

ALUMINUM ELECTROLYTIC CAPACITORS

LZD series LOW IMPEDANCE, HIGH RELIABILITY

低阻抗，高信賴度

- Low impedance at 100KHz
100KHz 低阻抗
- Load life: 105°C 2000~5000 hours
壽命: 105°C 2000~5000 小時
- HIGH QUALITY
高品質

SPECIFICATIONS

Item 項目	Performance Characteristics 特性																						
Operating Temperature Range 工作溫度範圍	-55°C~105°C																						
Rated Voltage Range 額定電壓範圍	6.3~50W.V.																						
Capacitance Range 靜電容量範圍	0.22~18000uF																						
Capacitance Tolerance 靜電容量誤差	±20%, 120Hz, 20°C																						
Leakage Current 洩漏電流	<p>$I=0.01CV$ or $3\mu A$ whichever is greater.(after 2 minutes) $I=0.01CV$ or $3\mu A$ 取較大值.(2 分鐘後) I=Leakage Current(μA), C=Nominal Capacitance(μF), V=Rated Voltage(V) I=洩漏電流 (μA), C=額定容量(μF), V=額定電壓(V)</p>																						
Dissipation Factor ($\tan \delta$) 散逸因素 (損失角正切值)	<p>When nominal capacitance is over 1000uF, $\tan \delta$ shall be added 0.02 to the listed value with increase of every 1000uF, 額定容量超過 1000 μF 時, 額定容量每增加 1000 μF, 以下損失角增加 0.02.</p> <table border="1"> <tr> <td>Rated voltage 額定電壓 (V)</td> <td>6.3</td> <td>10</td> <td>16</td> <td>25</td> <td>35</td> <td>50</td> <td>MAX</td> </tr> <tr> <td>Tan δ 損失角正切值</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>(20°C 120Hz)</td> </tr> </table>	Rated voltage 額定電壓 (V)	6.3	10	16	25	35	50	MAX	Tan δ 損失角正切值	0.22	0.19	0.16	0.14	0.12	0.10	(20°C 120Hz)						
Rated voltage 額定電壓 (V)	6.3	10	16	25	35	50	MAX																
Tan δ 損失角正切值	0.22	0.19	0.16	0.14	0.12	0.10	(20°C 120Hz)																
Low Temperature Stability Impedance Ratio(MAX) 低溫特性阻抗比率	<table border="1"> <tr> <td>Rated Voltage 額定電壓(V)</td> <td>6.3</td> <td>10</td> <td>16</td> <td>25</td> <td>35</td> <td>50</td> <td rowspan="3">MAX (120Hz)</td> </tr> <tr> <td>Z(-25°C)/Z(+20°C)</td> <td>4</td> <td>3</td> <td>2</td> <td>2</td> <td>2</td> <td>2</td> </tr> <tr> <td>Z(-55°C)/Z(+20°C)</td> <td>8</td> <td>6</td> <td>4</td> <td>3</td> <td>3</td> <td>3</td> </tr> </table>	Rated Voltage 額定電壓(V)	6.3	10	16	25	35	50	MAX (120Hz)	Z(-25°C)/Z(+20°C)	4	3	2	2	2	2	Z(-55°C)/Z(+20°C)	8	6	4	3	3	3
Rated Voltage 額定電壓(V)	6.3	10	16	25	35	50	MAX (120Hz)																
Z(-25°C)/Z(+20°C)	4	3	2	2	2	2																	
Z(-55°C)/Z(+20°C)	8	6	4	3	3	3																	

ALUMINUM ELECTROLYTIC CAPACITORS

Load Life 負荷壽命	After life test at conditions stated in the table below, the capacitors shall meet the following requirement. 依據以下壽命要求印加額定紋波電流後，電容需符合以下要求。		Case Dia	Life Time(hrs)
	Leakage Current 洩漏電流	Not more than the specified value 不超出規格值。	$\varphi D \leq 6.3$	2000
	Capacitance Change 容量變化率	Within $\pm 25\%$ of initial value. 初始值 $\pm 25\%$ 以內	$\varphi D = 8$	3000
	Dissipation Factor 散逸因素	Not more than 200% of the specified value. 不超出規格值的 2 倍	$\varphi D = 10$	4000
			$\varphi D \geq 12$	5000
Shelf Life 放置壽命	After leaving capacitors under no load at 105°C for 1000 hours, the capacitors shall meet the following requirements. 電容放置在 105°C 無印加電壓的情況下儲存 1000 小時後，電容需符合以下要求。			
	Leakage Current 洩漏電流	Not more than the specified value 不超出規格值。		
	Capacitance Change 容量變化率	Within $\pm 25\%$ of initial value. 初始值 $\pm 25\%$ 以內		
	Dissipation Factor 散逸因素	Not more than 200% of the specified value. 不超出規格值的 2 倍		
Standard 參照標準	According to JIS C 5101 依據 JIS C 5101 標準			

Frequency coefficient

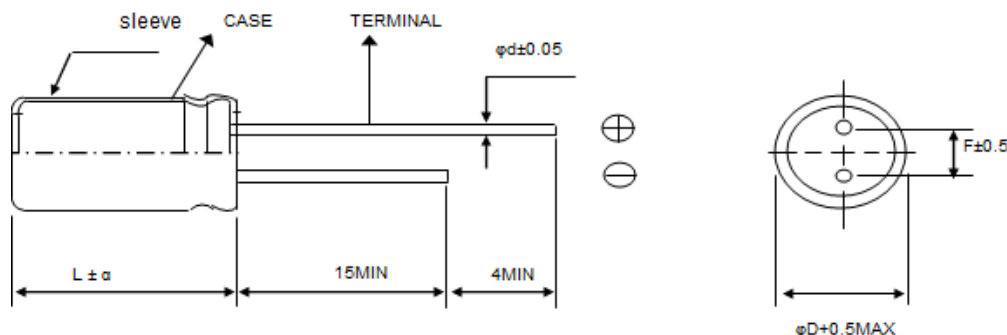
頻率系數

Frequency(Hz) Cap(uF)	60(50)	120	1k	10k	$\geq 100k$
0.22-33	0.45	0.55	0.75	0.90	1.00
39-330	0.60	0.70	0.85	0.95	1.00
390-1000	0.65	0.75	0.90	0.98	1.00
1200-18000	0.75	0.80	0.95	1.00	1.00

ALUMINUM ELECTROLYTIC CAPACITORS

LZD series ULTRA-LOW IMPEDANCE, HIGH RELIABILITY

DIMENSIONS 尺寸(mm)



ϕD	5	6.3	8	10	12/12.5/13	16	18
ϕd	0.5		0.6			0.8	
F	2.0	2.5	3.5	5.0		7.5	
α	L ≤ 19: $\alpha = 1.5$, L ≥ 20: $\alpha = 2.0$						

STANDARD SIZE , RIPPLE CURRENT, IMPEDANCE

尺寸, 紋波電流及阻抗標準

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

Rated voltage 6.3V (0J)				
Nominal capacitance (uF)	Size $\phi D \times L$ (mm)	Ripple Current (mA)	Impedance (Ω MAX)	
			25°C, 100KHz	-10°C, 100KHz
47	5 x 11	215	1.680	5.880
68	5 x 11	225	1.480	5.180
120	5 x 11	245	0.660	2.310
150	5 x 11	330	0.570	1.995
220	5 x 11	390	0.480	1.680
220	6.3 x 11	475	0.350	1.225
330	6.3 x 11	575	0.210	0.735
470	6.3 x 11	830	0.175	0.612
390	8 x 11.5	765	0.180	0.630
470	8 x 11.5	960	0.150	0.525
680	8 x 11.5	1090	0.130	0.455
820	8 x 11.5	1245	0.108	0.378
1000	8 x 11.5	1245	0.108	0.378
	10 x 12.5	1730	0.070	0.245
1200	8 x 20	1730	0.070	0.245
	10 x 12.5	2020	0.058	0.203
1500	8 x 20	2020	0.058	0.203
	10 x 12.5	2095	0.080	0.280
1800	10 x 16	2145	0.058	0.203
2200	10 x 20	2515	0.044	0.154
2700	10 x 23	2935	0.040	0.140
	12.5 x 20	3215	0.041	0.143
3300	10 x 30	3160	0.032	0.112
	12.5 x 20	3150	0.035	0.122
3900	12.5 x 25	3675	0.026	0.091
	16 x 20	3645	0.043	0.150
4700	12.5 x 30	4370	0.024	0.072
	16 x 25	4600	0.022	0.077
5600	12.5 x 35	4750	0.020	0.070
	16 x 25	4560	0.020	0.070
6800	12.5 x 40	5525	0.017	0.059



ALUMINUM ELECTROLYTIC CAPACITORS

	16 x 25	4835	0.020	0.070
	18 x 20	4715	0.026	0.078
8200	16 x 31.5	5690	0.017	0.059
	18 x 25	5956	0.016	0.056
10000	16 x 35.5	5956	0.015	0.045
	18 x 25	5956	0.019	0.057
12000	16 x 40	6765	0.012	0.036
	18 x 31.5	6880	0.015	0.045
15000	18 x 35.5	6960	0.014	0.042
18000	18 x 40	7095	0.011	0.033

LZD series

Rated voltage 10V (1A)				
Nominal capacitance (μ F)	Size ϕ D x L(mm)	Ripple Current (mA)	Impedance (Ω MAX)	
			25°C, 100KHz	-10°C, 100KHz
47	5 x 11	245	0.660	2.310
68	5 x 11	285	0.615	2.152
100	5 x 11	330	0.570	1.995
150	5 x 11	390	0.480	1.680
220	5 x 11	420	0.435	1.522
	6.3 x 11	575	0.210	0.735
270	6.3 x 11	705	0.190	0.665
330	6.3 x 11	830	0.170	0.595
	8 x 11.5	960	0.150	0.525
390	8 x 11.5	1020	0.140	0.490
470	8 x 11.5	1085	0.130	0.455
560	8 x 11.5	1155	0.120	0.420
680	8 x 11.5	1245	0.108	0.378
	10 x 12.5	1435	0.080	0.280
820	8 x 20	1650	0.074	0.259
	10 x 12.5	1580	0.075	0.262
1000	8 x 20	1730	0.070	0.245
	10 x 16	2030	0.060	0.210
1200	10 x 20	2310	0.046	0.161
1500	10 x 20	2525	0.042	0.147
	12.5 x 16	2390	0.049	0.171
1800	10 x 20	2630	0.040	0.140
	12.5 x 20	2770	0.042	0.147
2200	10 x 28	3165	0.030	0.105
	12.5 x 20	3150	0.035	0.122
	16 x 16	3215	0.041	0.123
2700	12.5 x 25	3415	0.031	0.108
	18 x 16	3645	0.043	0.129
3300	12.5 x 25	3675	0.026	0.091
3900	12.5 x 30	4370	0.024	0.072
	16 x 20	4170	0.027	0.081
4700	12.5 x 30	4560	0.022	0.077
	16 x 25	4500	0.024	0.084
5600	16 x 25	4830	0.021	0.063
	18 x 20	4715	0.026	0.078
6800	16 x 31.5	5690	0.017	0.051
	18 x 25	5180	0.019	0.057
8200	16 x 35.5	5955	0.015	0.045

ALUMINUM ELECTROLYTIC CAPACITORS

	18 x 31.5	6880	0.015	0.045
10000	16 x 40	6765	0.012	0.036
	18 x 35.5	6960	0.014	0.042
12000	18 x 40	7095	0.011	0.033

LZD series

Rated voltage 16V (1C)				
Nominal capacitance (uF)	Size φD x L(mm)	Ripple Current (mA)	Impedance (ΩMAX)	
			25°C, 100KHz	-10°C, 100KHz
3.3	5 x 11	165	2.750	9.625
10	5 x 11	215	1.68	5.880
22	5 x 11	225	1.480	5.180
39	5 x 11	235	1.050	3.675
47	5 x 11	245	0.620	2.170
56	5 x 11	330	0.570	1.995
68	5 x 11	410	0.480	1.680
100	5 x 11	450	0.450	1.575
120	6.3 x 11	575	0.210	0.735
150	6.3 x 11	705	0.190	0.665
220	8 x 11.5	960	0.150	0.525
330	8 x 11.5	1085	0.130	0.455
390	8 x 11.5	1155	0.120	0.420
470	8 x 11.5	1245	0.108	0.378
	10 x 12.5	1435	0.080	0.280
560	8 x 16	1400	0.098	0.343
	10 x 12.5	1580	0.075	0.262
680	8 x 20	1730	0.069	0.241
	10 x 16	2030	0.060	0.210
820	10 x 16	2095	0.057	0.199
1000	8 x 20	1950	0.061	0.213
	10 x 20	2310	0.046	0.161
	12.5 x 16	2390	0.049	0.171
1200	10 x 23	2722	0.042	0.147
	12.5 x 16	2770	0.042	0.147
1500	8 x 25	2640	0.060	0.210
	10 x 23	2951	0.042	0.210
	12.5 x 20	3150	0.035	0.122
1800	10 x 23	3180	0.032	0.112
	12.5 x 20	3280	0.033	0.115
2200	10 x 23	3300	0.030	0.105
	12.5 x 20	3415	0.031	0.108
	18 x 16	3645	0.043	0.129
2700	12.5 x 25	4025	0.025	0.087
	16 x 20	4170	0.027	0.081
3300	12.5 x 30	4560	0.022	0.077
	16 x 25	4500	0.024	0.084
3900	16 x 25	4830	0.020	0.060
	18 x 20	4715	0.026	0.078
4700	16 x 31.5	5690	0.017	0.051
	18 x 25	5180	0.019	0.057
5600	16 x 31.5	5820	0.016	0.056
	18 x 31.5	6880	0.015	0.045



ALUMINUM ELECTROLYTIC CAPACITORS

6800	16 x 40	6765	0.012	0.036
	18 x 35.5	6920	0.015	0.052
8200	18 x 35.5	6960	0.014	0.042
10000	18 x 40	7095	0.011	0.033

LZD series

Rated voltage 25V (1E)				
Nominal capacitance (uF)	Size	Ripple Current (mA)	Impedance (ΩMAX)	
	φD x L(mm)		25°C,100KHz	-10°C,100KHz
10	5 x 11	240	0.900	3.150
22	5 x 11	280	0.740	2.590
33	5 x 11	305	0.660	2.310
39	5 x 11	315	0.620	2.170
47	5 x 11	330	0.570	1.995
56	5 x 11	355	0.530	1.855
68	6.3 x 11	450	0.390	1.365
82	6.3 x 11	510	0.300	1.050
100	6.3 x 11	575	0.210	0.735
120	6.3 x 11	830	0.190	0.665
150	6.3 x 11	960	0.180	0.630
180	8 x 11.5	1020	0.160	0.560
220	8 x 11.5	1085	0.130	0.455
330	8 x 16	1400	0.086	0.301
	10 x 12.5	1435	0.080	0.280
390	8 x 20	1650	0.074	0.259
	10 x 12.5	1580	0.075	0.262
470	8 x 20	1730	0.069	0.241
	10 x 16	2030	0.060	0.210
560	10 x 16	2095	0.057	0.199
680	10 x 16	2165	0.053	0.185
820	10 x 20	2515	0.044	0.154
1000	10 x 28	3165	0.030	0.105
	12.5 x 16	2770	0.042	0.147
1200	12.5 x 20	3280	0.033	0.115
	18 x 16	3645	0.043	0.129
1500	12.5 x 25	3675	0.026	0.078
1800	12.5 x 30	4370	0.024	0.072
	16 x 20	4170	0.027	0.081
2200	12.5 x 30	4560	0.022	0.077
	16 x 25	4500	0.034	0.119
2500	12.5 x 30	4560	0.022	0.077
2700	16 x 25	4830	0.020	0.070
3300	16 x 31.5	5690	0.017	0.051
3900	18 x 31.5	6880	0.015	0.045
4700	16 x 40	6765	0.012	0.036
	18 x 35.5	6960	0.014	0.042
5600	18 x 40	7095	0.011	0.033

ALUMINUM ELECTROLYTIC CAPACITORS

LZD series

Rated voltage 35V (1V)				
Nominal capacitance (uF)	Size	Ripple Current (mA)	Impedance (ΩMAX)	
	φD x L(mm)		25°C, 100KHz	-10°C, 100KHz
10	5 x 11	245	0.860	3.010
22	5 x 11	280	0.650	2.275
27	5 x 11	305	0.610	2.135
33	5 x 11	330	0.570	1.995
39	5 x 11	360	0.520	1.820
47	6.3 x 11	450	0.390	1.365
56	6.3 x 11	575	0.310	0.930
68	6.3 x 11	830	0.260	0.910
82	6.3 x 11	895	0.240	0.840
100	6.3 x 11	960	0.210	0.735
	8 x 11.5	1020	0.140	0.490
120	8 x 16	1110	0.127	0.444
	10 x 12.5			
150	8 x 16	1165	0.119	0.416
180	8 x 16	1245	0.108	0.378
220	8 x 16	1400	0.086	0.301
	10 x 12.5	1435	0.080	0.280
330	8 x 20	1880	0.065	0.227
	10 x 16	2030	0.060	0.210
390	10 x 16	2095	0.057	0.199
470	10 x 20	2310	0.046	0.161
	12.5 x 16	2390	0.049	0.171
560	10 x 23	2720	0.042	0.147
	12.5 x 20	2900	0.038	0.133
680	10 x 25	2945	0.036	0.126
	12.5 x 20	3150	0.035	0.122
820	12.5 x 25	3545	0.030	0.105
1000	12.5 x 25	3675	0.026	0.091
1200	12.5 x 30	4370	0.024	0.072
	16 x 20	4170	0.027	0.081
1500	12.5 x 30	4560	0.023	0.080
1800	12.5 x 40	5525	0.017	0.051
	16 x 25	4830	0.020	0.060
2200	16 x 25	5260	0.019	0.066
2700	16 x 35.5	5955	0.015	0.045
	18 x 31.5	6880	0.015	0.045
3300	16 x 40	6765	0.012	0.036
	18 x 35.5	6960	0.014	0.042
3900	18 x 40	7095	0.011	0.033
4700	18 x 45	7260	0.010	0.030

ALUMINUM ELECTROLYTIC CAPACITORS

LZD series

Rated voltage 50V (1H)				
Nominal capacitance (uF)	Size φD x L(mm)	Ripple Current (mA)	Impedance (ΩMAX)	
			25 °C, 100KHz	-10 °C, 100KHz
2.2	5 x 11	140	2.280	7.980
3.3	5 x 11	170	1.980	6.930
4.7	5 x 11	215	1.680	5.880
6.8	5 x 11	220	1.480	5.180
10	5 x 11	230	1.280	4.480
18	5 x 11	270	0.980	3.430
22	5 x 11	310	0.680	2.380
27	5 x 11	360	0.590	2.065
33	6.3 x 11	400	0.490	1.715
39	6.3 x 11	425	0.430	1.505
47	6.3 x 11	445	0.395	1.382
56	6.3 x 11	495	0.300	1.050
68	6.3 x 11	710	0.240	0.840
82	8 x 11.5	815	0.205	0.717
100	8 x 11.5	920	0.170	0.595
	10 x 12.5	1085	0.145	0.507
120	8 x 16	1220	0.120	0.420
	10 x 12.5	1170	0.133	0.465
150	8 x 20	1353	0.105	0.367
	10 x 12.5	1250	0.120	0.420
180	8 x 20	1500	0.090	0.315
220	8 x 20	1615	0.087	0.304
	10 x 16	1730	0.084	0.294
330	10 x 16	1960	0.071	0.248
390	10 x 20	2225	0.056	0.196
	12.5 x 20	2405	0.053	0.185
470	10 x 20	2375	0.055	0.192
	12.5 x 20	2735	0.045	0.157
560	12.5 x 25	3230	0.034	0.119
680	12.5 x 30	3510	0.030	0.105
820	12.5 x 30	3630	0.028	0.098
	16 x 20	3645	0.034	0.102
1000	12.5 x 35	4475	0.025	0.087
	16 x 25	4220	0.025	0.075
	18 x 20	4105	0.036	0.108
1200	16 x 31.5	4965	0.021	0.063
	18 x 25	4520	0.026	0.078
1500	16 x 35.5	5195	0.019	0.057
1800	16 x 40	6120	0.016	0.048
	18 x 31.5	6005	0.021	0.063
2200	18 x 35.5	6070	0.017	0.051
2700	18 x 40	6270	0.014	0.042