

ALUMINUM ELECTROLYTIC CAPACITORS

nichicon

PF

Low Impedance, High Reliability
series



Low Impedance



Long Life



RCJ Approved



Anti-Solvent Feature

Approved by Reliability Center for Electronic Component, Japan-Certification No. RCJ-03-23C

- Low impedance and 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.
- Ideally suited for use of switching power supplies.

PJ

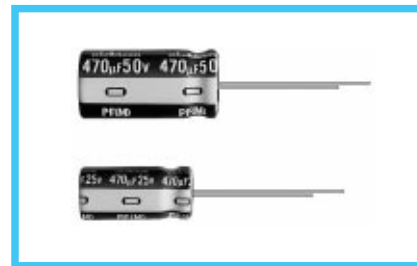
Low Impedance
High Ripple current

PF

Smaller

PR, PS

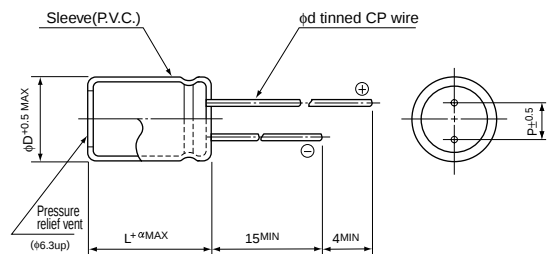
This series will be discontinued in 2002, and combine with PJ series.



Specifications

Item	Performance Characteristics										
Category Temperature Range	— 55 ~ + 105℃										
Rated Voltage Range	6.3 ~ 100V										
Rated Capacitance Range	0.47 ~ 15000μF										
Capacitance Tolerance	±20% at 120Hz, 20℃										
Leakage Current	After 1 minute's application of rated voltage, leakage current is not more than 0.03CV or 4μA, whichever is greater.										
tan δ	For capacitance of more than 1000μF, add 0.02 for every increase of 1000μF. Measurement frequency : 120Hz , Temperature : 20℃										
	Rated voltage(V)	6.3	10	16	25	35	50	63	80	100	
	tan δ (MAX.)	0.24	0.20	0.16	0.14	0.12	0.10	0.08	0.08	0.08	
Stability at Low Temperature	Measurement frequency : 120Hz										
	Rated voltage(V)		6.3	10	16	25	35	50	63	80	100
	Impedance ratio ZT/Z20(MAX.)	Z— 55℃/Z + 20℃	4	4	3	3	3	2	2	2	2
Endurance	After an application of D.C. bias voltage plus the rated ripple current for 5000 hours(2000 hours for D=5 and 6.3, 3000 hours for D=8)at 105℃ the peak voltage shall not exceed the rated D.C. voltage, capacitors meet the characteristics requirements listed at right.					Capacitance change		Within ±20% of initial value			
						tan δ		200% or less of initial specified value			
						Leakage current		Initial specified value or less			
Shelf Life	After leaving capacitors under no load at 105℃ for 1000 hours, they meet the specified value for endurance characteristics listed above.										
Marking	Printed with white color letter on dark brown sleeve.										

Radial Lead Type



α	(φD<10)1.0	(φD≥10)1.5
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 φ12.5dia. unit, lead dia. φd=0.8mm.

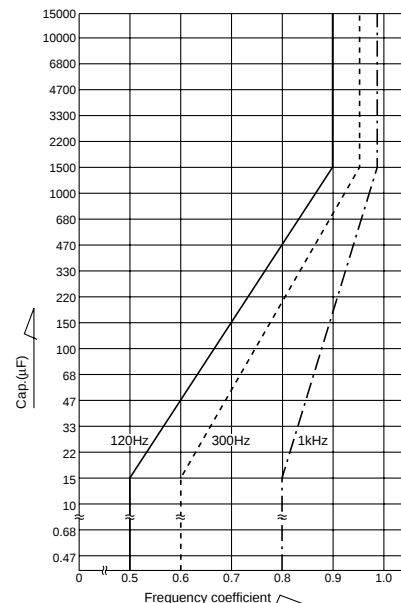
Type numbering system (Example : 25V 470µF φ12.5 × 15)

1 2 3 4 5 6 7 8 9 10 11 12
U P F 1 E 4 7 1 M H H 6

Configuration
Capacitance tolerance(±20%)
Rated Capacitance(470µF)
Rated voltage(25V)
Series name
Type

Case size code	
Type	Code
Small Dia	—
Low Profile	6

- Frequency coefficient of rated ripple current (10kHz ~ 200kHz=1)



CAT.8100P

Please refer to page 18, 19, 20 about the formed or taped product spec.
Please refer to page 3 for the minimum order quantity.

■ Dimension table in next page.

■ Dimensions

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	16 × 20	12.5 × 40	18 × 20	16 × 35.5	18 × 31.5
470	471	12.5 × 25	18 × 15			12.5 × 35.5	16 × 25	16 × 31.5	18 × 25	16 × 40	18 × 35.5
560	561	12.5 × 31.5	16 × 20			12.5 × 40	18 × 20	16 × 35.5	18 × 31.5	18 × 35.5	
680	681	12.5 × 35.5	16 × 20			16 × 31.5	18 × 25	16 × 40	18 × 31.5	18 × 40	
820	821	12.5 × 40	18 × 20			16 × 35.5	18 × 31.5	18 × 35.5			
1000	102	16 × 31.5	18 × 25			16 × 40	18 × 35.5	18 × 40			
1200	122	16 × 35.5	18 × 31.5			18 × 40					
1500	152	16 × 40	18 × 31.5								
1800	182	18 × 35.5									
2200	222	18 × 40									

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

■ Standard ratings

V(Code) Size code Item Code Cap.(μF)		6.3 (0J)									
		—					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 ~ 200kHz	105°C/120Hz		20°C/100kHz	— 10°C/100kHz	105°C/10kHz ~ 200kHz	105°C/120Hz
100	101	5 × 11	1.70	4.30	97	64					
120	121	5 × 11	1.30	3.30	110	74					
150	151	6.3 × 11	0.98	2.50	131	91					
180	181	6.3 × 11	0.78	2.00	147	105					
220	221	6.3 × 11	0.61	1.50	166	120					
270	271	6.3 × 15	0.49	1.20	191	140					
330	331	6.3 × 15	0.40	1.00	212	160					
390	391	8 × 11.5	0.34	0.85	292	225					
470	471	8 × 15	0.28	0.70	348	275	10 × 12.5	0.29	0.73	352	280
560	561	8 × 15	0.24	0.60	376	305	10 × 12.5	0.26	0.65	372	300
680	681	8 × 20	0.20	0.50	452	375	10 × 15	0.22	0.55	431	355
820	821	8 × 20	0.17	0.43	491	415	10 × 15	0.19	0.48	464	390
1000	102	10 × 20	0.15	0.38	577	495	12.5 × 15	0.17	0.43	542	465
1200	122	10 × 20	0.13	0.33	620	545	12.5 × 15	0.15	0.38	577	505
1500	152	10 × 25	0.11	0.28	726	650	12.5 × 15	0.13	0.33	620	555
1800	182	10 × 31.5	0.10	0.25	812	730	16 × 15	0.11	0.28	894	800
2200	222	10 × 31.5	0.087	0.22	871	780	16 × 15	0.099	0.25	942	845
2700	272	12.5 × 25	0.076	0.19	959	860	18 × 15	0.089	0.22	1060	950
3300	332	12.5 × 25	0.068	0.17	1020	915	18 × 15	0.079	0.20	1130	1010
3900	392	12.5 × 31.5	0.062	0.16	1130	1010	16 × 20	0.072	0.18	1230	1100
4700	472	12.5 × 35.5	0.056	0.14	1250	1120	18 × 20	0.065	0.16	1370	1230
5600	562	12.5 × 40	0.052	0.13	1330	1190	18 × 20	0.060	0.15	1420	1270
6800	682	16 × 31.5	0.048	0.12	1730	1550	18 × 25	0.055	0.14	1600	1440
8200	822	16 × 35.5	0.044	0.11	1900	1710	18 × 31.5	0.051	0.13	1760	1580
10000	103	16 × 40	0.041	0.10	2050	1840	18 × 31.5	0.047	0.12	1830	1640
12000	123	18 × 35.5	0.038	0.095	2140	1920					
15000	153	18 × 40	0.036	0.090	2290	2060					

V(Code) Size code Item Code Cap.(μF)		10 (1A)									
		—					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 ~ 200kHz	105°C/120Hz		20°C/100kHz	— 10°C/100kHz	105°C/10kHz ~ 200kHz	105°C/120Hz
68	680	5 × 11	1.60	4.00	100	63					
82	820	5 × 11	1.30	3.30	110	71					
100	101	6.3 × 11	1.10	2.80	124	82					
120	121	6.3 × 11	0.89	2.20	138	93					
150	151	6.3 × 11	0.70	1.80	155	105					
180	181	6.3 × 11	0.59	1.50	169	120					
220	221	6.3 × 15	0.48	1.20	193	140					
270	271	6.3 × 15	0.40	1.00	212	155					
330	331	8 × 11.5	0.33	0.83	296	225					
390	391	8 × 15	0.28	0.70	348	270	10 × 12.5	0.30	0.75	346	265
470	471	8 × 15	0.24	0.60	376	300	10 × 12.5	0.26	0.65	372	295
560	561	8 × 20	0.20	0.50	452	365	10 × 15	0.22	0.55	431	350
680	681	8 × 20	0.17	0.43	491	405	10 × 15	0.18	0.45	477	395
820	821	10 × 20	0.14	0.35	597	505	12.5 × 15	0.16	0.40	559	475
1000	102	10 × 20	0.12	0.30	645	555	12.5 × 15	0.13	0.33	620	535
1200	122	10 × 25	0.10	0.25	836	735	12.5 × 15	0.12	0.30	645	565
1500	152	10 × 31.5	0.090	0.23	856	770	16 × 15	0.10	0.25	938	840
1800	182	12.5 × 20	0.078	0.20	877	785	16 × 15	0.089	0.22	994	890
2200	222	12.5 × 25	0.068	0.17	1010	905	18 × 15	0.078	0.20	1130	1010
2700	272	12.5 × 31.5	0.060	0.15	1150	1030	16 × 20	0.070	0.18	1240	1110
3300	332	12.5 × 35.5	0.053	0.13	1280	1150	16 × 20	0.062	0.16	1320	1180
3900	392	12.5 × 40	0.049	0.12	1370	1230	18 × 20	0.057	0.14	1460	1310
4700	472	16 × 31.5	0.046	0.12	1760	1580	18 × 25	0.052	0.13	1650	1480
5600	562	16 × 35.5	0.042	0.11	1940	1740	18 × 25	0.049	0.12	1700	1530
6800	682	16 × 35.5	0.040	0.10	1990	1790	18 × 31.5	0.045	0.11	1870	1680
8200	822	16 × 40	0.038	0.095	2130	1910	18 × 35.5	0.042	0.11	2040	1830
10000	103	18 × 40	0.035	0.088	2320	2080					

※ 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)									
		—					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)	
Cap.(μF)	Code		20°C/100kHz	— 10°C/100kHz	105°C/10kHz ~ 200kHz	105°C/120Hz		20°C/100kHz	— 10°C/100kHz	105°C/10kHz ~ 200kHz	105°C/120Hz
47	470	5 × 11	1.60	4.00	100	60					
56	560	5 × 11	1.30	3.30	110	67					
68	680	6.3 × 11	1.00	2.50	130	81					
82	820	6.3 × 11	0.85	2.10	141	91					
100	101	6.3 × 11	0.70	1.80	155	100					
120	121	6.3 × 11	0.58	1.50	171	115					
150	151	6.3 × 15	0.47	1.20	195	135					
180	181	6.3 × 15	0.40	1.00	212	150					
220	221	8 × 11.5	0.33	0.83	296	215					
270	271	8 × 15	0.28	0.70	348	260	10 × 12.5	0.28	0.70	358	265
330	331	8 × 15	0.23	0.58	384	295	10 × 12.5	0.23	0.58	395	300
390	391	8 × 20	0.20	0.50	452	350	10 × 15	0.20	0.50	452	350
470	471	8 × 20	0.18	0.45	477	380	10 × 15	0.18	0.45	477	380
560	561	10 × 20	0.15	0.38	577	470	12.5 × 15	0.16	0.40	559	455
680	681	10 × 20	0.13	0.33	620	515	12.5 × 15	0.14	0.35	597	495
820	821	10 × 25	0.11	0.28	726	615	12.5 × 15	0.12	0.30	645	545
1000	102	10 × 31.5	0.095	0.24	833	720	16 × 15	0.11	0.28	894	770
1200	122	12.5 × 20	0.083	0.21	850	745	16 × 15	0.093	0.23	972	855
1500	152	12.5 × 25	0.072	0.18	986	885	18 × 15	0.083	0.21	1100	990
1800	182	12.5 × 31.5	0.064	0.16	1110	995	16 × 20	0.074	0.19	1210	1080
2200	222	12.5 × 31.5	0.057	0.14	1180	1060	16 × 20	0.067	0.17	1270	1140
2700	272	12.5 × 35.5	0.051	0.13	1310	1170	16 × 25	0.060	0.15	1460	1310
3300	332	12.5 × 40	0.047	0.12	1390	1250	18 × 20	0.055	0.14	1480	1330
3900	392	16 × 31.5	0.044	0.11	1800	1620	18 × 25	0.051	0.13	1660	1490
4700	472	16 × 35.5	0.041	0.10	1960	1760	18 × 31.5	0.047	0.12	1830	1640
5600	562	16 × 40	0.039	0.098	2100	1890	18 × 35.5	0.045	0.11	1970	1770
6800	682	18 × 35.5	0.037	0.093	2170	1950					
8200	822	18 × 40	0.036	0.090	2290	2060					

V(Code) Size code		25(1E)									
		—					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)	
Cap.(μF)	Code		20°C/100kHz	— 10°C/100kHz	105°C/10kHz ~ 200kHz	105°C/120Hz		20°C/100kHz	— 10°C/100kHz	105°C/10kHz ~ 200kHz	105°C/120Hz
33	330	5 × 11	1.60	4.00	86	49					
39	390	5 × 11	1.30	3.30	96	55					
47	470	6.3 × 11	1.10	2.80	108	64					
56	560	6.3 × 11	0.89	2.20	120	73					
68	680	6.3 × 11	0.72	1.80	134	84					
82	820	6.3 × 11	0.60	1.50	147	95					
100	101	6.3 × 15	0.49	1.20	169	110					
120	121	6.3 × 15	0.41	1.00	184	125					
150	151	8 × 11.5	0.33	0.83	296	205					
180	181	8 × 15	0.28	0.70	348	245	10 × 12.5	0.30	0.75	346	245
220	221	8 × 15	0.23	0.58	384	280	10 × 12.5	0.26	0.65	372	270
270	271	8 × 20	0.19	0.48	464	345	10 × 15	0.22	0.55	431	320
330	331	8 × 20	0.17	0.43	491	375	10 × 15	0.19	0.48	464	355
390	391	10 × 20	0.14	0.35	597	465	12.5 × 15	0.16	0.40	559	435
470	471	10 × 20	0.13	0.33	620	495	12.5 × 15	0.14	0.35	597	475
560	561	10 × 25	0.11	0.28	726	590	12.5 × 15	0.12	0.30	645	525
680	681	10 × 31.5	0.093	0.23	842	700	16 × 15	0.11	0.28	894	745
820	821	12.5 × 20	0.082	0.21	855	725	16 × 15	0.098	0.25	947	800
1000	102	12.5 × 25	0.072	0.18	986	850	18 × 15	0.086	0.22	1080	930
1200	122	12.5 × 25	0.065	0.16	1030	905	18 × 15	0.078	0.20	1130	990
1500	152	12.5 × 31.5	0.058	0.15	1170	1050	16 × 20	0.068	0.17	1260	1130
1800	182	12.5 × 35.5	0.053	0.13	1280	1150	16 × 25	0.062	0.16	1430	1280
2200	222	12.5 × 40	0.048	0.12	1380	1240	18 × 20	0.056	0.14	1470	1320
2700	272	16 × 31.5	0.044	0.11	1800	1620	18 × 25	0.051	0.13	1660	1490
3300	332	16 × 35.5	0.041	0.10	1960	1760	18 × 31.5	0.047	0.12	1830	1640
3900	392	16 × 40	0.038	0.095	2130	1910	18 × 35.5	0.043	0.11	2010	1800
4700	472	18 × 40	0.036	0.090	2290	2060					

* 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		35(1V)									
		Code		Item		—						6			
						Case size φD × L (mm)		Impedance(Ω MAX.)		Rated ripple (mA rms)		Case size φD × L (mm)		Impedance(Ω MAX.)	
								20°C/100kHz	— 10°C/100kHz	105°C/10kHz ~ 200kHz	105°C/120Hz			20°C/100kHz	— 10°C/100kHz
								105°C/10kHz ~ 200kHz	105°C/120Hz					105°C/10kHz ~ 200kHz	105°C/120Hz
22	220	5 × 11						1.50	3.80	89	47				
27	270	5 × 11						1.20	3.00	100	55				
33	330	6.3 × 11						0.99	2.50	114	64				
39	390	6.3 × 11						0.83	2.10	125	72				
47	470	6.3 × 11						0.69	1.70	137	82				
56	560	6.3 × 11						0.57	1.40	151	92				
68	680	6.3 × 15						0.48	1.20	170	105				
82	820	6.3 × 15						0.39	0.98	189	120				
100	101	8 × 11.5						0.32	0.80	301	200				
120	121	8 × 15						0.28	0.70	348	235	10 × 12.5	0.31	0.78	340
150	151	8 × 15						0.23	0.58	384	265	10 × 12.5	0.25	0.63	379
180	181	8 × 20						0.20	0.50	452	320	10 × 15	0.22	0.55	431
220	221	8 × 20						0.17	0.43	491	360	10 × 15	0.18	0.45	477
270	271	10 × 20						0.14	0.35	597	445	12.5 × 15	0.16	0.40	559
330	331	10 × 20						0.12	0.30	645	495	12.5 × 15	0.13	0.33	620
390	391	10 × 25						0.11	0.28	726	565	12.5 × 15	0.12	0.30	645
470	471	10 × 31.5						0.093	0.23	842	670	16 × 15	0.11	0.28	894
560	561	12.5 × 20						0.082	0.21	855	695	16 × 15	0.096	0.24	957
680	681	12.5 × 25						0.072	0.18	986	820	18 × 15	0.085	0.21	1090
820	821	12.5 × 25						0.064	0.16	1040	880	18 × 15	0.076	0.19	1150
1000	102	12.5 × 31.5						0.058	0.15	1170	1010	16 × 20	0.068	0.17	1260
1200	122	12.5 × 35.5						0.052	0.13	1300	1140	16 × 25	0.062	0.16	1430
1500	152	12.5 × 40						0.048	0.12	1380	1240	18 × 20	0.056	0.14	1470
1800	182	16 × 31.5						0.044	0.11	1800	1620	18 × 25	0.051	0.13	1660
2200	222	16 × 35.5						0.040	0.10	1990	1790	18 × 31.5	0.047	0.12	1840
2700	272	16 × 40						0.037	0.093	2150	1930	18 × 35.5	0.043	0.11	2010
3300	332	18 × 40						0.035	0.088	2320	2080				1800

Cap.(μF)		V(Code)		Size code		50(1H)									
		Code		Item		—						6			
						Case size φD × L (mm)		Impedance(Ω MAX.)		Rated ripple (mA rms)		Case size φD × L (mm)		Impedance(Ω MAX.)	
								20°C/100kHz	— 10°C/100kHz	105°C/10kHz ~ 200kHz	105°C/120Hz			20°C/100kHz	— 10°C/100kHz
								105°C/10kHz ~ 200kHz	105°C/120Hz					105°C/10kHz ~ 200kHz	105°C/120Hz
0.47	R47	5 × 11						47.0	118.0	15	7				
0.68	R68	5 × 11						32.0	80.0	19	9				
1	010	5 × 11						22.0	55.0	24	12				
1.5	1R5	5 × 11						15.0	38.0	30	15				
2.2	2R2	5 × 11						10.0	25.0	36	18				
3.3	3R3	5 × 11						6.70	17.0	44	22				
4.7	4R7	5 × 11						4.70	12.0	54	27				
6.8	6R8	5 × 11						3.20	8.00	61	33				
10	100	5 × 11						2.20	5.50	78	39				
12	120	5 × 11						1.80	4.50	84	42				
15	150	5 × 11						1.40	3.50	92	46				
18	180	5 × 11						1.20	3.00	100	51				
22	220	6.3 × 11						0.98	2.50	122	65				
27	270	6.3 × 11						0.80	2.00	127	69				
33	330	6.3 × 11						0.65	1.60	141	80				
39	390	6.3 × 11						0.55	1.40	153	88				
47	470	6.3 × 15						0.45	1.10	176	105				
56	560	6.3 × 15						0.38	0.95	191	115				
68	680	8 × 11.5						0.31	0.78	306	190				
82	820	8 × 15						0.26	0.65	361	230	10 × 12.5	0.28	0.70	358
100	101	8 × 20						0.22	0.55	431	285	10 × 15	0.24	0.60	376
120	121	8 × 20						0.18	0.45	477	320	10 × 15	0.20	0.50	452
150	151	10 × 20						0.15	0.38	577	400	12.5 × 15	0.16	0.40	559
180	181	10 × 20						0.13	0.33	620	440	12.5 × 15	0.14	0.35	597
220	221	10 × 25						0.11	0.28	726	530	12.5 × 15	0.12	0.30	645
270	271	10 × 31.5						0.094	0.24	837	625	16 × 15	0.10	0.25	938
330	331	10 × 31.5						0.084	0.21	886	680	16 × 15	0.090	0.23	988
390	391	12.5 × 25						0.073	0.18	979	760	16 × 15	0.081	0.20	1040
470	471	12.5 × 25						0.066	0.17	1020	815	18 × 15	0.070	0.18	1200
560	561	12.5 × 31.5						0.060	0.15	1150	935	16 × 20	0.066	0.17	1280
680	681	12.5 × 35.5						0.054	0.14	1270	1060	16 × 20	0.060	0.15	1340
820	821	12.5 × 40						0.050	0.13	1350	1140	18 × 20	0.054	0.14	1500
1000	102	16 × 31.5						0.046	0.12	1760	1520	18 × 25	0.050	0.13	1680
1200	122	16 × 35.5						0.043	0.11	1920	1680	18 × 31.5	0.047	0.12	1830
1500	152	16 × 40						0.040	0.10	2070	1860	18 × 31.5	0.044	0.11	1900
1800	182	18 × 35.5						0.038	0.095	2140	1920				
2200	222	18 × 40						0.035	0.088	2320	2080				

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

■ Standard ratings

V(Code) Size code		63(1J)									
		—					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)	
			20°C/100kHz	— 10°C/100kHz	105°C/10kHz ~ 200kHz	105°C/120Hz		20°C/100kHz	— 10°C/100kHz	105°C/10kHz ~ 200kHz	105°C/120Hz
10	100	5 × 11	1.60	4.00	86	43					
12	120	5 × 11	1.40	3.50	92	46					
15	150	6.3 × 11	1.10	2.80	108	54					
18	180	6.3 × 11	0.95	2.40	116	59					
22	220	6.3 × 11	0.78	2.00	129	69					
27	270	6.3 × 11	0.64	1.60	142	78					
33	330	6.3 × 15	0.52	1.30	164	93					
39	390	6.3 × 15	0.45	1.10	176	100					
47	470	8 × 11.5	0.37	0.93	279	165					
56	560	8 × 15	0.31	0.78	331	200	10 × 12.5	0.34	0.85	325	195
68	680	8 × 15	0.26	0.65	361	225	10 × 12.5	0.28	0.70	358	225
82	820	8 × 20	0.22	0.55	431	280	10 × 15	0.24	0.60	413	265
100	101	10 × 20	0.18	0.45	527	350	12.5 × 15	0.20	0.50	500	330
120	121	10 × 20	0.15	0.38	577	390	12.5 × 15	0.18	0.45	527	355
150	151	10 × 25	0.13	0.33	667	465	12.5 × 15	0.14	0.35	597	415
180	181	10 × 31.5	0.11	0.28	774	550	16 × 15	0.12	0.30	856	610
220	221	12.5 × 20	0.094	0.24	798	585	16 × 15	0.10	0.25	938	685
270	271	12.5 × 25	0.082	0.21	923	690	18 × 15	0.088	0.22	1070	800
330	331	12.5 × 25	0.073	0.18	979	750	18 × 15	0.078	0.20	1130	870
390	391	12.5 × 31.5	0.065	0.16	1100	855	16 × 20	0.070	0.18	1240	965
470	471	12.5 × 35.5	0.058	0.15	1230	980	16 × 25	0.063	0.16	1420	1130
560	561	12.5 × 40	0.052	0.13	1330	1080	18 × 20	0.058	0.15	1450	1180
680	681	16 × 31.5	0.048	0.12	1730	1440	18 × 25	0.052	0.13	1650	1370
820	821	16 × 35.5	0.044	0.11	1900	1610	18 × 31.5	0.048	0.12	1820	1540
1000	102	16 × 40	0.041	0.10	2050	1770	18 × 35.5	0.044	0.10	1990	1720
1200	122	18 × 40	0.038	0.095	2230	1960					

V(Code) Size code		80(1K)									
		—					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)	
			20°C/100kHz	— 10°C/100kHz	105°C/10kHz ~ 200kHz	105°C/120Hz		20°C/100kHz	— 10°C/100kHz	105°C/10kHz ~ 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)	Code	Item	100(2A)									
			—				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 ~ 200kHz	105°C/120Hz		20°C/100kHz	— 10°C/100kHz	105°C/10kHz ~ 200kHz	105°C/120Hz
0.47	R47	5 × 11	5 × 11	43.0	116.0	17	8					
0.68	R68	5 × 11	5 × 11	23.0	62.0	23	11					
1	010	5 × 11	5 × 11	17.0	46.0	27	13					
1.5	1R5	5 × 11	5 × 11	10.0	27.0	35	17					
2.2	2R2	5 × 11	5 × 11	6.60	18.0	43	21					
3.3	3R3	5 × 11	5 × 11	4.10	11.0	54	27					
4.7	4R7	6.3 × 11	6.3 × 11	2.80	7.60	68	34					
6.8	6R8	6.3 × 11	6.3 × 11	1.90	5.10	83	41					
10	100	6.3 × 11	6.3 × 11	1.20	3.20	104	52					
12	120	6.3 × 11	6.3 × 11	1.00	2.70	114	57					
15	150	6.3 × 15	6.3 × 15	0.81	2.20	131	65					
18	180	6.3 × 15	6.3 × 15	0.67	1.80	155	73					
22	220	8 × 11.5	8 × 11.5	0.55	1.50	230	122					
27	270	8 × 15	8 × 15	0.47	1.30	269	146	10 × 12.5	0.50	1.40	268	145
33	330	8 × 15	8 × 15	0.38	1.00	299	169	10 × 12.5	0.42	1.10	293	166
39	390	8 × 20	8 × 20	0.33	0.89	352	202	10 × 15	0.36	0.97	337	193
47	470	10 × 20	10 × 20	0.28	0.76	423	252	12.5 × 15	0.31	0.84	402	239
56	560	10 × 20	10 × 20	0.24	0.65	456	274	12.5 × 15	0.27	0.73	430	258
68	680	10 × 25	10 × 25	0.21	0.57	526	326	12.5 × 15	0.23	0.62	466	289
82	820	10 × 31.5	10 × 31.5	0.18	0.49	606	386	16 × 15	0.19	0.51	681	433
100	101	10 × 31.5	10 × 31.5	0.15	0.41	663	438	16 × 15	0.17	0.46	719	475
120	121	12.5 × 25	12.5 × 25	0.13	0.35	774	519	16 × 15	0.14	0.38	793	531
150	151	12.5 × 25	12.5 × 25	0.11	0.30	798	553	18 × 15	0.12	0.32	917	635
180	181	12.5 × 31.5	12.5 × 31.5	0.098	0.26	904	641	16 × 20	0.11	0.30	995	706
220	221	12.5 × 35.5	12.5 × 35.5	0.087	0.23	1000	730	16 × 25	0.093	0.25	1170	854
270	271	12.5 × 40	12.5 × 40	0.072	0.19	1130	843	18 × 20	0.080	0.22	1230	918
330	331	16 × 31.5	16 × 31.5	0.062	0.17	1520	1160	18 × 25	0.070	0.19	1420	1080
390	391	16 × 35.5	16 × 35.5	0.053	0.14	1730	1340	18 × 31.5	0.062	0.17	1600	1240
470	471	16 × 40	16 × 40	0.047	0.13	1920	1530	18 × 35.5	0.056	0.15	1770	1410
560	561	18 × 35.5	18 × 35.5	0.041	0.11	2070	1680					
680	681	18 × 40	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.