



MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

LLE SERIES

Load Life: 105°C 12000~20000 hours

◆FEATURES

- Ultra Long Life.
- For LED Lighting.
- RoHS compliance.



◆SPECIFICATIONS

Items	Characteristics													
Category Temperature Range	-40~+105°C	-25~+105°C												
Rated Voltage Range	160~400Vdc	450Vdc												
Capacitance Tolerance	±20%(20°C,120Hz)													
Leakage Current(MAX)	CV≤1000	CV>1000												
	I=0.1CV+40µA (1minute) I=0.03CV+15µA (5minutes)	I=0.04CV+100µA (1minute) I=0.02CV+25µA (5minutes)												
(tanδ) Dissipation Factor(MAX)	<table border="1"> <thead> <tr> <th>Rated Voltage (Vdc)</th> <th>160</th> <th>200</th> <th>250</th> <th>400</th> <th>450</th> </tr> </thead> <tbody> <tr> <td>tanδ</td> <td>0.24</td> <td>0.24</td> <td>0.24</td> <td>0.24</td> <td>0.24</td> </tr> </tbody> </table> (20°C,120Hz)		Rated Voltage (Vdc)	160	200	250	400	450	tanδ	0.24	0.24	0.24	0.24	0.24
Rated Voltage (Vdc)	160	200	250	400	450									
tanδ	0.24	0.24	0.24	0.24	0.24									
Endurance	After applying rated voltage with rated ripple current for specified time at 105°C, the capacitors shall meet the following requirements.													
	Capacitance Change	Within ±30% of the initial value.												
	Dissipation Factor	Not more than 300% of the specified value.												
Leakage Current	Not more than the specified value.													
	Case Size	Life Time (hrs)												
	6.3×11, 8×9, 10×9	12000												
8×11.5, 10×12.5	15000													
10×16, 10×20 φD≥12.5	20000													
Low Temperature Stability Impedance Ratio(MAX)	(120Hz)													
	Rated Voltage (Vdc)	160 200 250 400 450												
	Z(-25°C)/Z(20°C)	3 3 3 6 6												
Z(-40°C)/Z(20°C)	8 8 8 10 -													

◆MULTIPLIER FOR RIPPLE CURRENT

160~400Vdc

Frequency (Hz)	120	1k	10k	100k≤
1~5.6µF	1.0	1.6	1.8	2.0
6.8~18µF	1.0	1.5	1.7	1.9
22~33µF	1.0	1.4	1.6	1.8

450Vdc

Frequency (Hz)	120	1k	10k	100k≤
4.7~15µF	0.3	0.6	0.9	1.0
22~68µF	0.4	0.7	0.9	1.0

◆OPTION

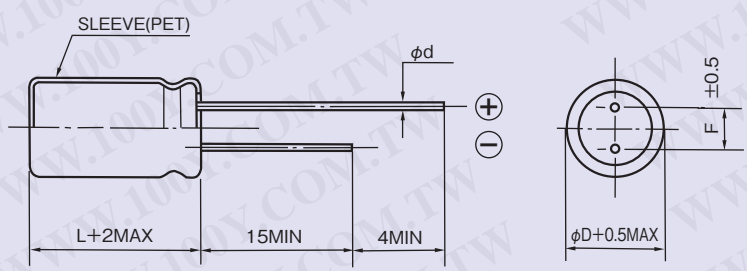
	Code
PET Sleeve	EFC

◆PART NUMBER

LLE M D×L
 Rated Voltage Series Capacitance Capacitance Tolerance Option Lead Forming Case Size

◆ DIMENSIONS

(mm)



ϕD	6.3	8	10	12.5	16	18
ϕd	0.5	0.6		0.8		
F	2.5	3.5	5		7.5	

◆ STANDARD SIZE

Rated Voltage (Vdc)	Capacitance (μF)	Size $\phi D \times L$ (mm)	Rated Ripple Current (mA r.m.s., 105°C)	
			120Hz	100kHz
160	5.6	6.3×11	52	104
	10	8×9	70	133
	15	8×11.5	92	174
		10×9	95	180
	22	10×12.5	121	217
	33	10×16	158	284
200	2.2	6.3×11	36	72
	3.3	6.3×11	42	84
	4.7	6.3×11	49	98
	5.6	8×9	56	112
	6.8	8×9	62	117
	8.2	8×9	66	125
	10	8×11.5	80	152
	12	10×9	88	167
	18	10×12.5	113	214
	27	10×16	149	268
250	1.8	6.3×11	33	66
	2.2	6.3×11	36	72
	3.3	6.3×11	42	84
	4.7	8×9	53	106
	5.6	8×11.5	62	124
	6.8	8×11.5	68	129
	8.2	10×9	76	144
	10	10×12.5	90	171
	12	10×12.5	97	184
	18	10×16	127	241

Rated Voltage (Vdc)	Capacitance (μF)	Size $\phi D \times L$ (mm)	Rated Ripple Current (mA r.m.s., 105°C)	
			120Hz	100kHz
400	1	6.3×11	24	48
	1.2	8×9	28	56
	1.5	8×9	30	60
	1.8	8×9	33	66
	2.2	8×9	36	72
		8×11.5	40	80
	2.7	8×11.5	43	86
		10×9	48	96
	3.9	10×12.5	57	114
	4.7	10×12.5	61	122
6.8	10×16	85	161	
450	4.7	10×16	54	180
		10×20	66	220
	6.8	10×20	84	280
	8.2	10×20	84	280
	10	12.5×20	135	450
	15	12.5×25	180	600
	22	12.5×25	240	600
		16×20	292	730
	33	16×25	392	980
		18×20	312	780
47	18×25	480	1200	
68	18×31.5	520	1300	