

VUK Series

Features

- 12.5 ϕ ~ 18 ϕ , 125°C, 5,000 hours assured
- Chip type high temperature range, for +125°C use
- For automobile modules and other high temperature applications
- RoHS Compliance

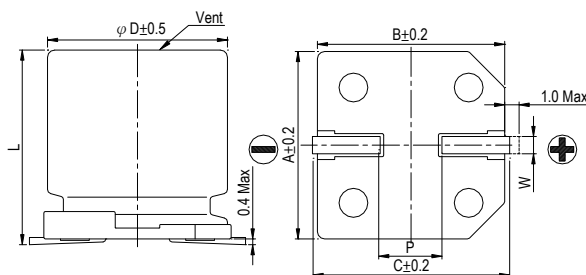


Marking color: Black

Specifications

Items	Performance																							
Category Temperature Range	-40°C ~ +125°C																							
Capacitance Tolerance	±20% (at 120Hz, 20°C)																							
Leakage Current (at 20°C)	I = 0.03CV or 4 (μA) whichever is greater (after 1 minutes) Where, C = rated capacitance in μF V = rated DC working voltage in V																							
Tanδ (at 120Hz, 20°C)	<table border="1"> <thead> <tr> <th>Rated Voltage</th> <th>10</th> <th>16</th> <th>25</th> <th>35</th> <th>50</th> <th>63</th> </tr> </thead> <tbody> <tr> <td>Tanδ (max)</td> <td>0.22</td> <td>0.18</td> <td>0.16</td> <td>0.14</td> <td>0.12</td> <td>0.12</td> </tr> </tbody> </table> <p>When the capacitance exceeds 1,000μF, 0.02 shall be added every 1,000μF increase.</p>	Rated Voltage	10	16	25	35	50	63	Tanδ (max)	0.22	0.18	0.16	0.14	0.12	0.12									
Rated Voltage	10	16	25	35	50	63																		
Tanδ (max)	0.22	0.18	0.16	0.14	0.12	0.12																		
Low Temperature Characteristics (at 120Hz)	<p>Impedance ratio shall not exceed the values given in the table below.</p> <table border="1"> <thead> <tr> <th colspan="2">Rated Voltage</th> <th>10</th> <th>16</th> <th>25</th> <th>35</th> <th>50</th> <th>63</th> </tr> </thead> <tbody> <tr> <td rowspan="2">Impedance Ratio</td> <td>Z(-25°C)/Z(+20°C)</td> <td>6</td> <td>5</td> <td>4</td> <td>3</td> <td>3</td> <td>3</td> </tr> <tr> <td>Z(-40°C)/Z(+20°C)</td> <td>12</td> <td>8</td> <td>6</td> <td>4</td> <td>4</td> <td>4</td> </tr> </tbody> </table>	Rated Voltage		10	16	25	35	50	63	Impedance Ratio	Z(-25°C)/Z(+20°C)	6	5	4	3	3	3	Z(-40°C)/Z(+20°C)	12	8	6	4	4	4
Rated Voltage		10	16	25	35	50	63																	
Impedance Ratio	Z(-25°C)/Z(+20°C)	6	5	4	3	3	3																	
	Z(-40°C)/Z(+20°C)	12	8	6	4	4	4																	
Endurance	<table border="1"> <thead> <tr> <th>Test Time</th> <th>5,000 Hrs</th> </tr> </thead> <tbody> <tr> <td>Capacitance Change</td> <td>Within ±30% of initial value</td> </tr> <tr> <td>Tanδ</td> <td>Less than 300% of specified value</td> </tr> <tr> <td>Leakage Current</td> <td>Within specified value</td> </tr> </tbody> </table> <p>* The above Specifications shall be satisfied when the capacitors are restored to 20°C after the rated voltage applied for 5,000 hours at 125°C.</p>	Test Time	5,000 Hrs	Capacitance Change	Within ±30% of initial value	Tanδ	Less than 300% of specified value	Leakage Current	Within specified value															
Test Time	5,000 Hrs																							
Capacitance Change	Within ±30% of initial value																							
Tanδ	Less than 300% of specified value																							
Leakage Current	Within specified value																							
Shelf Life Test	<table border="1"> <thead> <tr> <th>Test Time</th> <th>1,000 Hrs</th> </tr> </thead> <tbody> <tr> <td>Capacitance Change</td> <td>Within ±30% of initial value</td> </tr> <tr> <td>Tanδ</td> <td>Less than 300% of specified value</td> </tr> <tr> <td>Leakage Current</td> <td>Within specified value</td> </tr> </tbody> </table> <p>* The above Specifications shall be satisfied when the capacitors are restored to 20°C after exposing them for 1,000 hours at 125°C without voltage applied.</p>	Test Time	1,000 Hrs	Capacitance Change	Within ±30% of initial value	Tanδ	Less than 300% of specified value	Leakage Current	Within specified value															
Test Time	1,000 Hrs																							
Capacitance Change	Within ±30% of initial value																							
Tanδ	Less than 300% of specified value																							
Leakage Current	Within specified value																							
Ripple Current & Frequency Multipliers	<table border="1"> <thead> <tr> <th rowspan="2">Cap.(μF)</th> <th colspan="4">Freq.(Hz)</th> </tr> <tr> <th>50</th> <th>120</th> <th>1k</th> <th>10k up</th> </tr> </thead> <tbody> <tr> <td>Under 330</td> <td>0.80</td> <td>1.0</td> <td>1.25</td> <td>1.40</td> </tr> <tr> <td>330 < C ≤ 4,700</td> <td>0.85</td> <td>1.0</td> <td>1.20</td> <td>1.30</td> </tr> </tbody> </table>	Cap.(μF)	Freq.(Hz)				50	120	1k	10k up	Under 330	0.80	1.0	1.25	1.40	330 < C ≤ 4,700	0.85	1.0	1.20	1.30				
Cap.(μF)	Freq.(Hz)																							
	50	120	1k	10k up																				
Under 330	0.80	1.0	1.25	1.40																				
330 < C ≤ 4,700	0.85	1.0	1.20	1.30																				

Diagram of Dimensions

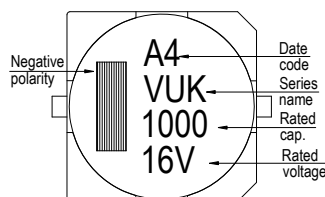


Lead Spacing and Diameter

Unit: mm

φD	L	A	B	C	W	P ± 0.2
12.5	13.5 ± 0.5	13.0	13.0	13.7	1.1 ~ 1.4	4.4
12.5	16 ± 0.5	13.0	13.0	13.7	1.1 ~ 1.4	4.4
16	16.5 ± 0.5	17.0	17.0	18.0	1.1 ~ 1.4	6.4
18	16.5 ± 0.5	19.0	19.0	20.0	1.1 ~ 1.4	6.4

Marking





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

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

Dimension & Permissible Ripple Current

μF	V. DC 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
68	680												
100	101									12.5×13.5	170	12.5×13.5	150
220	221							12.5×13.5	200	16×16.5	250	16×16.5	230
330	331			12.5×13.5	230	12.5×13.5	230	16×16.5	280	18×16.5	340	18×16.5	320
470	471	12.5×13.5	230	12.5×13.5	250	16×16.5	310	18×16.5	380	18×21.5	430	18×21.5	410
1,000	102	12.5×16	350	16×16.5	440	18×21.5	540						
1,500	152	12.5×16	350										
2,200	222	18×16.5	620	18×21.5	710								
3,300	332	18×21.5	770										

Part Numbering System

VUK series	330 μF	$\pm 20\%$	16V	Carrier Tape	12.5 ϕ × 13.5L	Pb-free and PET coating case
VUK	331	M	1C	TR	-	1313
Series name	Capacitance	Capacitance Tolerance	Rated Voltage	Package Type	Terminal Type	Case size
						Lead Wire and Coating Type

Note: For more details, please refer to "Part Numbering System (SMD Type)" on page 12.