ALUMINUM ELECTROLYTIC CAPACITORS

LF Long Life Series

■ Features : 85℃ 3000 hours , Longer life than LH, Snap-in terminal, High ripple current
■ Recommended Applications: Smoothing circuit, TV/Monitor, Adapter, SMPS
■ Corresponding product to RoHS

LF ↑ Long Life
LH

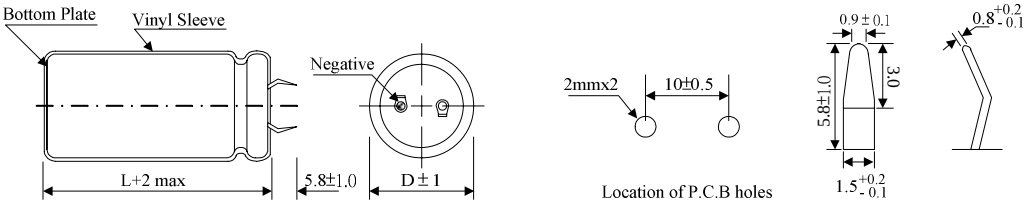
■ Specifications

Item	Characteristics
Operating Temperature Range	-40 ~ +85℃ -25 ~ +85℃
Rated Voltage Range	10 ~ 100VDC 160 ~ 450VDC
Capacitance Range	820 ~ 56000 μF 56 ~ 2200 μF
Capacitance Tolerance	± 20 % at 120Hz , 20℃
Leakage Current (MAX) (20℃)	I≦0.02CV or 3mA whichever is smaller(After rated voltage applied for 5 minutes) I= Leakage Current (μA) C= Nominal Capacitance (μF) V= Rated Voltage (V)
Dissipation Factor (MAX) (tan δ) (120Hz ,20℃)	Dissipation Factor(tan δ)shall not exceed the values showed in the table of standard rating
Endurance	After applying rated voltage with rated Ripple current for 3000hrs at 85℃, the capacitor shall meet the following requirement.

Capacitance Change	Within±20% of the initial value
Dissipation Factor	Not more than 200% of the specified value
Leakage Current	Not more than the specified value

Shelf Life	After placed at 85℃without voltage applied for 1000 hours, the capacitor shall meet the same requirements as Endurance.

■ Diagram of Dimensions



■ Multiplier for Ripple Current

Frequency coefficient

Freq. (Hz)	50	60	120	400	1K	2.4K	5K	10K
Coefficient	0.8	0.85	1.0	1.14	1.23	1.3	1.36	1.4

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■Dimensions,Max Dissipation Factor,Max Permissible Ripple Current,Max Equivalent Series Resistance

Capacitance (μF)	Rated (Surge) Voltage											
	10(13)						16(20)					
	φ DxL Ripple Current				tan δ	ESR	φ DxL Ripple Current				tan δ	ESR
8200							22x25 2.45				0.55	0.089
10000							22x30 2.60				0.55	0.073
12000	22x25 2.45				0.55	0.061	22x35 3.10	25x25 2.90			0.55	0.061
15000	22x30 2.80				0.55	0.049	22x40 3.46	25x30 3.30	30x25 3.40		0.55	0.049
18000	22x35 3.34	25x25 3.15			0.55	0.041	22x45 3.81	25x35 3.70	30x30 3.85		0.55	0.041
22000	22x40 3.67	25x30 3.50	30x25 3.60		0.55	0.033	22x50 4.32	25x45 4.40	30x30 4.15	35x25 4.23	0.55	0.033
27000	22x45 4.12	25x35 4.00	30x30 4.16		0.55	0.027		25x45 4.65	30x35 4.65	35x30 4.79	0.55	0.027
33000	22x50 4.63	25x40 4.49	30x30 4.45	35x25 4.54	0.55	0.022			30x40 5.25	35x35 5.41	0.55	0.022
39000		25x45 4.90	30x35 4.90	35x30 5.05	0.55	0.019			30x45 5.86	35x35 5.80	0.55	0.019
47000		25x50 5.55	30x40 5.61	35x30 5.50	0.55	0.016				35x40 6.45	0.55	0.016
56000			30x45 6.11	35x35 6.05	0.55	0.013						

Capacitance (μF)	Rated (Surge) Voltage											
	25(32)						35(44)					
	φ DxL Ripple Current				tan δ	ESR	φ DxL Ripple Current				tan δ	ESR
3900							22x25 2.10				0.40	0.136
4700							22x30 2.30	25x25 2.30			0.40	0.113
5600	22x25 2.20				0.45	0.107	22x35 2.60	25x30 2.62	30x25 2.70	35x25 2.99	0.40	0.095
6800	22x30 2.45	25x25 2.45			0.45	0.088	22x40 2.90	25x35 2.93	30x30 3.07	35x25 3.13	0.40	0.078
8200	22x35 2.75	25x30 2.75			0.45	0.073	22x45 3.30	25x35 3.20	30x30 3.33	35x25 3.42	0.40	0.065
10000	22x40 3.25	25x30 3.10	30x25 3.19		0.45	0.060	22x50 3.74	25x40 3.64	30x30 3.60	35x25 3.67	0.40	0.053
12000	22x45 3.50	25x35 3.40	30x30 3.54	35x25 3.64	0.45	0.050		25x45 4.00	30x35 4.00	35x30 4.12	0.40	0.044
15000		25x40 3.90	30x35 4.10	35x30 4.21	0.45	0.040			30x40 4.60	35x35 4.74	0.40	0.035
18000		25x45 4.30	30x40 4.51	35x30 4.39	0.45	0.033			30x45 5.10	35x40 5.30	0.40	0.029
22000			30x45 4.90	35x35 4.85	0.45	0.027				35x45 5.70	0.40	0.024
27000			30x50 5.45	35x40 5.45	0.45	0.022				35x50 6.45	0.40	0.020
33000				35x45 6.15	0.45	0.018						

☆Size:D φ x L(mm). ☆tan δ :20℃,120Hz. ☆Ripple Current: 85℃,120Hz,(A/rms) ☆ESR:20℃,120Hz,(Ω)

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■Dimensions,Max Dissipation Factor,Max Permissible Ripple Current,Max Equivalent Series Resistance

Capacitance (μF)	Rated (Surge) Voltage											
	50(63)						63(79)					
	φDxL / Ripple Current				tan δ	ESR	φDxL / Ripple Current				tan δ	ESR
1800							22x25 1.80				0.30	0.221
2200	22x25 1.80				0.35	0.211	22x30 2.00	25x25 2.00			0.30	0.181
2700	22x30 1.95				0.35	0.172	22x35 2.30	25x30 2.30			0.30	0.147
3300	22x35 2.33	25x25 2.20			0.35	0.141	22x40 2.68	25x30 2.55	30x25 2.63		0.30	0.121
3900	22x40 2.52	25x30 2.40			0.35	0.119	22x45 2.88	25x35 2.80	30x30 2.91		0.30	0.102
4700	22x45 2.78	25x35 2.70	30x30 2.82	35x25 2.89	0.35	0.099	22x50 3.28	25x40 3.18	30x30 3.15	35x25 3.21	0.30	0.085
5600		25x35 3.00	30x30 3.12	35x25 3.21	0.35	0.083		25x45 3.50	30x35 3.50	35x30 3.60	0.30	0.071
6800		25x40 3.35	30x35 3.52	35x30 3.62	0.35	0.068		25x50 3.94	30x40 3.98	35x30 3.90	0.30	0.059
8200		25x50 3.74	30x40 3.77	35x30 3.70	0.35	0.057			30x45 4.39	35x35 4.35	0.30	0.049
10000			30x45 4.24	35x35 4.20	0.35	0.046			30x50 4.90	35x40 4.90	0.30	0.040
12000			30x50 4.65	35x40 4.65	0.35	0.039				35x50 5.45	0.30	0.033
15000				35x45 5.30	0.35	0.031						
18000				35x50 5.90	0.35	0.026						

Capacitance (μF)	Rated (Surge) Voltage											
	80(100)						100(125)					
	φDxL / Ripple Current				tan δ	ESR	φDxL / Ripple Current				tan δ	ESR
820							22x25 1.70				0.25	0.404
1000							22x30 1.95	25x25 1.95			0.25	0.332
1200	22x25 1.70				0.25	0.276	22x35 2.15	25x30 2.15			0.25	0.276
1500	22x30 1.95	25x25 1.95			0.25	0.221	22x40 2.57	25x30 2.45	30x25 2.52		0.25	0.221
1800	22x35 2.15	25x30 2.15			0.25	0.184	22x45 2.83	25x35 2.75	30x30 2.86		0.25	0.184
2200	22x40 2.57	25x30 2.45	30x25 2.52		0.25	0.151	22x50 3.17	25x40 3.08	30x30 3.05	35x25 3.11	0.25	0.151
2700	22x45 2.83	25x35 2.75	30x30 2.86		0.25	0.123		25x45 3.45	30x35 3.45	35x30 3.55	0.25	0.123
3300	22x50 3.22	25x40 3.13	30x30 3.10	35x25 3.16	0.25	0.100		25x50 3.94	30x40 3.98	35x30 3.90	0.25	0.100
3900		25x45 3.40	30x35 3.40	35x30 3.50	0.25	0.085			30x45 4.34	35x35 4.30	0.25	0.085
4700		25x50 3.84	30x40 3.88	35x35 4.04	0.25	0.071				35x40 4.75	0.25	0.071
5600			30x45 4.24	35x40 4.43	0.25	0.059				35x50 5.30	0.25	0.059
6800			30x50 4.70	35x45 4.93	0.25	0.049						
8200				35x50 5.25	0.25	0.040						

☆Size:D φ x L(mm). ☆tan δ :20℃,120Hz. ☆Ripple Current: 85℃,120Hz,(A/rms) ☆ESR:20℃,120Hz,(Ω).

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■Dimensions,Max Dissipation Factor,Max Permissible Ripple Current,Max Equivalent Series Resistance

Capacitance (μF)	Rated (Surge) Voltage											
	160(200)						180(225)					
	φ DxL / Ripple Current				tan δ	ESR	φ DxL / Ripple Current				tan δ	ESR
270							22x25 1.10				0.15	0.737
330	22x25 1.15				0.15	0.603	22x30 1.25				0.15	0.603
390	22x30 1.30				0.15	0.510	22x30 1.40	25x25 1.40			0.15	0.510
470	22x35 1.59	25x30 1.62			0.15	0.423	22x35 1.60	25x30 1.60			0.15	0.423
560	22x35 1.70	25x30 1.70			0.15	0.355	22x40 1.89	25x30 1.80	30x25 1.85		0.15	0.355
680	22x40 1.97	25x35 1.99	30x25 1.95		0.15	0.293	22x45 2.11	25x35 2.05	30x30 2.13		0.15	0.292
820	22x50 2.32	25x40 2.28	30x30 2.24		0.15	0.243	22x50 2.34	25x40 2.27	30x30 2.25	35x30 2.45	0.15	0.243
1000		25x45 2.58	30x35 2.57	35x30 2.65	0.15	0.199		25x50 2.67	30x35 2.55	35x30 2.63	0.15	0.199
1200		25x50 2.78	30x40 2.80	35x35 2.92	0.15	0.166			30x40 2.85	35x35 2.93	0.15	0.166
1500			30x45 3.03	35x40 3.17	0.15	0.133			30x50 3.10	35x40 3.10	0.15	0.130
1800			30x50 3.50	35x45 3.67	0.15	0.111				35x45 3.60	0.15	0.111
2200				35x50 4.08	0.15	0.090						

Capacitance (μF)	Rated (Surge) Voltage											
	200(250)						250(300)					
	φ DxL / Ripple Current				tan δ	ESR	φ DxL / Ripple Current				tan δ	ESR
180							22x25 1.00				0.15	1.110
220	22x25 1.00	25x25 1.08			0.15	0.905	22x30 1.15	25x25 1.15			0.15	0.905
270	22x30 1.15	25x25 1.15			0.15	0.737	22x30 1.30	25x25 1.30			0.15	0.737
330	22x30 1.29	25x25 1.30			0.15	0.603	22x35 1.45	25x30 1.45			0.15	0.603
390	22x35 1.45	25x30 1.45	30x25 1.51		0.15	0.510	22x40 1.62	25x35 1.63	30x25 1.60		0.15	0.510
470	22x40 1.67	25x35 1.68	30x25 1.65		0.15	0.423	22x45 1.80	25x40 1.84	30x30 1.80	35x25 1.85	0.15	0.423
560	22x45 1.94	25x35 1.87	30x30 1.96		0.15	0.355		25x40 2.00	30x35 2.10	35x30 2.20	0.15	0.355
680	22x50 2.14	25x45 2.21	30x35 2.20	35x30 2.27	0.15	0.293		25x50 2.32	30x40 2.35	35x30 2.30	0.15	0.293
820		25x50 2.32	30x35 2.22	35x30 2.30	0.15	0.243			30x45 2.57	35x35 2.55	0.15	0.243
1000			30x45 2.63	35x35 2.60	0.15	0.199			30x50 2.90	35x40 2.90	0.15	0.199
1200			30x50 2.90	35x40 2.90	0.15	0.166				35x45 3.25	0.15	0.166
1500				35x45 3.11	0.15	0.133						

☆Size:D φ x L(mm). ☆tan δ :20℃,120Hz. ☆Ripple Current: 85℃,120Hz,(A/rms) ☆ESR:20℃,120Hz,(Ω).

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Capacitance (μF)	Rated (Surge) Voltage											
	315(365)						350(400)					
	φ DxL / Ripple Current				tan δ	ESR	φ DxL / Ripple Current				tan δ	ESR
82							22x25				0.15	2.426
							0.70					
100	22x25				0.15	1.989	22x30				0.15	1.989
	0.75						0.80					
120	22x30				0.15	1.658	22x30	25x25			0.15	1.658
	0.80						0.85	0.85				
150	22x30	25x25			0.15	1.326	22x35	25x25			0.15	1.326
	1.00	1.00					1.11	1.05				
180	22x35	25x30			0.15	1.105	22x40	25x35	30x25		0.15	1.105
	1.10	1.10					1.16	1.17	1.15			
220	22x40	25x30	30x25		0.15	0.905	22x45	25x35	30x30	35x25	0.15	0.905
	1.31	1.25	1.29				1.34	1.30	1.35	1.39		
270	22x45	25x35	30x30	35x25	0.15	0.737		25x45	30x35	35x25	0.15	0.737
	1.44	1.40	1.46	1.50				1.51	1.49	1.45		
330	22x50	25x40	30x35	35x30	0.15	0.603		25x50	30x40	35x30	0.15	0.603
	1.63	1.60	1.68	1.74				1.67	1.68	1.65		
390		25x45	30x35	35x30	0.15	0.510			30x45	35x35	0.15	0.510
		1.75	1.75	1.80					1.87	1.85		
470			30x40	35x35	0.15	0.423			30x50	35x40	0.15	0.423
			2.00	2.06					2.10	2.10		
560			30x45	35x40	0.15	0.355				35x45	0.15	0.355
			2.20	2.29						2.30		
680				35x45	0.15	0.293				35x50	0.15	0.293
				2.50						2.60		
820				35x50	0.15	0.243						
				2.80								

Capacitance (μF)	Rated (Surge) Voltage											
	400(450)						450(500)					
	φ DxL / Ripple Current				tan δ	ESR	φ DxL / Ripple Current				tan δ	ESR
56							22x25				0.25	5.921
							0.65					
68	22x25				0.15	2.926	22x30				0.25	4.876
	0.65						0.75					
82	22x25				0.15	2.426	22x30	25x25			0.25	4.044
	0.75						0.85	0.85				
100	22x30	25x25			0.15	1.989	22x35	25x30			0.25	3.316
	0.85	0.85					0.90	0.90				
120	22x35	25x25	30x25		0.15	1.658	22x40	25x35	30x25		0.25	2.763
	0.99	0.93	1.04				1.11	1.12	1.10			
150	22x40	25x30	30x25		0.15	1.326	22x50	25x40	30x30		0.25	2.210
	1.15	1.10	1.13				1.25	1.21	1.20			
180	22x45	25x35	30x30		0.15	1.105		25x45	30x35	35x25	0.25	1.842
	1.24	1.20	1.25					1.40	1.39	1.35		
220	22x50	25x40	30x30	35x25	0.15	0.905		25x50	30x40	35x30	0.25	1.507
	1.40	1.36	1.35	1.38				1.51	1.53	1.50		
270		25x45	30x35	35x30	0.15	0.737			30x45	35x35	0.25	1.228
		1.50	1.50	1.54					1.72	1.70		
330		25x50	30x40	35x35	0.15	0.603			30x50	35x40	0.25	1.005
		1.70	1.70	1.77					1.90	1.90		
390			30x45	35x35	0.15	0.510				35x45	0.25	0.850
			1.92	1.90						2.10		
470				35x40	0.15	0.423				35x50	0.25	0.705
				2.10						2.30		
560				35x50	0.15	0.355						
				2.30								

☆Size:Dφx L(mm). ☆tan δ:20℃,120Hz. ☆Ripple Current: 85℃,120Hz,(A/rms) ☆ESR:20℃,120Hz,(Ω).