

- High Ripple, Low Impedance, High Reliability withstanding 5000 hours load life at 105°C.
- 高紋波低阻抗，高可靠性承受5000小時負載壽命在105°C

■ SPECIFICATIONS 規格表

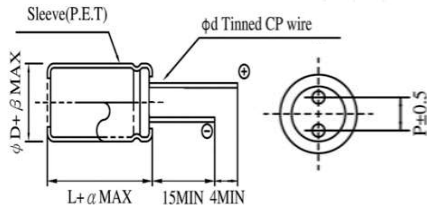
Item	Performance Characteristics 特性																													
Operating Temperature Range 工作溫度範圍	-40 ~ +105°C																													
Voltage Range 額定電壓範圍	6.3 ~ 100V																													
Capacitance Tolerance 靜電容量容許差	±20% at 120Hz, 20°C																													
Leakage Current 漏電流	After 1 minute application of rated voltage, leakage current is lower than 0.03CV or 4(μA), whichever is greater. I = 0.03CV或4 (μA) 以下 (1分鐘) I = Leakage Current (漏電流) C = Capacitance (靜電容量) V = Rated Voltage (額定電壓)																													
Tangent of loss angle 損失角正切值	For capacitance of more than 1000 μF, add 0.02 for every increase of 1000 μF 對於超過1000 μF產品，每增加1000 μF，其值增加0.02 <table border="1"> <thead> <tr> <th>Rated voltage (V) 額定電壓</th> <th>6.3</th> <th>10</th> <th>16</th> <th>25</th> <th>35</th> <th>50</th> <th>63</th> <th>100</th> </tr> </thead> <tbody> <tr> <td>Tanδ (MAX)</td> <td>0.22</td> <td>0.19</td> <td>0.16</td> <td>0.14</td> <td>0.12</td> <td>0.10</td> <td>0.09</td> <td>0.08</td> </tr> </tbody> </table> (Frequency : 120Hz , Temperature : 20°C)	Rated voltage (V) 額定電壓	6.3	10	16	25	35	50	63	100	Tanδ (MAX)	0.22	0.19	0.16	0.14	0.12	0.10	0.09	0.08											
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Rated voltage (V)		6.3	10	16	25	35	50	63	100																					
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	Z-40°C/Z+20°C	8	6	4	3	3	3	3	3																					
Endurance 耐久性	After applying rated voltage with rated ripple current for specified time at 105°C, the capacitors shall meet the following requirements. 在105°C環境中，不超過額定電壓的範圍內疊加額定紋波電流，連續加載表內時間後，符合下列要求 <table border="1"> <thead> <tr> <th>Case size 鋁殼尺寸</th> <th>Life time 時間(hrs)</th> <th>Capacitance Change 靜電容量變化率</th> <th>Within ±20% of initial Value 初期值的±20%以內</th> </tr> </thead> <tbody> <tr> <td>φD≤6.3</td> <td>2000</td> <td>Tangent of loss angle (Tanδ) 損失角正切值</td> <td>Not exceeding 200% of initial specified value 規格值200%以下</td> </tr> <tr> <td>φD=8、10</td> <td>3000</td> <td>Leakage current 漏電流</td> <td>Not exceeding of initial specified value 規格值以下</td> </tr> <tr> <td>φD≥12.5</td> <td>5000</td> <td></td> <td></td> </tr> </tbody> </table>	Case size 鋁殼尺寸	Life time 時間(hrs)	Capacitance Change 靜電容量變化率	Within ±20% of initial Value 初期值的±20%以內	φD≤6.3	2000	Tangent of loss angle (Tanδ) 損失角正切值	Not exceeding 200% of initial specified value 規格值200%以下	φD=8、10	3000	Leakage current 漏電流	Not exceeding of initial specified value 規格值以下	φD≥12.5	5000															
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Shelf Life 高溫無負荷	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. 在105°C下無負荷放置1000小時後，在20 °C下依據JIS C 5101-4 4.1項進行電壓處理後，將滿足以上耐久性的特性值																													

■ Frequency Coefficient of Allowable Ripple Current 容許紋波電流的頻率係數

V	Frequency	50Hz	120Hz	300Hz	1KHz	10KHz ~
	Cap(μF)					
6.3~100	0.47~47	0.20	0.30	0.50	0.80	1.00
	68~330	0.55	0.65	0.75	0.85	1.00
	390~1000	0.70	0.75	0.80	0.90	1.00
	1200~15000	0.80	0.85	0.90	0.95	1.00

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■ RADIAL LEAD TYPE 尺寸圖



ΦD	4	5	6.3	8	10	12.5	16	18
P	1.5	2.0	2.5	3.5	5.0	5.0	7.5	7.5
Φd	0.45	0.5	0.5 (0.45)	0.6	0.6	*0.6	0.8	0.8
β	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
α	L = 7 : 1.0							
	L < 20 : 1.5							
	L ≥ 20 : 2.0							

※In case L ≥ 35 for the φ12.5 dia. unit, lead dia. φd = 0.8mm

※() Applied to 7mL products

■ DIMENSIONS 尺寸

Rated Ripple Current (mA r.m.s. at 105°C, 100KHz)

W.V S.V	Item	Size D x L (mm)	Ripple	6.3V 8V		Size D x L (mm)	Ripple	10V 13V	
				Impedance (ΩMAX)				Impedance (ΩMAX)	
				20°C/100KHz	-10°C/100KHz			20°C/100KHz	-10°C/100KHz
22	5 x 11	180	0.60	2.32	4 x 7	65	2.00	5.00	
27	4 x 7	65	2.00	5.00	5 x 11	180	0.60	2.32	
33	5 x 11	180	0.60	2.32	5 x 11	180	0.60	2.32	
47	5 x 11	180	0.60	2.32	5 x 11	180	0.60	2.32	
82					5 x 11	180	0.60	2.32	
100	5 x 11	180	0.60	2.32	6.3 x 7	200	0.45	1.20	
120	6.3 x 7	200	0.45	1.20	5 x 11	180	0.60	2.32	
150	6.3 x 11	290	0.25	0.875	6.3 x 7	200	0.45	1.20	
180	6.3 x 11	290	0.25	0.875	5 x 11	180	0.60	2.32	
220	6.3 x 11	290	0.25	0.875	6.3 x 11	290	0.25	0.875	
330	6.3 x 11	290	0.25	0.875	6.3 x 11	290	0.25	0.875	
470	8 x 11.5	555	0.117	0.525	8 x 11.5	555	0.117	0.525	
560	8 x 11.5	555	0.117	0.525	8 x 11.5	555	0.117	0.525	
680	10 x 12.5	755	0.090	0.325	8 x 15	730	0.085	0.350	
					10 x 12.5	755	0.090	0.325	
820	8 x 15	730	0.085	0.350					
	10 x 12.5	755	0.090	0.325					
1000	8 x 15	730	0.085	0.350	8 x 20	995	0.065	0.273	
	10 x 12.5	755	0.090	0.325	10 x 16	1050	0.068	0.246	
1200	8 x 20	995	0.065	0.273	10 x 20	1220	0.052	0.184	
	10 x 16	1050	0.068	0.246					
1500	10 x 20	1220	0.052	0.184	10 x 25	1440	0.045	0.176	
2200	10 x 25	1440	0.045	0.176	10 x 30.5	1815	0.035	0.127	
	12.5 x 20	1655	0.038	0.127	12.5 x 20	1655	0.038	0.127	
2700	10 x 30.5	1815	0.035	0.127	12.5 x 25	1945	0.030	0.089	
3300	12.5 x 20	1655	0.038	0.127	12.5 x 25	1945	0.030	0.089	
3900	12.5 x 25	1945	0.030	0.089	16 x 20	2205	0.029	0.078	
4700	12.5 x 30.5	2310	0.025	0.078	16 x 25	2555	0.022	0.064	
5600	16 x 20	2205	0.029	0.078	16 x 25	2555	0.022	0.064	
6800	16 x 25	2555	0.022	0.064	18 x 25	2740	0.020	0.049	
8200	16 x 30.5	3010	0.018	0.053	18 x 30.5	3635	0.016	0.040	
10000	18 x 25	2740	0.020	0.049	18 x 35.5	3680	0.015	0.038	
15000	18 x 35.5	3680	0.015	0.038	18 x 40	3800	0.014	0.032	

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■ DIMENSIONS 尺寸

Rated Ripple Current(mA r.m.s. at 105°C,100KHz)

Cap(μF)	Item	16V 20V				25V 32V			
		Size D x L(mm)	Ripple	Impedance(ΩMAX)		Size D x L(mm)	Ripple	Impedance(ΩMAX)	
				20°C/100KHz	-10°C/100KHz			20°C/100KHz	-10°C/100KHz
4.7									
10	4 x 7	65	2.00	5.00	4 x 7	65	2.00	5.00	
	5 x 11	180	0.60	2.32	5 x 11	180	0.60	2.32	
15	4 x 7	65	2.00	5.00	5 x 11	180	0.60	2.32	
22	5 x 11	180	0.60	2.32	5 x 11	180	0.60	2.32	
33	5 x 11	180	0.60	2.32	5 x 11	180	0.60	2.32	
	6.3 x 7	200	0.45	1.20					
47	5 x 11	180	0.60	2.32					
56	5 x 11	180	0.60	2.32	5 x 11	180	0.60	2.32	
	6.3 x 7	200	0.45	1.20					
82					6.3 x 11	290	0.25	0.875	
100	6.3 x 11	290	0.25	0.875	6.3 x 11	290	0.25	0.875	
120	6.3 x 11	290	0.25	0.875					
150	6.3 x 11	290	0.25	0.875	8 x 11.5	555	0.117	0.525	
220	8 x 11.5	555	0.117	0.525	8 x 11.5	555	0.117	0.525	
					8 x 15	730	0.085	0.350	
330	8 x 11.5	555	0.117	0.525	10 x 12.5	755	0.090	0.325	
					8 x 15	730	0.085	0.350	
470	10 x 12.5	755	0.090	0.325	8 x 20	995	0.065	0.273	
					10 x 16	1050	0.068	0.246	
560					10 x 16	1050	0.068	0.246	
680	8 x 20	995	0.065	0.273	8 x 20	995	0.065	0.273	
					10 x 16	1050	0.068	0.246	
820	10 x 20	1220	0.052	0.184	10 x 16	1050	0.068	0.246	
1000	10 x 20	1220	0.052	0.184	10 x 25	1440	0.045	0.176	
					10 x 30.5	1815	0.035	0.127	
					12.5 x 15	1000	0.060	0.120	
1200	10 x 25	1440	0.045	0.176					
1500	10 x 30.5	1815	0.035	0.127	12.5 x 25	1945	0.030	0.089	
					12.5 x 20	1655	0.038	0.127	
2200	12.5 x 25	1945	0.030	0.089	16 x 20	2205	0.029	0.078	
2700	12.5 x 30.5	2310	0.025	0.078	16 x 25	2555	0.022	0.064	
					16 x 20	2205	0.029	0.078	
3300	12.5 x 35.5	2450	0.023	0.070	12.5 x 35.5	2450	0.023	0.070	
					16 x 30.5	3010	0.018	0.053	
3900	16 x 25	2555	0.022	0.064	18 x 25	2740	0.020	0.049	
					16 x 35.5	3150	0.016	0.044	
					18 x 30.5	3635	0.016	0.040	
4700	16 x 30.5	3010	0.018	0.053	18 x 35.5	3680	0.015	0.038	
5600	18 x 30.5	3635	0.016	0.040					
					18 x 35.5	3680	0.015	0.038	
6800	18 x 35.5	3680	0.015	0.038	18 x 40	3800	0.014	0.032	
8200	18 x 35.5	3680	0.015	0.038					
10000	18 x 40	3800	0.014	0.032					

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Rated Ripple Current(mA r.m.s. at 105°C,100KHz)

W.V S.V	Item	Size D x L(mm)	Ripple	35V 44V		50V 63V			
				Impedance(QMAX)		Size D x L(mm)	Ripple	Impedance(QMAX)	
				20°C/100KHz	-10°C/100KHz			20°C/100KHz	-10°C/100KHz
0.47						5 x 11	25	5.00	10.0
1.0						5 x 11	40	3.50	7.00
2.2						5 x 11	55	3.00	6.00
3.3						5 x 11	65	2.60	5.20
4.7		5 x 11	180	0.60	2.32	5 x 11	90	2.30	4.60
10		5 x 11	180	0.60	2.32	5 x 11	120	1.40	3.00
22		5 x 11	180	0.60	2.32	5 x 11	170	1.40	2.80
33		5 x 11	180	0.60	2.32	6.3 x 11	300	0.43	0.86
47		6.3 x 11	290	0.25	0.875	6.3 x 11	300	0.43	0.86
56		6.3 x 11	290	0.25	0.875				
100		8 x 11.5	555	0.117	0.525	8 x 11.5	485	0.234	0.68
						10 x 12.5	615	0.162	0.48
120		8 x 11.5	555	0.117	0.525	8 x 15	635	0.155	0.48
150		8 x 11.5	555	0.117	0.525	10 x 12.5	615	0.162	0.48
180						8 x 20	860	0.120	0.36
						10 x 16	850	0.119	0.348
220		8 x 15	730	0.085	0.350	10 x 16	850	0.119	0.348
		10 x 12.5	755	0.090	0.325	10 x 20	1030	0.090	0.24
330		8 x 20	995	0.065	0.273	10 x 20	1030	0.090	0.24
		10 x 16	1050	0.068	0.246				
470		10 x 20	1220	0.052	0.184	10 x 25	1200	0.082	0.224
		12.5 x 15	1000	0.060	0.120	12.5 x 20	1500	0.060	0.156
560		10 x 25	1440	0.045	0.176	12.5 x 25	1832	0.050	0.11
680		10 x 30.5	1815	0.035	0.127	12.5 x 25	1832	0.050	0.11
		12.5 x 20	1655	0.038	0.127	16 x 20	1835	0.048	0.106
820		12.5 x 20	1655	0.038	0.127				
1000		12.5 x 25	1945	0.030	0.089	16 x 25	2235	0.034	0.078
1200		12.5 x 30.5	2310	0.025	0.078	16 x 30.5	2700	0.028	0.066
		16 x 20	2205	0.029	0.078				
1500		16 x 25	2555	0.022	0.064	16 x 30.5	2700	0.028	0.066
1800		16 x 25	2555	0.022	0.064	18 x 30.5	3000	0.025	0.057
2200		16 x 30.5	3010	0.018	0.053	18 x 35.5	3100	0.023	0.046
		18 x 25	2740	0.020	0.049				
2700		16 x 35.5	3150	0.016	0.044	18 x 35.5	3100	0.023	0.046
		18 x 30.5	3635	0.016	0.040				
3300		18 x 35.5	3680	0.015	0.038	18 x 40	3500	0.018	0.035
4700		18 x 40	3800	0.014	0.032				

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Rated Ripple Current(mA r.m.s. at 105°C,100KHz)

Cap(μF)	Item	Size D x L(mm)	Ripple	63V 79V		100V 125V			
				Impedance(QMAX)		Size D x L(mm)	Ripple	Impedance(QMAX)	
				20°C/100KHz	-10°C/100KHz			20°C/100KHz	-10°C/100KHz
0.47						5 x 11	20	43.0	86.0
1.0						5 x 11	30	20.0	40.0
2.2						5 x 11	44	9.80	19.6
3.3						5 x 11	58	6.60	13.2
4.7		5 x 11	68	4.70	11.4	5 x 11	74	4.60	9.2
6.8		5 x 11	95	2.50	7.50	5 x 11	95	3.50	9.0
10		5 x 11	110	2.10	6.20	6.3 x 11	130	1.80	4.6
12		5 x 11	145	2.00	6.00				
15		6.3 x 11	160	1.20	3.40	8 x 11.5	180	0.83	2.8
22		6.3 x 11	250	0.85	2.42	8 x 11.5	230	0.68	2.1
33		6.3 x 11	250	0.85	2.42	8 x 15	360	0.45	2.1
						10 x 12.5	320	0.46	1.8
47		8 x 11.5	405	0.63	1.68	8 x 20	420	0.37	1.64
						10 x 16	420	0.37	1.46
68		8 x 11.5	405	0.63	1.68	10 x 20	490	0.30	0.96
82						10 x 25	540	0.25	0.75
100		8 x 15	535	0.36	2.04	12.5 x 20	580	0.18	0.66
		10 x 12.5	535	0.41	1.70				
120		10 x 16	600	0.28	1.45				
150		10 x 16	600	0.28	1.45	12.5 x 25	710	0.13	0.46
180		10 x 20	885	0.19	0.94	12.5 x 30.5	790	0.12	0.40
		12.5 x 15	1020	0.21	1.05	16 x 20	750	0.13	0.36
220		10 x 25	1050	0.16	0.76	16 x 25	890	0.10	0.28
						18 x 20	850	0.11	0.31
330		12.5 x 20	1285	0.15	0.64	16 x 25	1080	0.09	0.28
390		12.5 x 25	1720	0.092	0.45	18 x 25	1260	0.083	0.26
470		12.5 x 30.5	2090	0.105	0.40	16 x 30.5	1310	0.076	0.23
		16 x 20	1765	0.086	0.34				
560		12.5 x 35.5	2150	0.098	0.38	18 x 30.5	1370	0.068	0.186
680		16 x 25	2160	0.070	0.24	16 x 35.5	1410	0.064	0.188
820		16 x 30.5	2670	0.068	0.19	18 x 40	1520	0.047	0.125
		18 x 25	2585	0.050	0.21				
1000		16 x 30.5	2670	0.068	0.19	18 x 40	1520	0.047	0.125
1200		18 x 30.5	2950	0.045	0.165				
1500		18 x 35.5	3095	0.040	0.146				
2200		18 x 40	3200	0.035	0.125				