

LLM Series 105 °C 7 mm, Low Leakage Current

Features

- Low leakage current, height 7 mm
- For detail specifications, please refer to Engineering Bulletin No. E120



Specifications

Item	Performance Characteristics														
Operating Temperature Range	-40°C to +105 °C														
Rated voltage Range	6.3 to 50 VDC														
Capacitance Range	0.1 to 220 uF														
Capacitance Tolerance	±20 % (120 Hz, +20 °C)														
Leakage Current (+20 °C, max.)	1 ≤ 0.002 CV or 0.4 (uA) After 2 minutes whichever is greater measured with rate working voltage applied.														
Dissipation Factor (tan δ)	<table border="1"> <thead> <tr> <th>Working Voltage (VDC)</th> <th>6.3</th> <th>10</th> <th>16</th> <th>25</th> <th>35</th> <th>50</th> </tr> </thead> <tbody> <tr> <td>D.F. (%) max</td> <td>4</td> <td>20</td> <td>16</td> <td>14</td> <td>12</td> <td>10</td> </tr> </tbody> </table>	Working Voltage (VDC)	6.3	10	16	25	35	50	D.F. (%) max	4	20	16	14	12	10
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(+ 20 °C, at 120 Hz)															
Low Temperature Characteristics (120 Hz)	Impedance ratio max.														
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Load Life	Duration time: 1000 Hrs Ambient temperature: +105 °C Applied voltage: Rated DC working voltage After test requirements: at + 20 % Capacitance change: ≤ ±20% of the initial measured value Dissipation Factor: ≤ 200 % of the initial specified value (4V: ≤ ± 30 %) Leakage current: ≤ The initial specified value														
Shelf Life	Test conditions Duration time: 500 Hrs Ambient temperature: + 105°C Applied voltage: None After test requirements at +20 °C: Some limits as Load life. Pre-treatment for measurements shall be conducted after application of DC working voltage for 30 minutes.														

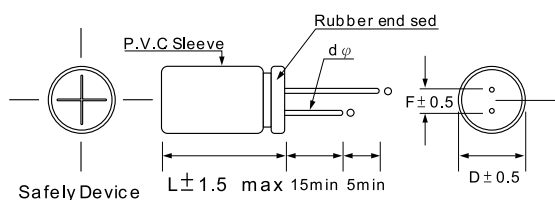
Multiplier for Ripple Current vs. Frequency

CAP(uF)\Hz		50(60)	120	400	1K	10K	50K-100K
Multi-plier	CAP ≤ 10	0.8	1	1.30	1.30	1.65	1.70
	10 < CAP ≤ 100	0.8	1	1.23	1.23	1.48	1.53
	100 < CAP ≤ 1000	0.8	1	1.16	1.16	1.35	1.38

Multiplier for Ripple Current vs. Temperature

Temperature °C	45	60	70	85
Multiplier	1.8	1.50	1.30	1.0

Diagram of Dimensions: (Unit: mm)



Dφ	4	5	6.3	8
F	1.5	2.0	2.5	3.5
dφ	0.45		0.6	

Case Size

φD x L (mm)

W.V. uF	6.3 (8)	10 (13)	16 (20)	25 (32)	35 (44)	50 (63)
0.1	→				→	4x7
0.22	→				→	4x7
0.33	→				→	4x7
0.47	→				→	4x7
1	→				→	4x7
2.2	→				→	4x7
3.3	→				→	4x7
4.7	→			→	4x7	5x7
10	→	→	4x7	5x7	5x7	6.3x7
22	4x7	5x7	5x7	6.3x7	6.3x7	8x7
33	5x7	5x7	6.3x7	6.3x7	8x7	-
47	5x7	6.3x7	6.3x7	8x7	-	-
100	6.3x7	8x7	8x7	-	-	-
220	8x7	-	-	-	-	-

Maximum Ripple Current

(mA, rms, 120 Hz at 105 °C)

W.V. uF	6.3 (8)	10 (13)	16 (20)	25 (32)	35 (44)	50 (63)
0.1	→				→	0.8
0.22	→				→	2.0
0.33	→				→	3.1
0.47	→				→	4.5
1	→				→	8.0
2.2	→				→	16
3.3	→				→	21
4.7	→			→	21	25
10	→	→	25	30	33	40
22	31	35	40	48	52	58
33	40	44	53	59	65	-
47	48	55	60	73	-	-
100	70	90	95	-	-	-
220	110	-	-	-	-	-