

LLK Series 105 °C

Features

- Extremely low and stable leakage current characteristics
- Close capacitance tolerance $\pm 20\%$ ($\pm 10\%$ on requested)
- For detail specifications, please refer to Engineering Bulletin No. E109



Specifications

Item	Performance Characteristics																
Operating Temperature Range	-40 °C to +105 °C																
Rated voltage Range	10 to 63 VDC																
Capacitance Range	0.1 to 1000 μ F																
Capacitance Tolerance	$\pm 20\%$ (120 Hz, +20 °C)																
Leakage Current (+20 °C, max.)	$1 \leq 0.002 CV$ or 0.4 (μ A) After 3 minutes (90 secondary, $\leq 10 \mu$ F), whichever is greater measured with rated working voltage applied.																
Dissipation Factor (tan δ)	<table border="1"> <thead> <tr> <th>Working Voltage (VDC)</th> <th>10</th> <th>16</th> <th>25</th> <th>35</th> <th>50</th> <th>63</th> <th rowspan="2">*8 for C $\leq 1\mu$F</th> </tr> </thead> <tbody> <tr> <td>D.F. (%) max</td> <td>17</td> <td>13</td> <td>10</td> <td>9</td> <td>*8</td> <td>*8</td> </tr> </tbody> </table> (+ 20 °C, at 120 Hz)	Working Voltage (VDC)	10	16	25	35	50	63	*8 for C $\leq 1\mu$ F	D.F. (%) max	17	13	10	9	*8	*8	
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Low Temperature Characteristics (120 Hz)	Impedance ratio max. <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> <th>63</th> </tr> </thead> <tbody> <tr> <td>Z-40 °C/Z+20 °C</td> <td>4</td> <td>3</td> <td>3</td> <td>2</td> <td>2</td> <td>2</td> <td>2</td> </tr> </tbody> </table>	Working Voltage (VDC)	6,3	10	16	25	35	50	63	Z-40 °C/Z+20 °C	4	3	3	2	2	2	2
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Load Life	Test conditions Duration time: 2000 Hrs Ambient temperature: +105 °C Applied voltage: Rated DC working voltage After test requirements: at + 20 % Capacitance change: $\leq 20\%$ of the initial measured value Dissipation Factor: $\leq 150\%$ of the initial specified value Leakage current: \leq 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.																

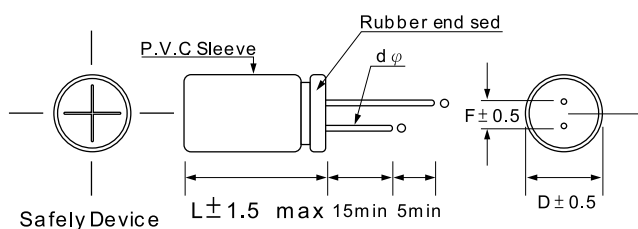
Multiplier for Ripple Current vs. Frequency

CAP(μ F)\Hz		50(60)	120	400	1K	10K	50K-100K
Multiplier	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	95	105
Multiplier	1.50	1.30	1.45	1.30	1.15	1.00

Diagram of Dimensions: (Unit: mm)



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

Case Size

φD x L (mm)

W.V. uF	10 (13)	16 (20)	25 (32)	35 (44)	50 (63)	63 (79)
0.1	→			→	5x11	5x11
0.22	→			→	5x11	5x11
0.33	→			→	5x11	5x11
0.47	→			→	5x11	5x11
1	→			→	5x11	5x11
2.2	→			→	5x11	5x11
3.3	→			→	5x11	5x11
4.7	→			→	5x11	5x11
10	→	→	5x11	5x11	5x11	6.3x11
22	→	5x11	5x11	5x11	6.3x11	6.3x11
33	5x11	5x11	5x11	5x11	6.3x11	8x11.5
47	5x11	6.3x11	6.3x11	6.3x11	6.3x11	8x11.5
100	5x11	6.3x11	6.3x11	8x11.5	10x12.5	10x20
220	6.3x11	8x11.5	10x12.5	10x12.5	10x20	13x20
330	8x11.5	8x11.5	10x12.5	10x20	13x20	13x25
470	8x11.5	10x12.5	10x20	13x20	13x25	-
1000	10x16	10x20	13x20	13x25	-	-

Maximum Ripple Current

(mA, rms, 120 Hz at 105 °C)

W.V. uF	10 (13)	16 (20)	25 (32)	35 (44)	50 (63)	63 (79)
0.1	→			→	8.8	8.8
0.22	→			→	8.8	8.8
0.33	→			→	8.8	8.8
0.47	→			→	8.8	8.8
1	→			→	13.2	13.2
2.2	→			→	22	22
3.3	→			→	28	31
4.7	→			→	33	38
10	→	→	42	46	51	55
22	→	60	63	68	75	91
33	66	70	76	83	99	110
47	77	109	116	121	138	149
100	116	138	149	187	198	248
220	193	237	253	330	380	440
330	270	286	369	440	506	594
470	319	407	484	572	671	-
1000	605	704	847	1012	-	-