



RUK Series

Features

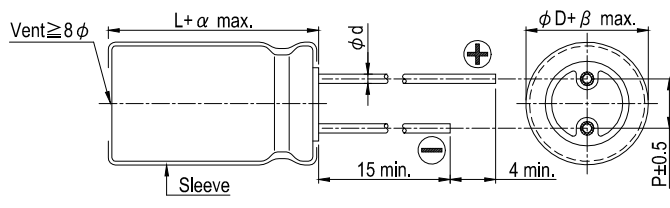
- 125°C, 3,000 ~ 5,000 hours assured
- For automobile modules and other high temperature applications
- RoHS compliant



Specifications

Items	Performance																													
Category Temperature Range	-40℃ ~ +125℃																													
Capacitance Tolerance	± 20% (at 120 Hz, 20℃)																													
Leakage Current (at 20℃)	I = 0.01CV or 3 (μA) whichever is greater (after 2 minutes) Where, C = rated capacitance in μF, V = rated DC working voltage in V																													
Tanδ (at 120 Hz, 20℃)	<table><tr><td>Rated Voltage</td><td>10</td><td>16</td><td>25</td><td>35</td><td>50</td><td>63</td></tr><tr><td>Tanδ (max.)</td><td>0.15</td><td>0.12</td><td>0.10</td><td>0.10</td><td>0.08</td><td>0.08</td></tr></table>							Rated Voltage	10	16	25	35	50	63	Tanδ (max.)	0.15	0.12	0.10	0.10	0.08	0.08									
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Low Temperature Characteristics (at 120 Hz)	Impedance ratio shall not exceed the values given in the table below. <table><tr><td colspan="2">Rated Voltage</td><td>10</td><td>16</td><td>25</td><td>35</td><td>50</td><td>63</td></tr><tr><td rowspan="2">Impedance Ratio</td><td>Z(-25℃) / Z(+20℃)</td><td>3</td><td>2</td><td>2</td><td>2</td><td>2</td><td>2</td></tr><tr><td>Z(-40℃) / Z(+20℃)</td><td>6</td><td>4</td><td>4</td><td>4</td><td>4</td><td>4</td></tr></table>							Rated Voltage		10	16	25	35	50	63	Impedance Ratio	Z(-25℃) / Z(+20℃)	3	2	2	2	2	2	Z(-40℃) / Z(+20℃)	6	4	4	4	4	4
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Endurance	<table><tr><td>Test Time</td><td>3,000 Hrs for ϕ D = 8mm; 5,000 Hrs for ϕ D ≥ 10mm</td></tr><tr><td>Capacitance Change</td><td>Within ± 20% of initial value</td></tr><tr><td>Tanδ</td><td>Less than 200% of specified value</td></tr><tr><td>Leakage Current</td><td>Within specified value</td></tr></table> * The above specifications shall be satisfied when the capacitors are restored to 20℃ after applied with rated subjected to DC voltage with the rated ripple current is applied for 3,000 / 5,000 hours at 125℃.							Test Time	3,000 Hrs for ϕ D = 8mm; 5,000 Hrs for ϕ D ≥ 10mm	Capacitance Change	Within ± 20% of initial value	Tanδ	Less than 200% of specified value	Leakage Current	Within specified value															
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Shelf Life Test	<table><tr><td>Test Time</td><td>1,000 Hrs</td></tr><tr><td>Capacitance Change</td><td>Within ± 20% of initial value</td></tr><tr><td>Tanδ</td><td>Less than 200% of specified value</td></tr><tr><td>Leakage Current</td><td>Less than 500% of specified value</td></tr></table> * The above specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 125℃ without voltage applied.							Test Time	1,000 Hrs	Capacitance Change	Within ± 20% of initial value	Tanδ	Less than 200% of specified value	Leakage Current	Less than 500% of specified value															
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Ripple Current and Frequency Multipliers	<table><tr><th>Cap.(μF) \ Freq.(Hz)</th><th>120</th><th>1k</th><th>10k</th><th>100k up</th></tr><tr><td>0.47 ~ 100</td><td>1.00</td><td>1.70</td><td>1.88</td><td>2.00</td></tr><tr><td>150 ~ 470</td><td>1.00</td><td>1.45</td><td>1.58</td><td>1.65</td></tr><tr><td>1,000</td><td>1.00</td><td>1.20</td><td>1.25</td><td>1.33</td></tr></table>							Cap.(μF) \ Freq.(Hz)	120	1k	10k	100k up	0.47 ~ 100	1.00	1.70	1.88	2.00	150 ~ 470	1.00	1.45	1.58	1.65	1,000	1.00	1.20	1.25	1.33			
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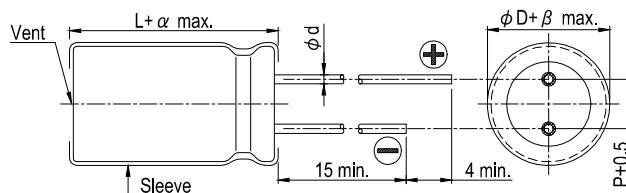
Diagram of Dimensions



Lead Spacing and Diameter Unit: mm

ϕ D	8	10	12.5	16
P	3.5	5.0	5.0	7.5
ϕ d	0.6			0.8
α	L < 20: 1.5, L ≥ 20: 2.0			
β	0.5			

The case size of 16×20 is suitable for below diagram:





Dimension: $\phi D \times L(\text{mm})$

Ripple Current: mA/rms at 120 Hz, 125°C

Dimension and Permissible Ripple Current

Cap.(μF)	Contents	10V (1A)		16V (1C)		25V (1E)		35V (1V)		50V (1H)		63V (1J)	
		$\phi D \times L$	mA	$\phi D \times L$	mA	$\phi D \times L$	mA	$\phi D \times L$	mA	$\phi D \times L$	mA	$\phi D \times L$	mA
10	100									8×11.5	56	8×11.5	56
22	220							8×11.5	75	10×12.5	99	10×12.5	99
33	330					8×11.5	92	10×12.5	108	10×16	133	10×16	133
47	470			8×11.5	100	10×12.5	129	10×16	142	10×16	159	10×20	173
100	101	10×12.5	154	10×16	190	10×16	208	10×20	225				
220	221	10×16	252	10×20	305	12.5×20	371	12.5×25	403	12.5×20	279	12.5×20	279
330	331	10×16	308	12.5×20	414	12.5×25	493	16×20	503				
470	471	10×20	399	12.5×25	537	16×20	601			16×20	459		
1,000	102	16×20	715										

Part Numbering System

RUK Series	470 μF	$\pm 20\%$	16V	Bulk Package	Gas Type	12.5 $\phi \times 25\text{L}$	General Purpose
RUK	471	M	1C	BK	-	1325	
Series Name	Capacitance	Capacitance Tolerance	Rated Voltage	Lead Configuration and Package	Rubber Type	Case Size	Application

Note: For more details, please refer to "Part Numbering System - Radial Type" on page 139.