

# ALUMINUM ELECTROLYTIC CAPACITORS

## LZF series Low Impedance, High Reliability

- Low Impedance at 100kHz with selected materials
- Load life: 105°C 5000~8000 hours
- HIGH QUALITY

### SPECIFICATIONS

Item	Performance Characteristics									
Operating Temperature Range	-55°C~105°C									
Rated Voltage Range	6.3~100W.V.									
Capacitance Range	0.47~15000 uF									
Capacitance Tolerance	±20%, 120Hz, 20°C									
Leakage Current (MAX)	I=0.01CV or 3uA whichever is greater.(After 2 minutes) I=Leakage Current(uA), C=Nominal Capacitance(uF), V=Rated Voltage(V)									
Dissipation Factor (tan δ)	When nominal capacitance is over 1000uF, tan δ shall be added 0.02 to the listed value with increase of every 1000uF,									
	Rated voltage (V)	6.3	10	16	25	35	50	63	100	MAX
	Tan δ	0.22	0.19	0.16	0.14	0.12	0.10	0.09	0.08	(20°C 120Hz)
Low Temperature Stability Impedance Ratio	Rated Voltage(V)	6.3	10	16	25	35	50	63	100	MAX (120Hz)
	Z(-25°C)/Z(+20°C)	4	3	2	2	2	2	2	2	
	Z(-55°C)/Z(+20°C)	8	6	4	3	3	3	3	3	
Load Life	After life test at conditions stated in the table below, the capacitors shall meet the following requirement									
	Leakage Current	Not more than the specified value.					Case Dia	Life Time(hrs)		
	Capacitance Change	Within ±25% of initial value.						6.3~16V	25~100V	
	Dissipation Factor	Not more than 200% of the specified value.					φ D=5~6.3	5000	5000	
							φ D=8~10	6000	6000	
φ D=12.5~18							7000	8000		
Shelf Life	After leaving capacitors under no load at 105°C for 1000 hours and applying voltage according to JIS C-5102 4-3, they meet the specified value for load life characteristics listed above.									
Standard	According to JIS C 5141									

### MULTIPLIER FOR RIPPLE CURRENT

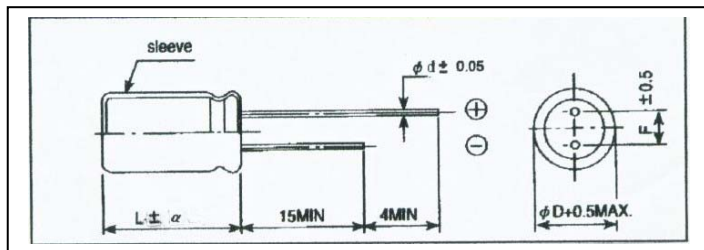
#### Frequency coefficient

Frequency(Hz) Cap(uF)	60(50)	120	1k	10k	≥ 100k
0.47~4.7	0.35	0.42	0.60	0.80	1.00
6.8~33	0.45	0.55	0.75	0.90	1.00
39~330	0.60	0.70	0.85	0.95	1.00
470~1000	0.65	0.75	0.90	0.98	1.00
1800~15000	0.75	0.80	0.95	1.00	1.00

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### DIMENSIONS (mm)



$\varphi D$	5	6.3	8	10	12.5	16	18
$\varphi d$	0.5		0.6			0.8	
F	2.0	2.5	3.5	5.0		7.5	
$\alpha$	$L \leq 16: \alpha = 1.5, L \geq 20: \alpha = 2.0$						

### STANDARD SIZE ,MAXIUM PERMISSIBLE RIPPLE CURRENT,IMPEDANCE

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

Rated voltage 6.3V (0J)				
Nominal capacitance (uF)	Size	Ripple Current	Impedance ( $\Omega$ MAX)	
	$\varphi D \times L$ (mm)		20°C, 100kHz	-10°C, 100kHz
100	5 x11	148	0.88	1.98
220	6.3 x11	245	0.40	0.92
330	6.3 x11	300	0.40	0.92
470	8 x11.5	391	0.26	0.624
1000	8 x16	483	0.22	0.508
	10 x12.5	576	0.17	0.391
1500	10 x16	1116	0.101	0.232
2200	10 x23	1250	0.084	0.195
	12.5 x20	1296	0.078	0.179
3300	12.5 x20	1496	0.078	0.179
4700	16 x25	1639	0.034	0.082
6800	16 x25	1900	0.034	0.082
10000	16 x31.5	1994	0.029	0.069
15000	18 x35.5	2195	0.029	0.069

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

Rated voltage 10V (1A)				
Nominal capacitance (uF)	Size	Ripple Current	Impedance (Ω MAX)	
	φ DxL(mm)		20°C, 100kHz	-10°C, 100kHz
100	5 x11	170	0.88	1.98
220	6.3 x11	300	0.40	0.92
330	8 x11.5	391	0.26	0.624
470	8 x11.5	576	0.26	0.624
680	8 x11.5	622	0.24	0.566
1000	10 x16	762	0.12	0.276
2200	12.5 x20	1496	0.078	0.179
3300	12.5 x25	1646	0.060	0.144
4700	16 x25	1839	0.034	0.082
6800	16 x31.5	1994	0.029	0.069
10000	18 x35.5	2195	0.029	0.069

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

Rated voltage 16V (1C)				
Nominal capacitance (uF)	Size	Ripple Current	Impedance (Ω MAX)	
	φ DxL(mm)		20°C, 100kHz	-10°C, 100kHz
47	5 x11	148	0.88	1.98
100	6.3 x11	245	0.40	0.92
220	8 x11.5	391	0.26	0.624
330	8 x11.5	576	0.26	0.624
470	8 x16	622	0.24	0.566
	10 x12.5	669	0.22	0.508
1000	10 x16	820	0.158	0.369
1200	10 x20	947	0.114	0.269
2200	12.5 x25	1646	0.060	0.144
2700	12.5 x30	1694	0.054	0.129
3300	12.5 x35	1743	0.047	0.113
	16 x25	1839	0.034	0.082
4700	16 x31.5	1994	0.029	0.069
6800	18 x35.5	2195	0.029	0.069



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

Rated voltage 25(1E)				
Nominal capacitance (uF)	Size	Ripple Current	Impedance (Ω MAX)	
	ΦD xL(mm)		20°C, 100kHz	-10°C, 100kHz
10	5 x11	88	1.21	2.76
22	5 x11	118	1.05	2.37
33	5 x11	148	0.88	1.98
47	5 x11	245	0.88	1.98
82	6.3 x11	220	0.55	1.45
100	6.3 x11	391	0.40	0.92
220	8 x11.5	576	0.26	0.624
330	10 x12.5	762	0.17	0.391
470	10 x16	1009	0.12	0.276
1000	10 x23	1328	0.10	0.228
	12.5 x20	1646	0.078	0.179
2200	12.5 x25	1694	0.067	0.155
	16 x25	1839	0.034	0.082
2700	16 x31.5	1916	0.032	0.076
3300	16 x31.5	1994	0.029	0.069
4700	18 x35.5	2195	0.029	0.069

# ALUMINUM ELECTROLYTIC CAPACITORS

## LZF series Low Impedance, High Reliability

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

Rated voltage 35V (1V)				
Nominal capacitance (uF)	Size	Ripple Current	Impedance (Ω MAX)	
	φ D×L(mm)		20°C, 100kHz	-10°C, 100kHz
10	5 x11	118	1.05	2.37
27	5 x11	181	0.965	2.175
33	5 x11	245	0.88	1.98
47	6.3 x11	391	0.40	0.92
100	8 x11.5	576	0.26	0.624
150	8 x11.5	622	0.24	0.566
220	8 x16	669	0.22	0.508
220	10 x12.5	762	0.17	0.391
330	10 x16	1009	0.12	0.276
470	10 x20	1646	0.095	0.228
560	10 x23	1694	0.086	0.207
680	12.5 X20	1742	0.077	0.186
1000	12.5 x25	1839	0.060	0.144
1800	16 X25	1955	0.037	0.088
2200	16 x31.5	1994	0.029	0.069
3300	18 x35.5	2195	0.029	0.069

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Ripple Current (mA105°C,100kHz) r.m.s

Rated voltage 50(1H)				
Nominal capacitance ( $\mu$ F)	Size	Ripple Current	Impedance ( $\Omega$ MAX)	
	$\varphi$ DxL(mm)		20°C,100kHz	-10°C,100kHz
0.47	5 x11	18	5.5	12.6
1	5 x11	29	4.0	8.40
2.2	5 x11	43	2.5	5.75
3.3	5 x11	53	2.2	5.28
4.7	5 x11	88	1.9	4.37
6.8	5 x11	118	1.7	3.84
10	5 x11	148	1.5	3.30
22	5 x11	245	0.9	1.98
33	6.3 x11	391	0.4	0.92
39	6.3 x11	483	0.35	0.885
47	6.3 x11	576	0.3	0.85
56	6.3 x11	650	0.28	0.736
100	8 x11.5	762	0.26	0.621
220	10 x16	1009	0.12	0.276
330	10 x20	1646	0.095	0.228
470	10 x20	1742	0.087	0.202
1000	16 x30	2094	0.032	0.075
2200	18 x35.5	2195	0.029	0.067

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

Rated voltage 63V (1J)				
Nominal capacitance (uF)	Size	Ripple Current	Impedance (Ω MAX)	
	φ DxL(mm)		20°C, 100kHz	-10°C, 100kHz
10	5 x11	88	2.5	5.75
22	6.3 x11	138	1.2	2.76
33	6.3 x11	160	1.2	2.76
47	8 x11.5	210	0.65	1.369
100	10 x12.5	300	0.45	0.99
220	10 x20	520	0.21	0.483
330	12.5 x20	660	0.16	0.352
470	12.5 x25	750	0.14	0.322
1000	16 x31.5	1390	0.060	0.126

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

Rated voltage 100(2A)				
Nominal capacitance (uF)	Size	Ripple Current	Impedance (Ω MAX)	
	φ DxL(mm)		20°C, 100kHz	-10°C, 100kHz
0.47	5 x11	16	9.0	20.7
1	5 x11	20	7.0	16.8
2.2	5 x11	30	6.0	13.8
3.3	5 x11	40	5.0	10.5
4.7	5 x11	65	4.5	9.90
10	6.3 x11	138	2.2	5.06
22	8 x11.5	160	1.1	2.64
33	10 x12.5	230	0.76	1.78
47	10 x16	290	0.53	1.27
100	12.5 x20	430	0.37	0.85
220	16 x25	660	0.12	0.252
330	16 x25	900	0.11	0.252