

GHZ Low Impedance & Long Life

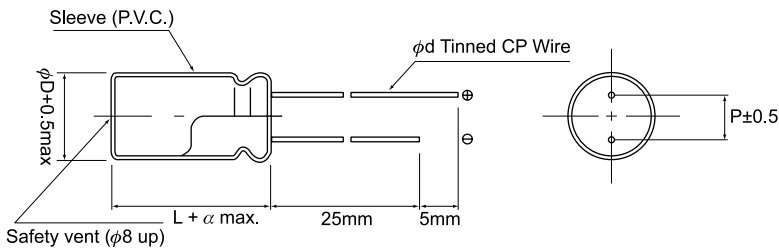
- Low impedance & high ripple current at high frequency.
- Suitable for switching power circuits application.
- Life guaranteed 2,000~5,000 hours at 105°C



• Specifications

Item	Performance Characteristics										
Operating Temperature range	-55 + 105°C										
Rated Voltage	6.3V ~ 100V										
Capacitance Range	0.47 ~ 15,000 µF										
Capacitance Tolerance	±20% (120Hz, 20°C)										
Leakage Current	I ≤ 0.03CV or 4 µA, whichever is greater after 2 minutes application of rated voltage.										
Dissipation Factor (120Hz, 20°C)	Rated voltage (V)	6.3	10	16	25	35	50	63	100		
	Tan δ (max.)	0.22	0.19	0.16	0.14	0.12	0.10	0.08	0.08		
For capacitance of more than 1,000 µF, add 0.02 for every increase of 1,000 µF.											
Temperature Characteristics (120Hz)	Impedance Ratio / Stability at Low Temperature										
	Rated voltage (V)		6.3	10	16	25	35	50	63	100	
	ZT / Z20 (max.)	Z -55°C/Z+55°C	4	4	3	3	3	2	2	2	
Load Life	After the specify hours application of rated voltage and ripple current at 105°C, capacitor shall meet the characteristics requirements mentioned below. 5 ~ 6φ : 2,000 hours 8φ : 3,000 hours ≥ 10φ : 5,000 hours										
	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	At 105°C, no voltage applied for 1,000 hours, the capacitor shall meet the limits as in load life.										

• Dimension (mm)



Dφ	5	6.3	8	10	13	16	18
P	2.0	2.5	3.5	5.0	5.0	7.5	7.5
φd	0.5		0.6		0.8		
α	L < 20 : 1.5 mm, L ≥ 20 : 2.0 mm						

• Frequency coefficient of allowable ripple current

Cap (µF) \ Frequency	50 Hz	120 Hz	300 Hz	1 KHz	10 KHz ~
~ 47	-	0.17	0.40	0.65	1.00
100 ~ 220	0.30	0.50	0.65	0.80	1.00
330 ~ 680	0.57	0.71	0.82	0.90	1.00
1000 ~ 15000	0.75	0.87	0.96	0.98	1.00

• Standard Products Table

Dφ x L (mm)

Cap (μF)	WV	6.3			10			16			25		
		Size	Imp.	Ripple	Size	Imp.	Ripple	Size	Imp.	Ripple	Size	Imp.	Ripple
33											5 x 11	0.80	155
39											5 x 11	0.65	175
47								5 x 11	0.80	155	6.3 x 11	0.55	210
56								5 x 11	0.65	175	6.3 x 11	0.44	235
68					5 x 11	0.80	155	6.3 x 11	0.50	220	6.3 x 11	0.36	260
82					5 x 11	0.65	175	6.3 x 11	0.42	240	6.3 x 11	0.30	285
100		5 x 11	0.85	150	6.3 x 11	0.55	210	6.3 x 11	0.35	265	6.3 x 15	0.24	370
120		5 x 11	0.65	175	6.3 x 11	0.44	235	6.3 x 11	0.29	290	6.3 x 15	0.20	405
150		6.3 x 11	0.49	225	6.3 x 11	0.35	265	6.3 x 15	0.23	375	8 x 11	0.16	460
220		6.3 x 11	0.30	285	6.3 x 15	0.24	370	8 x 11	0.16	460	8 x 15	0.11	625
											10 x 12	0.13	600
270		6.3 x 15	0.24	370	6.3 x 15	0.20	405	8 x 15	0.14	550	8 x 20	0.095	750
								10 x 12	0.14	575	10 x 11	0.11	700
330		6.3 x 15	0.20	405	8 x 11	0.16	460	8 x 15	0.12	595	8 x 20	0.085	795
								10 x 12	0.12	625	10 x 15	0.095	750
390		8 x 11	0.17	445	8 x 15	0.14	550	8 x 20	0.10	730	10 x 20	0.070	985
					10 x 12	0.15	555	10 x 15	0.10	730	13 x 15	0.080	920
470		8 x 15	0.14	550	8 x 15	0.12	595	8 x 20	0.090	770	10 x 20	0.065	1020
		10 x 12	0.14	550	10 x 12	0.13	600	10 x 15	0.090	770	13 x 15	0.070	985
560		8 x 15	0.12	595	8 x 20	0.10	730	10 x 20	0.075	950	10 x 25	0.055	1220
		10 x 12	0.13	600	10 x 15	0.11	700	13 x 15	0.080	920	13 x 15	0.060	1060
680		8 x 20	0.10	730	8 x 20	0.085	795	10 x 20	0.065	1020	10 x 31	0.046	1420
		10 x 15	0.11	700	10 x 15	0.090	770	13 x 15	0.070	985	16 x 15	0.055	1270
820		8 x 20	0.085	795	10 x 20	0.070	985	10 x 25	0.055	1220	13 x 20	0.041	1430
		10 x 15	0.095	750	13 x 15	0.080	920	13 x 15	0.060	1060	16 x 15	0.049	1340
1000		10 x 20	0.075	950	10 x 20	0.060	1060	10 x 31	0.047	1410	13 x 25	0.036	1660
		13 x 15	0.085	890	13 x 15	0.065	1040	16 x 15	0.055	1270	18 x 15	0.043	1520
1200		10 x 20	0.065	1020	10 x 25	0.050	1280	13 x 20	0.041	1430	13 x 25	0.032	1760
		13 x 15	0.075	950	13 x 15	0.060	1060	16 x 15	0.046	1390	18 x 15	0.039	1600
1500		10 x 25	0.055	1220	10 x 31	0.045	1440	13 x 25	0.036	1660	13 x 31	0.029	1980
		13 x 15	0.065	1020	16 x 15	0.050	1330	18 x 15	0.041	1560	16 x 20	0.034	1770
1800		10 x 31	0.050	1370	13 x 20	0.039	1470	13 x 31	0.032	1880	13 x 35	0.026	2180
		16 x 15	0.055	1270	16 x 15	0.044	1420	16 x 20	0.037	1700	16 x 25	0.031	1980
2200		10 x 31	0.043	1470	13 x 25	0.034	1710	13 x 31	0.028	2010	13 x 40	0.024	2360
		16 x 15	0.049	1340	18 x 15	0.039	1600	16 x 20	0.033	1800	18 x 20	0.028	2050
2700		13 x 25	0.038	1590	13 x 31	0.030	1940	13 x 35	0.025	2220	16 x 31	0.022	2470
		18 x 15	0.044	1500	16 x 20	0.035	1740	16 x 25	0.030	2010	18 x 25	0.025	2290
3300		13 x 25	0.034	1710	13 x 35	0.026	2180	13 x 40	0.023	2410	16 x 35	0.020	2680
		18 x 15	0.039	1600	16 x 20	0.031	1850	18 x 20	0.027	2090	18 x 31	0.023	2490
3900		13 x 31	0.031	1910	13 x 40	0.024	2360	16 x 31	0.022	2470	16 x 40	0.019	2820
		16 x 20	0.036	1720	18 x 20	0.028	2050	18 x 25	0.025	2290	18 x 36	0.021	2690
4700		13 x 35	0.028	2100	16 x 31	0.023	2420	16 x 35	0.020	2680	18 x 40	0.018	2960
		18 x 20	0.032	1920	18 x 25	0.026	2250	18 x 31	0.023	2490			
5600		13 x 40	0.026	2270	16 x 35	0.021	2610	16 x 40	0.019	2820			
		18 x 20	0.030	1980	18 x 25	0.024	2340	18 x 35	0.022	2620			
6800		16 x 31	0.024	2370	16 x 35	0.020	2680	18 x 35	0.018	2900			
		18 x 25	0.027	2210	18 x 31	0.022	2540						
8200		16 x 35	0.022	2550	16 x 40	0.019	2820	18 x 40	0.017	3040			
		18 x 31	0.025	2390	18 x 36	0.021	2690						
10000		16 x 40	0.020	2750	18 x 40	0.017	3040						
		18 x 31	0.023	2490									
12000		18 x 35	0.019	2820									
15000		18 x 40	0.018	2960									

- Allowable ripple current: (mA) at 105°C 100KHz
- Impedance: (Ω) Max. 20°C 100KHz

• Standard Products Table

Dφ x L (mm)

WV Cap (μF)	35V			50V			63V			100V		
	Size	Imp.	Ripple	Size	Imp.	Ripple	Size	Imp.	Ripple	Size	Imp.	Ripple
0.47				5 x 11	23.0	22				5 x 11	43.0	17
1				5 x 11	11.0	36				5 x 11	17.0	27
2.2				5 x 11	5.0	54				5 x 11	6.60	43
3.3				5 x 11	3.3	66				5 x 11	4.10	54
4.7				5 x 11	2.2	81				6.3 x 11	2.80	68
10				5 x 11	1.4	115	5 x 11	1.06	135	6.3 x 11	1.20	104
15				5 x 11	0.93	145	6.3 x 11	0.73	185	6.3 x 15	0.81	131
22	5 x 11	0.75	160	6.3 x 11	0.65	195	6.3 x 11	0.52	215	8 x 11	0.55	230
27	5 x 11	0.60	180	6.3 x 11	0.53	215	6.3 x 11	0.43	240	8 x 15	0.47	269
33	6.3 x 11	0.49	225	6.3 x 11	0.43	240	6.3 x 15	0.35	305	8 x 15	0.38	299
39	6.3 x 11	0.41	245	6.3 x 11	0.36	260	6.3 x 15	0.30	330	10 x 16	0.36	337
47	6.3 x 11	0.34	270	6.3 x 15	0.30	330	8 x 11	0.25	365	10 x 20	0.28	423
										13 x 15	0.31	402
56	6.3 x 11	0.28	295	6.3 x 15	0.25	360	8 x 15	0.21	450	10 x 20	0.24	456
							10 x 12	0.23	450	13 x 15	0.27	430
68	6.3 x 15	0.24	370	8 x 11	0.20	410	8 x 15	0.17	500	10 x 25	0.21	526
							10 x 12	0.19	495	13 x 15	0.23	466
82	6.3 x 15	0.19	415	8 x 15	0.17	500	8 x 20	0.15	600	10 x 31	0.18	606
				10 x 12	0.18	510	10 x 15	0.16	580	16 x 15	0.19	681
100	8 x 11	0.16	460	8 x 20	0.14	620	10 x 20	0.12	750	10 x 31	0.15	663
				10 x 15	0.16	580	13 x 15	0.14	695	16 x 15	0.17	719
120	8 x 15	0.14	550	8 x 20	0.12	670	10 x 20	0.10	820	13 x 25	0.13	774
	10 x 12	0.15	555	10 x 15	0.13	640	13 x 15	0.12	750	16 x 15	0.14	793
150	8 x 15	0.12	595	10 x 20	0.10	820	10 x 25	0.090	950	13 x 25	0.11	798
	10 x 12	0.12	625	13 x 15	0.11	785	13 x 15	0.095	845	18 x 15	0.12	917
180	8 x 20	0.10	730	10 x 20	0.085	890	10 x 31	0.075	1110	13 x 31	0.098	904
	10 x 15	0.11	700	13 x 15	0.095	845	16 x 15	0.080	1050	16 x 20	0.11	995
220	8 x 20	0.085	795	10 x 25	0.075	1040	13 x 20	0.065	1140	13 x 35	0.087	1000
	10 x 15	0.090	770	13 x 15	0.080	920	16 x 15	0.070	1120	16 x 25	0.093	1170
270	10 x 20	0.070	985	10 x 31	0.065	1200	13 x 25	0.055	1340	13 x 40	0.072	1130
	13 x 15	0.080	920	16 x 15	0.070	1120	18 x 15	0.060	1290	18 x 20	0.080	1230
330	10 x 20	0.060	1060	10 x 31	0.055	1300	13 x 25	0.049	1420	16 x 32	0.062	1520
	13 x 15	0.065	1020	16 x 15	0.060	1210	18 x 15	0.050	1410	18 x 25	0.070	1420
390	10 x 25	0.055	1220	13 x 25	0.048	1440	13 x 31	0.043	1620	16 x 35	0.053	1730
	13 x 15	0.060	1060	16 x 15	0.055	1270	16 x 20	0.047	1500	18 x 31	0.062	1600
470	10 x 31	0.046	1420	13 x 25	0.044	1500	13 x 35	0.039	1780	16 x 40	0.047	1920
	16 x 15	0.055	1270	18 x 15	0.046	1470	16 x 25	0.042	1700	18 x 35	0.056	1770
560	13 x 20	0.041	1430	13 x 31	0.040	1680	13 x 40	0.035	1950	18 x 35	0.041	2070
	16 x 15	0.048	1360	16 x 20	0.044	1550	18 x 20	0.039	1730			
680	13 x 25	0.036	1660	13 x 35	0.036	1850	16 x 32	0.032	2050	18 x 40	0.036	2300
	18 x 15	0.042	1540	16 x 20	0.040	1630	18 x 25	0.035	1940			
820	13 x 25	0.032	1760	13 x 40	0.033	2010	16 x 35	0.029	2220			
	18 x 15	0.038	1620	18 x 20	0.036	1810	18 x 31	0.032	2110			
1000	13 x 31	0.029	1980	16 x 31	0.030	2120	16 x 40	0.027	2370			
	16 x 20	0.034	1770	18 x 25	0.033	2000	18 x 35	0.029	2280			
1200	13 x 35	0.026	2180	16 x 35	0.028	2260	18 x 40	0.025	2510			
	16 x 25	0.031	1980	18 x 31	0.031	2140						
1500	13 x 40	0.024	2360	16 x 40	0.026	2410						
	18 x 20	0.028	2050	18 x 31	0.029	2220						
1800	16 x 31	0.022	2470	18 x 35	0.025	2460						
	18 x 25	0.025	2290									
2200	16 x 35	0.020	2680	18 x 40	0.024	2560						
	18 x 31	0.023	2490									
2700	16 x 40	0.018	2900									
	18 x 35	0.021	2690									
3300	18 x 40	0.017	3040									

- Allowable ripple current: (mA) at 105°C 100KHz
- Impedance: (Ω) Max. 20°C 100KHz