

**LF**

Long Life Series

Upgrade

**550V  
LINEUP**

**LF**

↑ Long Life  
LH

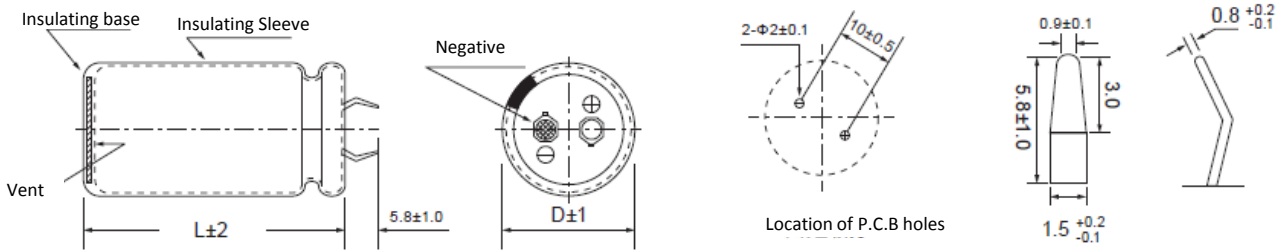


- Endurance: 85°C 3000hours
- Recommended Applications : Smoothing circuit, TV/Monitor, Adapter, SMPS
- Corresponding product to RoHS

**■ SPECIFICATIONS**

Item	Characteristics									
Category Temperature Range	-40 ~ +85°C					-25 ~ +85°C				
Rated Voltage Range	10 ~ 100VDC					160 ~ 550VDC				
Rated Capacitance Range	820 ~ 56000 $\mu$ F					47 ~ 2200 $\mu$ F				
Capacitance Tolerance	$\pm 20\%$ ( 120Hz , 20°C)									
Leakage Current (20°C)	$I = 3\sqrt{CV}$ . (After rated voltage applied for 5 minutes) I : Max. leakage current ( $\mu$ A ), C : Nominal capacitance ( $\mu$ F ), V : Rated voltage (V)									
Dissipation Factor(MAX) (tan $\delta$ ) (120Hz ,20°C)	WV	10~16	25	35	50	63	80~100	160~400	420~450	500~550
	tan $\delta$	0.55	0.45	0.40	0.35	0.30	0.25	0.15	0.20	0.25
Low Temperature Stability Impedance Ratio (MAX)	Measurement frequency : 120Hz									
	WV	10~16	25	35	50~63	80~100	160~400	450	500	550
	Z-25°C / Z+20°C	3	3	3	2	2	4	8	8	8
	Z-40°C / Z+20°C	12	10	8	6	5	—	—	—	—
Endurance	After applying rated voltage with rated Ripple current for 3000hrs at 85°C , the capacitor shall meet the following requirement.									
	Capacitance change	Within $\pm 20\%$ of initial value								
	D.F. (tan $\delta$ )	Not more than 200% of specified value								
	Leakage current	initial specified value or less								
Shelf Life	After placed at 85°C without voltage applied for 1000 hours,the capacitor shall meet the same requirements as Endurance.									

**■ Dimensions [mm]**



**■ Multiplier for Ripple Current**

Freq. (Hz)	50	60	120	400	1K	2.4K	5K	10K~100K
coefficient	0.8	0.85	1.0	1.14	1.23	1.3	1.36	1.4

STANDARD RATINGS

Rated Voltage (SurageVoltage) (V)	Cap (μ F)	Case size Φ DxL(mm)	Ripple current (A/rms85°C) (120Hz)	ESR (Ω,20°C) (120Hz)	Rated Voltage (SurageVoltage) (V)	Cap (μ F)	Case size Φ DxL(mm)	Ripple current (A/rms85°C) (120Hz)	ESR (Ω,20°C) (120Hz)		
10(13)	12000	22x25	2.45	0.061	25(32)	22000	30x45	4.90	0.027		
	15000	22x30	2.80	0.049			35x35	4.85	0.027		
	18000	22x35	3.34	0.041			30x50	5.45	0.022		
		25x25	3.15	0.041	35x40	5.45	0.022				
	22000	22x40	3.67	0.033	33000	35x45	35x45	6.15	0.018		
		25x30	3.50	0.033			3900	22x25	2.10	0.136	
		30x25	3.60	0.033				22x30	2.30	0.113	
	27000	22x45	4.12	0.027	4700	25x25	25x25	2.30	0.113		
		25x35	4.00	0.027			5600	22x35	2.60	0.095	
		30x30	4.16	0.027				25x30	2.62	0.095	
	33000	22x50	4.63	0.022	6800	30x25	30x25	2.70	0.095		
		25x40	4.49	0.022			8200	35x25	2.99	0.095	
		30x30	4.45	0.022				22x40	2.90	0.078	
	39000	35x25	4.54	0.022	10000	25x35		25x35	2.93	0.078	
		25x45	4.90	0.019			12000	30x30	3.07	0.078	
		30x35	4.90	0.019				35x25	3.13	0.078	
	47000	35x30	5.05	0.019	15000	30x40		22x45	3.30	0.065	
		25x50	5.55	0.016			18000	25x35	3.20	0.065	
30x40		5.61	0.016	30x30				3.33	0.065		
56000	35x30	5.50	0.016	22000	35x25	35x25		3.42	0.065		
	30x45	6.11	0.013			27000	22x50	3.74	0.053		
	35x35	6.05	0.013				25x40	3.64	0.053		
16(20)	8200	22x25	2.45	0.089	35(44)		10000	30x30	3.60	0.053	
	10000	22x30	2.60	0.073		12000		25x45	4.00	0.044	
	12000	22x35	3.10	0.061				15000	30x35	4.00	0.044
		25x25	2.90	0.061	18000		35x30		4.12	0.044	
	15000	22x40	3.46	0.049		22000	30x40		30x40	4.60	0.035
		25x30	3.30	0.049				27000	35x35	4.47	0.035
		30x25	3.40	0.049	33000				30x45	5.10	0.029
	18000	22x45	3.81	0.041		39000	35x40		35x40	5.30	0.029
		25x35	3.70	0.041				47000	35x45	5.70	0.024
		30x30	3.85	0.041	35x50				6.45	0.020	
	22000	22x50	4.32	0.033	50(63)	2200	22x25		1.80	0.211	
		25x45	4.40	0.033		2700	22x30	1.95	0.172		
		30x30	4.15	0.033		3300	22x35	2.33	0.141		
	35x25	4.23	0.033	25x25			2.20	0.141			
	27000	25x45	4.65	0.027		3900	22x40	2.52	0.119		
		30x35	4.65	0.027			25x30	2.40	0.119		
		35x30	4.79	0.025		4700	22x45	2.78	0.099		
	33000	30x40	5.25	0.022			25x35	2.70	0.099		
35x35		5.41	0.022	30x30			2.82	0.099			
39000		30x45	5.86	0.019		5600	35x25	2.89	0.099		
	35x35	5.80	0.019	25x35			3.00	0.083			
	47000	35x40	6.45	0.016			30x30	3.12	0.083		
25(32)	5600	22x25	2.20	0.107		6800	25x40	35x25	3.21	0.083	
	6800	22x30	2.45	0.088				8200	25x40	3.35	0.068
		25x25	2.45	0.088					30x35	3.52	0.068
	8200	22x35	2.75	0.073		10000	35x30		3.62	0.068	
		25x30	2.75	0.073			12000	25x50	3.74	0.057	
	10000	22x40	3.25	0.06				15000	30x40	3.77	0.057
		25x30	3.10	0.06	18000	35x30			3.70	0.057	
		30x25	3.19	0.06		30x45	4.24		0.046		
	12000	22x45	3.50	0.05		63(79)	2200	22x25	1.80	0.221	
		25x35	3.40	0.05	2200		225x30	2.00	0.181		
		30x30	3.54	0.05			25x25	2.00	0.181		
	15000	35x25	3.64	0.05	2700	22x35	2.30	0.147			
		25x45	3.90	0.04							
		30x40	4.10	0.04							
	18000	35x30	4.21	0.04							
		25x45	4.30	0.033							
		30x40	4.51	0.033							
		35x30	4.39	0.033							

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STANDARD RATINGS

Rated Voltage (SurageVoltage) (V)	Cap (μF)	Case size Φ DxL(mm)	Ripple current (A/rms85°C) (120Hz)	ESR (Ω,20°C) (120Hz)	Rated Voltage (SurageVoltage) (V)	Cap (μF)	Case size Φ DxL(mm)	Ripple current (A/rms85°C) (120Hz)	ESR (Ω,20°C) (120Hz)	
63(79)	2700	25x30	2.30	0.147	100(125)	2200	35x25	3.11	0.151	
	3300	22x40	2.68	0.121		2700	25x45	3.45	0.123	
		25x30	2.55	0.121			30x35	3.45	0.123	
		30x25	2.63	0.121			35x30	3.55	0.123	
		22x45	2.88	0.102			25x50	3.94	0.100	
	3900	25x35	2.80	0.102		3300	30x40	3.98	0.100	
		30x30	2.91	0.102			35x30	3.90	0.100	
		22x50	3.28	0.085			30x45	4.34	0.085	
	4700	25x40	3.18	0.085		3900	35x35	4.30	0.085	
		30x30	3.15	0.085			4700	35x40	4.75	0.071
		35x25	3.21	0.085		5600	35x50	5.30	0.059	
	5600	25x45	3.50	0.071		160(200)	330	22x25	1.15	0.603
		30x35	3.50	0.071			390	22x30	1.30	0.510
		35x30	3.60	0.071			470	22x35	1.59	0.423
	25x50	3.94	0.059	25x30				1.62	0.423	
	30x40	3.98	0.059	560				22x35	1.70	0.355
	35x30	3.90	0.059				25x30	1.70	0.355	
	6800	30x45	4.39	0.049			680	22x40	1.97	0.293
35x35		4.35	0.049	25x35	1.99			0.293		
8200	30x50	4.90	0.040	30x25	1.95			0.293		
	35x40	4.90	0.040	820	22x50		2.32	0.243		
10000	35x50	5.45	0.033		25x40		2.28	0.243		
80(100)	1200	22x25	1.70		0.276		30x30	2.24	0.243	
	1500	22x30	1.95	0.221	1000		25x45	2.58	0.199	
		25x25	1.95	0.221			30x35	2.57	0.199	
	1800	22x35	2.15	0.184			35x30	2.65	0.199	
		25x30	2.15	0.184	1200		25x50	2.78	0.166	
	2200	22x40	2.57	0.151			30x40	2.80	0.166	
		25x30	2.45	0.151	35x35		2.92	0.166		
		30x25	2.52	0.151	1500	30x45	3.03	0.133		
	2700	22x45	2.83	0.123		35x40	3.17	0.133		
		25x35	2.75	0.123	1800	30x50	3.50	0.111		
		30x30	2.86	0.123		35x45	3.67	0.111		
	3300	22x50	3.22	0.100	2200	35x50	4.08	0.090		
		25x40	3.13	0.100	180(225)	270	22x25	1.10	0.737	
		30x30	3.10	0.100		330	22x30	1.25	0.603	
		35x25	3.16	0.100		390	22x30	1.40	0.510	
		3900	25x45	3.40			0.085	25x25	1.40	0.510
			30x35	3.40		0.085	470	22x35	1.60	0.423
			35x30	3.50		0.085		25x30	1.60	0.423
4700		25x50	3.84	0.071		560	22x40	1.89	0.355	
		30x40	3.88	0.071			25x30	1.80	0.355	
		35x35	4.04	0.071			30x25	1.85	0.355	
5600		30x45	4.24	0.059		680	22x45	2.11	0.292	
		35x40	4.43	0.059			25x35	2.05	0.292	
6800	30x50	4.70	0.049	30x30			2.13	0.292		
	35x45	4.93	0.049	820		22x50	2.34	0.234		
8200	30x50	5.25	0.040			25x40	2.27	0.234		
100(125)	820	22x25	1.70			0.404	30x30	2.25	0.234	
	1000	22x30	1.95	0.332		35x30	2.45	0.234		
		25x25	1.95	0.332		25x50	2.67	0.199		
	1200	22x35	2.15	0.276		1000	30x35	2.55	0.199	
		25x30	2.15	0.276	35x30		2.63	0.199		
	22x40	2.57	0.221	1200	30x40		2.85	0.166		
	1500	25x30	2.45		0.221	35x35	2.93	0.166		
		30x25	2.52		0.221	1500	30x50	3.10	0.130	
	1800	22x45	2.83	0.184	35x40		3.10	0.130		
		25x35	2.75	0.184	1800	35x45	3.60	0.111		
		30x30	2.86	0.184		200(250)	220	22x25	1.00	0.905
	2200	22x50	3.17	0.151	25x25		1.08	0.905		
		25x40	3.08	0.151	270		22x30	1.15	0.737	
		30x30	3.05	0.151	25x25		1.15	0.737		

STANDARD RATINGS

Rated Voltage (SurageVoltage) (V)	Cap (μF)	Case size Φ DxL(mm)	Ripple current (A/rms85°C) (120Hz)	ESR (Ω,20°C) (120Hz)	Rated Voltage (SurageVoltage) (V)	Cap (μF)	Case size Φ DxL(mm)	Ripple current (A/rms85°C) (120Hz)	ESR (Ω,20°C) (120Hz)	
200(250)	330	22x30	1.29	0.603	315 (365)	330	25x40	1.60	0.603	
		25x25	1.30	0.603			30x35	1.68	0.603	
	390	22x35	1.45	0.510			35x30	1.74	0.603	
		25x30	1.45	0.510			390	25x45	1.75	0.510
	30x25	1.51	0.510	30x35				1.75	0.510	
		470	22x40	1.67				0.423	35x30	1.80
	25x30		1.68	0.423		470	30x40	2.00	0.423	
	30x25		1.65	0.423			35x35	2.06	0.423	
	560	33x56	1.94	0.355		560	30x45	2.20	0.355	
		25x35	1.87	0.355			35x40	2.29	0.355	
		30x30	1.96	0.355		680	35x45	2.50	0.293	
	680	22x50	2.14	0.293		820	35x50	2.80	0.243	
			25x45	2.21		0.293	350(400)	82	22x25	0.7
		30x35	2.20	0.293		100		22x30	0.8	1.989
		35x30	2.27	0.293		120		22x30	0.85	1.658
	25x50	2.32	0.243	25x25				0.85	1.658	
	820	30x35	2.22	0.243		150		22x35	1.11	1.326
			35x30	2.30				0.243	25x25	1.05
		1000	30x45	2.63		0.199		180	22x40	1.16
	35x35		2.60	0.199		25x35			1.17	1.105
1200	30x50	2.90	0.166	220	30x25	1.15		1.105		
	35x40	2.90	0.166		22x45	1.34		0.905		
1500	35x45	3.11	0.133	270	25x35	1.30		0.905		
		180	22x25		1.00	1.110		30x30	1.35	0.905
250(300)	220	22x30	1.15	0.905	330	25x35		1.39	0.905	
		25x25	1.15	0.905		25x45		1.51	0.737	
	270	22x30	1.30	0.737	390	30x35		1.49	0.737	
		25x25	1.30	0.737		35x25		1.45	0.737	
	330	22x35	1.45	0.603	470	25x350		1.67	0.603	
		25x30	1.45	0.603		30x40		1.68	0.603	
	390	22x40	1.62	0.510	560	35x30		1.65	0.603	
			25x35	1.63		0.510		30x45	1.87	0.510
		30x25	1.60	0.510	680	35x35	1.85	0.510		
	470	22x45	1.80	0.423		820	30x50	2.10	0.423	
		25x40	1.84	0.423	35x40		2.10	0.423		
		30x30	1.80	0.423	1000	35x45	2.30	0.355		
	35x25	1.85	0.423	680		35x50	2.60	0.293		
	560	25x40	2.00	0.355	400(450)	68	22x25	0.65	2.926	
			30x35	2.10		0.355	82	22x25	0.75	2.426
		35x30	2.20	0.355		100	22x30	0.85	1.989	
	25x50	2.32	0.293	25x25			0.85	1.989		
	680	30x40	2.35	0.293		120	22x30	0.99	1.658	
			35x30	2.30			0.293	25x25	0.93	1.658
	820	30x45	2.57	0.243		150	30x25	1.04	1.658	
35x35			2.55	0.243			22x40	1.15	1.326	
1000	30x50	2.90	0.199	180		25x30	1.10	1.326		
		35x40	2.90			0.199	30x25	1.13	1.326	
1200	35x45	3.25	0.166	220		22x45	1.24	1.105		
100	22x25	0.75	1.989			25x35	1.20	1.105		
		120	22x30	0.80		1.658	30x30	1.25	1.105	
150	22x30		1.00	1.326		270	22x50	1.40	0.905	
		25x25	1.00	1.326			25x40	1.36	0.905	
180	25x35	1.10	1.105	330		30x30	1.35	0.905		
		25x30	1.10			1.105	35x25	1.38	0.905	
220	22x40	1.31	0.905	390		25x45	1.50	0.737		
		25x30	1.25			0.905	30x35	1.50	0.737	
	30x25	1.29	0.905	470		35x30	1.54	0.737		
		22x45	1.44		0.737	25x50	1.70	0.603		
270	25x35	1.40	0.737	560	30x40	1.70	0.603			
		30x30	1.46		0.737	35x35	1.77	0.603		
	35x25	1.50	0.737	680	30x45	1.92	0.510			
330	22x50	1.63	0.603	820	35x35	1.90	0.510			

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Rated Voltage (SurageVoltage) (V)	Cap (μF)	Case size Φ DxL(mm)	Ripple current (A/rms85°C) (120Hz)	ESR (Ω,20°C) (120Hz)	Rated Voltage (SurageVoltage) (V)	Cap (μF)	Case size Φ DxL(mm)	Ripple current (A/rms85°C) (120Hz)	ESR (Ω,20°C) (120Hz)	
400(450)	470	35x40	2.10	0.423	500(550)	120	25x40	1.19	3.456	
	560	35x50	2.30	0.355			30x30	1.17	3.456	
450(500)	56	22x25	0.65	5.921		150	25x45	1.40	2.765	
	68	22x30	0.75	4.876				30x35	1.40	2.765
	82	22x30	0.85	4.044					35x25	1.35
		25x25	0.85	4.044		180	25x50	1.61	2.304	
	100	22x35	0.90	3.316			30x40	1.62	2.304	
		25x30	0.90	3.316		35x30	1.58	2.304		
	120	22x40	1.11	2.763		220	30x45	1.75	1.885	
		25x35	1.12	2.763			35x35	1.72	1.885	
		30x25	1.10	2.763		270	30x50	1.88	1.536	
	150	22x50	1.25	2.210			35x40	1.85	1.536	
		25x40	1.21	2.210	330	35x45	1.98	1.257		
		30x30	1.20	2.210	390	35x50	2.19	1.063		
	180	25x45	1.40	1.842	550(600)	47	22x30	0.64	8.823	
		30x35	1.39	1.842		56	22x35	0.74	7.405	
		35x25	1.35	1.842		68	22x40	0.87	6.098	
		220	25x50	1.51		1.507	82	22x45	1.00	5.057
			30x40	1.53		1.507		25x35	0.97	5.057
			35x30	1.50		1.507	100	22x50	1.16	4.147
270		30x45	1.72	1.228		25x40		1.13	4.147	
		35x35	1.70	1.228		30x30		1.11	4.147	
330		30x50	1.90	1.005		120	25x45	1.30	3.456	
		35x40	1.90	1.005			30x35	1.30	3.456	
390		35x45	2.10	0.850		150	25x50	1.46	2.765	
470		35x50	2.23	0.705			30x40	1.47	2.765	
	35x50	2.23	0.705	35x30			1.44	2.765		
500(550)	56	22x30	0.70	7.405		180	30x45	1.70	2.304	
	68	22x35	0.82	6.098			35x35	1.67	2.304	
	82	22x40	0.96	5.057			220	30x50	1.79	1.885
		25x30	0.91	5.057		35x40		1.77	1.885	
	100	22x45	1.11	4.147		270	35x45	2.11	1.536	
		25x35	1.07	4.147	330		35x50	2.39	1.257	
	120	22x50	1.22	3.456						