		Case size φD × L (mm)		Impedance (Ω) MAX.	
		Code				20°C / 100kHz	-10°C / 100kHz	105°C / 10kHz to 200kHz	105°C / 120Hz			20°C / 100kHz	-10°C / 100kHz
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
100	101			8 × 20		0.14	0.28	620	410	10 × 15	0.16	0.32	580
120	121			8 × 20		0.12	0.24	755	455	10 × 15	0.13	0.26	755
150	151			10 × 20		0.10	0.20	820	570	12.5 × 15	0.11	0.22	785
180	181			10 × 20		0.085	0.17	945	635	12.5 × 15	0.095	0.19	845
220	221			10 × 25		0.075	0.15	1150	760	12.5 × 15	0.080	0.16	920
270	271			10 × 31.5		0.065	0.13	1200	900	16 × 15	0.070	0.14	1120
330	331			10 × 31.5		0.055	0.11	1300	995	16 × 15	0.060	0.12	1210
390	391			12.5 × 25		0.048	0.096	1440	1120	16 × 15	0.055	0.11	1270
470	471			12.5 × 25		0.044	0.088	1500	1190	18 × 15	0.046	0.092	1470
560	561			12.5 × 31.5		0.040	0.080	1720	1360	16 × 20	0.044	0.088	1550
680	681			12.5 × 35.5		0.036	0.072	1900	1530	16 × 20	0.040	0.080	1630
820	821			12.5 × 40		0.033	0.066	2120	1700	18 × 20	0.036	0.072	1810
1000	102			16 × 31.5		0.030	0.060	2150	1830	18 × 25	0.033	0.066	2020
1200	122			16 × 35.5		0.028	0.056	2320	1990	18 × 31.5	0.031	0.062	2140
1500	152			16 × 40		0.026	0.052	2650	2170	18 × 31.5	0.029	0.058	2340
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)									
			—				6					
			Case size φ D × L (mm)	Impedance (Ω) MAX.		Rated ripple (mA rms)		Case size φ D × 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
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)									
			—				6					
			Case size φ D × L (mm)	Impedance (Ω) MAX.		Rated ripple (mA rms)		Case size φ D × 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
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)									
				—				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		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			Case size φD × L (mm)	※
100	101		16 × 35.5	330	18 × 40	345	18 × 40	345								

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