

# KL series

## Features

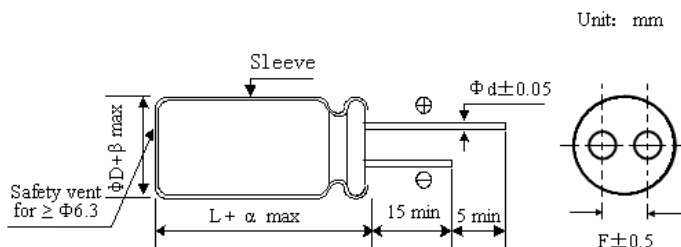
- ◆ High ripple current, Longer life 5000 hours at 105°C.
- ◆ Ideally suited for switching power supplies .
- ◆ RoHS Compliant .



## Specifications

Item	Performance Characteristics														
Temperature Range	-25~+105°C														
Rated Voltage Range	160~450Vdc														
Capacitance Range	4.7~220µF														
Capacitance Tolerance	±20% (120Hz, +20°C)														
Leakage Current (+20°C,max.)	$I \leq 0.02CV + 30$ (µA) After 2 minutes, whichever is greater measured with rated working voltage applied														
Dissipation Factor (tgδ) 120Hz, +20°C	<table border="1"> <tr> <td>Working Voltage(Vdc)</td> <td>160</td> <td>200</td> <td>250</td> <td>350</td> <td>400</td> <td>450</td> </tr> <tr> <td>D.F.(%)max.</td> <td>15</td> <td>15</td> <td>15</td> <td>20</td> <td>20</td> <td>20</td> </tr> </table> <p>For capacitance&gt;1000µF, Add 2% per another 1000µF (120Hz, +20°C)</p>	Working Voltage(Vdc)	160	200	250	350	400	450	D.F.(%)max.	15	15	15	20	20	20
Working Voltage(Vdc)	160	200	250	350	400	450									
D.F.(%)max.	15	15	15	20	20	20									
Low Temperature Characteristics(120Hz)	<p>Impedance ratio max.</p> <table border="1"> <tr> <td>Working Voltage(Vdc)</td> <td>160</td> <td>200</td> <td>250</td> <td>350</td> <td>400</td> <td>450</td> </tr> <tr> <td>Z-25°C/ Z+20°C</td> <td>3</td> <td>3</td> <td>3</td> <td>6</td> <td>6</td> <td>6</td> </tr> </table> <p>For capacitance&gt;1000µF, Add 0.5 per another 1000µF For Z-25°C/ Z+20°C, Add 1.0 per another 1000µF For Z-40°C/ Z+20°C</p>	Working Voltage(Vdc)	160	200	250	350	400	450	Z-25°C/ Z+20°C	3	3	3	6	6	6
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Z-25°C/ Z+20°C	3	3	3	6	6	6									
Endurance	<p>The following specifications shall be satisfied when the capacitors are restored to 20°C after the rated voltage is applied for 5000 hours at 105°C</p> <table border="1"> <tr> <td>Capacitance Change</td> <td>≤±20% of the initial value</td> </tr> <tr> <td>D.F.( tgδ)</td> <td>≤200% of the initial specified value</td> </tr> <tr> <td>Leakage Current</td> <td>≤The initial specified value</td> </tr> </table>	Capacitance Change	≤±20% of the initial value	D.F.( tgδ)	≤200% of the initial specified value	Leakage Current	≤The initial specified value								
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Shelf Life	<p>After storing the capacitors under no load at 105°C for 1000 hours and then performing voltage treatment based on JIS C 5101-4 clause 4.1 at 20°C.</p> <table border="1"> <tr> <td>Capacitance Change</td> <td>≤±20% of the initial value</td> </tr> <tr> <td>D.F.( tgδ)</td> <td>≤200% of the initial specified value</td> </tr> <tr> <td>Leakage Current</td> <td>≤200% The initial specified value</td> </tr> </table>	Capacitance Change	≤±20% of the initial value	D.F.( tgδ)	≤200% of the initial specified value	Leakage Current	≤200% The initial specified value								
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Others	JISC-5101(IEC 60384)														

## Diagram of Dimensions



## Frequency Multipliers

µF \ Hz	50/60	120	300	1K	≥10K
< 220	0.80	1.00	1.25	1.40	1.60
≥220	0.85	1.00	1.10	1.13	1.15

ΦD	8	10	13	16	18
F	3.5	5.0	5.0	7.5	7.5
Φd	0.5	0.6	0.6	0.8	0.8
α	(L < 20) + 1.5		(L ≥ 20) + 2.0		
β	(D < 20) + 0.5		(D ≥ 20) + 1.0		

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## Standard Ratings

Voltage	160		200		250	
Cap(μF)	Case Size	Ripple Current	Case Size	Ripple Current	Case Size	Ripple Current
10	10×17	90	10×17	100	10×17	110
22	10×20	140	10×20	160	13×20	160
33	10×20	190	13×20	215	13×20	235
47	13×20	290	13×20	310	16×20	340
68	13×25	380	13×25	420	16×25	450
82	16×20	420	16×25	480	18×25	490
100	16×25	520	16×25	560	18×30	580
220	18×35	870	18×35	920		

Voltage	350		400		450	
Cap(μF)	Case Size	Ripple Current	Case Size	Ripple Current	Case Size	Ripple Current
4.7			10×17	65	10×17	65
6.8	10×17	80	10×17	82	10×20	85
10	10×20	110	10×20	110	13×20	130
22	13×20	180	13×25	190	16×20	190
33	16×20	260	16×25	280	16×25	290
47	16×30	364	16×30	364	18×30	380
68	18×30	470	18×30	472	18×35	472
82	18×35	510	18×35	536	18×40	550
100	18×40	590	18×40	610		

Max Allowable Ripple Current (mA,rms) at 105°C 120Hz,Case Size ΦD×L(mm).

Above size is the standard size for our product. If you need special size please contact our sales offices.