

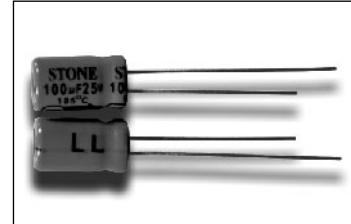


Aluminum Electrolytic Capacitors

LL Series

Features

- 105°C, Low Leakage Current
- RoHS Compliance



Specification

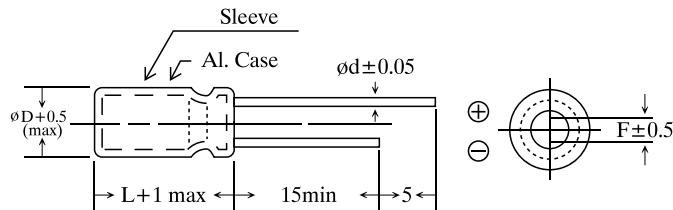
Items	Performance					
Capacitance Tolerance	$\pm 20\%$ (at 120Hz, 20°C)					
Rated Voltage Range	10 to 63 VDC					
Capacitance Range	0.1 to 1000 μ F					
Operating Temperature Range	-40 to + 105°C					
Leakage Current (at 20°C)	$I \leq 0.002 CV$ or $1 (\mu A)$, whichever is greater. After 3 minutes application of working voltage. $I = \text{Leakage current } (\mu A), C = \text{Rated capacitance } (\mu F), V = \text{Rated voltage } (V)$					
Dissipation Factor (Tan δ at 120Hz, 20°C)	Rated Voltage	10	16	25	35	50
	Tan δ (max)	0.20	0.17	0.15	0.12	0.10
	For capacitance $> 1000 \mu F$, add 0.02 per 1000 μF increase.					
Low Temperature Characteristics (at 120Hz)	Impedance ratio max.					
	Rated Voltage	10	16	25	35	50
	Z-25°C/Z+20°C	3	2	2	2	2
	Z-40°C/Z+20°C	8	6	4	3	3
Load Life	After 1000 hours application of W.V. at 105°C, the capacitor shall meet the following limits. Capacitance change : $\leq \pm 25\%$ of initial value Dissipation factor : $\leq 200\%$ of initial specified value Leakage Current : \leq Initial specified value					
Shelf Life	After storage for 500 hours at 105°C, with no voltage applied and being stabilized at + 20°C, Capacitor shall meet the limit specified in load life.					
Ripple Current & Frequency Multiplier	Freq.(Hz) Cap. (μ F)	60 (50)	120	500	1K	10K up
	Under 100	0.75	1.00	1.35	1.50	2.00
	100 to 1000	0.83	1.00	1.23	1.32	1.50
	1000 up above	0.90	1.00	1.12	1.10	1.15
Ripple Current & Temperature Multiplier	Temperature(°C)	85		105		
	Multiplier	1.40		1.00		



Aluminum Electrolytic Capacitors

LL Series

DIAGRAM OF DIMENSIONS



LEAD SPACING AND DIAMETER

Unit: mm

D	5	6.3	8	10	13
F	2.0	2.5	3.5		5.0
d	0.5			0.6	

DIMENSION & PERMISSIBLE RIPPLE CURRENT

Dimension : $\phi D \times L$ (mm)

Ripple Current : mA/rms at 120Hz, 105°C

VDC μF	10V		16V		25V		35V		50V		63V	
	ø DxL	mA	ø DxL	mA	ø DxL	mA	ø DxL	mA	ø DxL	mA	ø DxL	mA
0.1-0.47									5x11.5	6	5x11.5	6
1									5x11.5	12	5x11.5	12
2.2									5x11.5	20	5x11.5	20
3.3									5x11.5	25	5x11.5	25
4.7									5x11.5	30	5x11.5	30
10					5x11.5	35	5x11.5	46	5x11.5	46	6.3x11	54
22					5x11.5	55	5x11.5	59	5x11.5	59	6.3x11	78
33			5x11.5	60	5x11.5	66	6.3x11	87	6.3x11	87	8x11	96
47	5x11.5	65	5x11.5	90	6.3x11	105	6.3x11	115	6.3x11	115	8x11	136
100	5x11.5	95	6.3x11	115	6.3x11	138	8x11	162	8x11	188	10x16	236
220	6.3x11	165	8x11	220	10x12.5	240	10x12.5	290	10x20	340	13x21	410
330	8x11	235	8x11	250	10x12.5	315	10x16	380	10x20	440	13x21	440
470	8x11	285	10x12.5	360	10x16	430	13x21	520	13x26	630		
1000	10x16	540	10x20	630	13x21	720	13x25	890				