

GP

- ◆ 105°C 4000~6000 Hours
- ◆ Generally Purpose
- ◆ General Purpose And Small Size
- ◆ RoHS Compliant



■ Specification

Items	Characteristics									
Operation Temperature Range	≤120V.DC -55°C ~ +105°C ; 160V ~ 500V.DC -40°C ~ +105°C									
Rated Voltage	10 ~ 500V.DC									
Capacitance Tolerance	±20%(25±2°C 120Hz)									
Leakage Current(µA)	10 ~ 120VV I≤0.01CV or 3µA whichever is greater C:rated capacitance(µF) V:rated voltage(V) 2 minutes reading									
	160 ~ 500VV I≤0.02CV+10(µA) C:rated capacitance(µF) V:rated voltage(V) 2 minutes reading									
Dissipation Factor (25±2°C 120Hz)	Rated Voltage(V)	10	16	25	35	50	63	80	100	
	tgδ	0.19	0.16	0.14	0.12	0.10	0.09	0.09	0.09	
	Rated Voltage(V)	120	160	200	250	350	400	450	500	
	tgδ	0.09	0.09	0.08	0.08	0.10	0.10	0.12	0.20	
For those with rated capacitance larger than 1000µF, when the rated capacitance is increased by 1000µF, then tgδ will be increased by 0.02										
Temperature Characteristics (120Hz)	Rated Voltage(V)	10	16	25	35	50	63	80	100	
	Z(-40°C)/Z(20°C)	10	8	5	4	3	3	3	3	
	Rated Voltage(V)	120	160	200	250	350	400	450	500	
	Z(-40°C)/Z(20°C)	5	7	7	7	9	9	9	10	
Endurance	After standard test time with applying the rated voltage with the rated ripple current in the oven at 105°C, the following specification shall be satisfied after 16 hours at 25±2°C.									
	Capacitance change	within±20% of the intial value								
	Dissipation Factor	Not more than 200% of the specified value								
	Leakage current	Not more than the specified value								
	Load life(hours)	≤Φ5 ~ 6.3						4000hrs		
		Φ8						5000hrs		
≥Φ10						6000hrs				
Shelf Life	After leaving capacitors under no load at 105°C for 1000 hours, the following specification shall be satisfied at 25±2°C.									
	Capacitance change	within±20% of the intial value								
	Dissipation Factor	Not more than 200% of the specified value								
	Leakage current	Not more than 200% of the specified value								

Standard Size

Voltage (V)	10		16		25		35		50		63		
	Items Capacitance (μ F)	Size D×L(mm)	Ripple Current (mA/r.m.s /105°C100KHz)	Size D×L(mm)	Ripple Current (mA/r.m.s /105°C100KHz)	Size D×L(mm)	Ripple Current (mA/r.m.s /105°C100KHz)	Size D×L(mm)	Ripple Current (mA/r.m.s /105°C100KHz)	Size D×L(mm)	Ripple Current (mA/r.m.s /105°C100KHz)	Size D×L(mm)	Ripple Current (mA/r.m.s /105°C100KHz)
0.47										5×9	20	5×9	21
1.0										5×9	29	5×9	31
1.8										5×9	34	5×9	38
2.2										5×9	36	5×9	42
2.7										5×9	44	5×9	48
3.3										5×9	50	5×9	55
3.9										5×9	67	5×9	73
4.7										5×9	84	5×9	92
5.6										5×9	86	5×9	94
6.8										5×9	88	5×9	97
8.2										5×9	92	5×9	103
10	5×9	52	5×9	67	5×9	86	5×9	95	5×9	95	5×9	105	
12										5×9	104	5×9	114
15	5×9	71	5×9	86	5×9	105	5×9	114	5×9	114	5×9	138	
18										5×9	123	5×9	147
22	5×9	86	5×9	105	5×9	114	5×9	152	5×9	138	5×11	152	
27										5×11	204	6.3×9	214
33	5×9	100	5×9	114	5×9	143	5×9	204	5×11	204	6.3×9	214	
39	5×9	128	5×9	143	5×9	171	5×9	204	6.3×9	299	6.3×9	238	
39												8×9	247
47	5×9	135	5×9	152	5×9	200	5×11	295	6.3×11	333	6.3×11	238	
47										8×9	428	8×9	247
56	5×9	143	5×9	162	5×11	295	5×11	295	6.3×11	333	8×9	333	
56										8×9	428		
68	5×9	152	5×9	171	5×11	295	6.3×9	371	6.3×11	333	8×11.5	456	
68										8×9	428	10×9	466
82	5×9	162	5×9	200	5×11	295	6.3×9	371	8×9	556	8×11.5	456	
82												10×9	466
100	5×9	171	5×9	276	5×11	295	6.3×11	384	8×9	556	8×14	523	
100								8×9	419			10×9	475
120	5×9	200	5×11	295	6.3×9	371	8×9	419	8×11.5	599	8×16	589	
120										10×9	618	10×12.5	599
150	5×9	276	6.3×9	371	6.3×11	384	8×11.5	789	8×14	722	8×20	736	
150						8×9	419	10×9	727	10×9	618	10×14	770
180	5×11	276	6.3×9	371	6.3×11	384	8×11.5	789	8×16	817	8×20	736	
180						8×9	419	10×9	727	10×12.5	831	10×16	855
220	5×11	295	6.3×11	384	6.3×11	384	8×11.5	789	8×16	817	10×16	855	
220			8×9	419	8×9	419	10×9	727	10×12.5	831			
270	6.3×9	371	6.3×11	384	8×11.5	789	8×16	1093	8×20	1026	10×20	1026	

Standard Size

Voltage (V)	10		16		25		35		50		63	
	Items Capacitance (μ F)	Size D×L(mm)	Ripple Current (mA/r.m.s /105°C100KHz)	Size D×L(mm)	Ripple Current (mA/r.m.s /105°C100KHz)	Size D×L(mm)	Ripple Current (mA/r.m.s /105°C100KHz)	Size D×L(mm)	Ripple Current (mA/r.m.s /105°C100KHz)	Size D×L(mm)	Ripple Current (mA/r.m.s /105°C100KHz)	Size D×L(mm)
270			8×9	419	10×9	727	10×12.5	1093	10×16	1188	12.5×14	971
330	6.3×11	384	6.3×11	618	8×11.5	789	8×16	1112	10×16	1188	10×20	1026
330	8×9	419	8×9	727	10×9	727	10×12.5	1093	12.5×14	971	12.5×16	1026
390	6.3×11	618	8×11.5	789	8×14	1093	8×20	1283	10×20	1359	12.5×20	1344
390	8×9	727	10×9	727	10×12.5	1093	10×16	1473	12.5×14	971		
470	6.3×11	618	8×11.5	789	8×16	1112	8×20	1283	10×20	1359	12.5×20	1344
470	8×9	727	10×9	727	10×12.5	1093	10×16	1473	12.5×16	1026		
560	8×11.5	789	8×11.5	789	8×20	1283	10×16	1473	12.5×16	1026	12.5×25	1710
560	10×9	727	10×9	727	10×12.5	1093	12.5×14	1718				
680	8×11.5	789	8×16	1069	8×20	1283	10×20	1511	12.5×20	1758	12.5×30	2252
680	10×9	727	10×12.5	1093	10×16	1473	12.5×16	1815			16×20	1796
820	8×11.5	789	8×20	1078	10×16	1473	10×20	1511	12.5×25	2062	12.5×30	2252
820			10×14	1283	12.5×14	1718	12.5×16	1815			16×25	2337
1000	8×16	1069	8×20	1283	10×20	1473	12.5×20	1815	12.5×30	2451	16×25	2337
1000	10×12.5	1093	10×14	1283	12.5×14	1718			16×20	2337	18×20	2423
1200	8×16	1069	10×16	1473	10×23	1924	12.5×20	2138	12.5×30	2451	16×31.5	2560
1200	10×14	1283	12.5×14	1718	12.5×16	1815			16×25	2575	18×25	2394
1500	8×20	1283	10×20	1511	12.5×20	2138	12.5×25	2489	12.5×40	2608	16×31.5	2560
1500	10×14	1283	12.5×14	1718			16×20	2779	16×25	2575	18×31.5	2822
1800	10×20	1511	10×20	1511	12.5×20	2138	12.5×35	3054	16×31.5	2812	16×40	3054
1800	12.5×14	1718	12.5×16	1815			16×20	2779	18×25	2622	18×31.5	2822
2200	10×20	1511	10×23	1948	12.5×25	2489	12.5×35	3054	18×31.5	2822	18×35.5	3054
2200	12.5×14	1718	12.5×20	2138			16×25	3107				
2700	10×20	1511	12.5×20	2138	12.5×30	2955	16×31.5	3325	18×35.5	3054	18×40	3145
2700	12.5×16	1815					18×25	3420				
3300	12.5×20	2138	12.5×25	2489	12.5×35	3054	16×31.5	3325	18×40	3240		
3300					16×25	3107	18×25	3420				
3900	12.5×20	2138	12.5×30	2955	16×31.5	3325	16×35.5	3430				
3900			16×20	2779	18×25	3135	18×31.5	3430				
4700	12.5×25	2489	12.5×30	2955	18×25	3420	16×40	3496				
4700			16×25	3107			18×35.5	3496				
5600	12.5×25	2489	12.5×35	3054	18×31.5	3430						
5600			16×25	3107								
6800	12.5×30	2955	16×31.5	3325	18×35.5	3496						
6800	16×25	3107	18×25	3420								
8200	12.5×40	3325	16×35.5	3430	18×40	3548						
8200	16×25	3107	18×31.5	3430								
10000	16×31.5	3325	18×35.5	3496								
10000	18×25	3420										

■ Standard Size

Voltage (V)	80		100		120		160		200		250		
	Items Capacitance (μF)	Size D×L(mm)	Ripple Current (mA/r.m.s /105°C100KHz)	Size D×L(mm)	Ripple Current (mA/r.m.s /105°C100KHz)	Size D×L(mm)	Ripple Current (mA/r.m.s /105°C100KHz)	Size D×L(mm)	Ripple Current (mA/r.m.s /105°C100KHz)	Size D×L(mm)	Ripple Current (mA/r.m.s /105°C100KHz)	Size D×L(mm)	Ripple Current (mA/r.m.s /105°C100KHz)
0.47		5×9	22	5×9	22	5×9	22						
1.0		5×9	32	5×9	32	5×9	32	5×11	48	5×11	48	6.3×9	90
1.2						5×9	32	5×11	52	5×11	52	6.3×9	90
1.5						5×9	40	5×11	57	5×11	57	6.3×9	90
1.8		5×9	40	5×9	40	5×9	40	5×11	62	5×11	62	6.3×9	90
2.2		5×9	44	5×9	44	5×9	44	5×11	71	5×11	71	6.3×9	99
2.7		5×9	51	5×9	51	5×9	51	5×11	76	5×11	76	6.3×9	107
3.3		5×9	58	5×9	58	5×9	58	5×11	86	6.3×9	90	6.3×9	107
3.9		5×9	76	5×9	76	5×9	76	5×11	86	6.3×9	99	6.3×9	107
4.7		5×9	95	5×9	95	5×9	95	6.3×9	99	6.3×11	109	6.3×11	119
4.7										8×9	99	8×9	128
5.6		5×9	100	5×11	100	5×11	100	6.3×9	99	6.3×11	109	8×9	128
5.6										8×9	128		
6.8		5×9	105	5×11	105	5×11	105	6.3×9	116	8×9	128	8×9	128
8.2		5×9	119	5×11	119	5×11	119	6.3×11	119	8×9	128	8×11.5	143
8.2								8×9	124			10×9	143
10		5×9	128	5×11	128	6.3×9	128	8×9	124	8×11.5	143	8×11.5	143
10										10×9	143	10×9	143
12		5×11	143	6.3×9	205	6.3×9	155	8×11.5	128	8×14	200	8×14	210
15		5×11	143	6.3×9	205	6.3×11	185	8×11.5	128	8×16	238	8×16	238
15						8×9	185	10×9	133	10×12.5	247	10×12.5	233
18		6.3×9	205	6.3×11	228	8×9	205	8×11.5	128	8×20	299	8×20	299
18				8×9	205			10×9	133	10×14	276	10×14	276
22		6.3×9	205	6.3×11	228	8×9	205	8×16	238	8×20	299	8×20	299
22				8×9	205			10×12.5	233	10×14	276	10×14	276
27		6.3×11	228	8×9	351	8×11.5	351						
27		8×9	247										
33		6.3×11	228	8×11.5	390	8×11.5	351	8×20	299	10×20	546	10×20	546
33		8×9	247	10×9	351	10×9	351	10×14	428	12.5×14	637	12.5×14	618
39		8×9	247	8×11.5	390	8×14	390						
39				10×9	351	10×12.5	390						
47		8×11.5	390	8×16	485	8×16	430	10×20	551	12.5×20	827	12.5×20	827
47		10×9	428	10×12.5	485	10×12.5	430	12.5×14	618				
56		8×11.5	390	8×16	485	8×20	485	10×20	551	12.5×20	827	12.5×20	827
56		10×9	428	10×12.5	537	10×14	537	12.5×14	637				
68		8×11.5	390	8×20	627	8×23	627	10×23	732	12.5×25	1093	12.5×25	1093
68		10×9	428	10×14	627	10×16	627	12.5×16	637	16×20	1140	16×20	1140
82		8×16	485	8×20	627	10×16	627	10×23	732	12.5×25	1093	12.5×25	1093
82		10×12.5	537	10×16	675	12.5×14	675	12.5×20	988	16×20	1140	16×20	1140

■ Standard Size

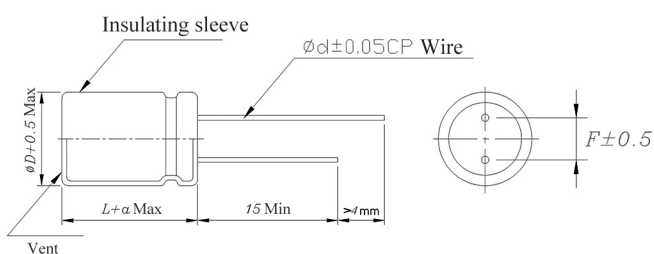
Voltage (V)	80		100		120		160		200		250	
Items	Size	Ripple Current	Size	Ripple Current	Size	Ripple Current	Size	Ripple Current	Size	Ripple Current	Size	Ripple Current
Capacitance (μF)	D×L(mm)	(mA/r.m.s /105°C100KHz)	D×L(mm)	(mA/r.m.s /105°C100KHz)	D×L(mm)	(mA/r.m.s /105°C100KHz)	D×L(mm)	(mA/r.m.s /105°C100KHz)	D×L(mm)	(mA/r.m.s /105°C100KHz)	D×L(mm)	(mA/r.m.s /105°C100KHz)
100	8×16	485	10×16	675	10×20	675	12.5×20	988	12.5×25	1093	12.5×30	1197
100	10×12.5	537	12.5×14	791	12.5×16	791			16×20	1140	16×25	1283
120	8×20	627	10×20	903	10×23	810	12.5×25	1197	12.5×30	1368	16×25	1283
120	10×14	675	12.5×14	791	12.5×16	791	16×20	1197	16×25	1587		
150	10×16	675	10×20	903	12.5×20	903	12.5×30	1520	16×25	1587	16×31.5	1691
150	12.5×14	791	12.5×16	836			16×25	1587			18×25	1644
180	10×20	903	12.5×20	1226	12.5×25	1226	12.5×35	1634	16×35.5	1924	16×35.5	1924
180	12.5×14	791					16×25	1587	18×25	2090	18×31.5	1924
220	10×20	1002	12.5×20	1226	16×20	1226	16×31.5	2052	18×31.5	2280	18×35.5	2247
220	12.5×16	1093					18×25	1986				
270	12.5×20	1226	12.5×25	1387	12.5×30	1387						
270					16×20	1387						
330	12.5×20	1226	12.5×30	1672	16×25	1672	18×31.5	2280				
330			16×20	1482	18×20	1482						
390	12.5×25	1387	12.5×35	1834	16×31.5	1834	18×31.5	2708				
390			16×25	1891	18×25	1891						
470	12.5×25	1387	16×25	1891	16×31.5	1891						
470	16×20	1482	18×20	1900	18×25	1891						
560	12.5×30	1672	16×31.5	2052	16×35.5	2052						
560	16×25	1891	18×25	1948	18×31.5	1948						
680	12.5×35	1834	16×35.5	2223	18×35.5	2223						
680	16×25	1891	18×31.5	2119								
820	16×31.5	2052	16×40	2451								
820	18×25	1948	18×35.5	3002								
1000	16×35.5	2223	18×40	3002								
1000	18×31.5	2119										
1200	16×40	2451										
1200	18×31.5	2822										
1500	18×35.5	3002										
1800	18×40	3002										

■ Standard Size

Voltage (V)	350		400		450		500	
Items	Size	Ripple Current	Size	Ripple Current	Size	Ripple Current	Size	Ripple Current
Capacitance (μF)	D×L(mm)	(mA/r.m.s /105°C100KHz)	D×L(mm)	(mA/r.m.s /105°C100KHz)	D×L(mm)	(mA/r.m.s /105°C100KHz)	D×L(mm)	(mA/r.m.s /105°C100KHz)
1.0	6.3×9	65	6.3×9	65	6.3×9	73	6.3×11	38
1.2	6.3×9	90	6.3×9	73	6.3×9	73	6.3×11	38
1.5	6.3×9	90	6.3×9	73	6.3×9	81	6.3×11	38
1.8	6.3×9	99	6.3×9	86	6.3×11	86	8×9	68
1.8					8×9	86		
2.2	6.3×9	114	6.3×9	86	8×9	86	8×11.5	68
2.7	6.3×11	114	6.3×11	105	8×9	86	8×11.5	72
2.7	8×9	124	8×9	111				
3.3	6.3×11	114	6.3×12	105	8×11.5	124	8×11.5	72
3.3	8×9	124	8×9	111	10×9	111		
3.9	6.3×11	114	6.3×12	105	8×11.5	124	8×14	88
3.9	8×9	124			10×9	111		
4.7	6.3×12	114	6.3×12	114	8×11.5	124	8×16	95
4.7	8×9	124	8×11.5	128	10×9	119	10×12.5	95
5.6	8×11.5	128	8×14	171	8×16	128	10×14	110
5.6	10×9	143	10×9	152	10×12.5	171		
6.8	8×11.5	128	8×16	171	8×20	190	10×14	110
6.8	10×9	143	10×12.5	171	10×12.5	171		
8.2	8×16	171	8×16	171	8×20	190	10×16	145
8.2	10×12.5	181	10×12.5	171	10×14	195		
10	8×16	171	8×20	238	10×16	264	10×20	210
10	10×12.5	209	10×14	238	12.5×14	295	12.5×14	220
12	10×14	230	10×16	260	10×20	275	12.5×16	228
15	10×16	266	10×20	295	10×20	295	12.5×16	228
15	12.5×14	504	12.5×14	295	12.5×16	314		
18	10×20	523	10×20	295	12.5×20	390	12.5×20	275
18	12.5×14	504	12.5×16	314				
22	12.5×16	570	12.5×20	475	12.5×20	390	12.5×25	400
33	12.5×20	822	12.5×25	637	12.5×25	618	12.5×30	485
33			16×20	637	16×20	618		
47	12.5×25	912	12.5×30	983	12.5×35	903	12.5×35	600
47	16×20	950	16×25	983	16×25	903	16×25	600
56	12.5×25	912	16×25	983	16×31.5	1045	16×31.5	615
56	16×20	950	18×20	1216	18×25	1007		
68	16×25	1093	16×31.5	1249	16×35.5	1178	16×35.5	720
68	18×20	1264	18×25	1264	18×31.5	1226	18×31.5	720
82	16×31.5	1330	16×35.5	1634	16×40	1435	18×35.5	940
82	18×25	1520	18×31.5	1634	18×31.5	1226		
100	16×31.5	1910	18×31.5	1910	18×35.5	1416	18×40	969

Standard Size

Voltage (V)	350		400		450		500	
Items	Size	Ripple Current	Size	Ripple Current	Size	Ripple Current	Size	Ripple Current
Capacitance (μF)	D×L(mm)	(mA/r.m.s /105°C100KHz)	D×L(mm)	(mA/r.m.s /105°C100KHz)	D×L(mm)	(mA/r.m.s /105°C100KHz)	D×L(mm)	(mA/r.m.s /105°C100KHz)
100	18×25	1910						
120	16×35.5	1910	18×35.5	2088	18×40	1653	18×45	1292
120	18×31.5	1910						
150	18×35.5	2328	18×40	2320	18×45	1853		

Standard Size (Unit: mm)


L=9	a=1.0
L≤16	a=1.5
L>16	a=2.0

D	5	6.3	8	10	12.5	16	18
d	0.5	0.5	0.6	0.6	0.6	0.8	0.8
F	2.0	2.5	3.5	5.0	5.0	7.5	7.5

Remark: capacitors with diameter more than 6.3 have safety vent

Ripple Current Correction Factor
① Frequency Correction Factor

Frequency(Hz)		50	120	1K	10K~50K	100K
Coefficient	0.47~8.2	0.26	0.40	0.70	0.90	1.00
	10~82	0.41	0.55	0.83	0.94	1.00
	100~1800	0.54	0.67	0.87	0.96	1.00
	2200 and above	0.78	0.92	0.97	0.99	1.00

② Temperature Correction Factor

Environment Temperature(°C)	50°C	70°C	85°C	105°C
Correction Factor	1.9	1.6	1.3	1.0