



VSS Series

Features

- 4 φ ~ 6.3 φ, 85°C, 2,000 hours assured
- Vertical chip type miniaturized for 4.5mm height capacitor
- Designed for surface mounting on high density PC board
- RoHS Compliance

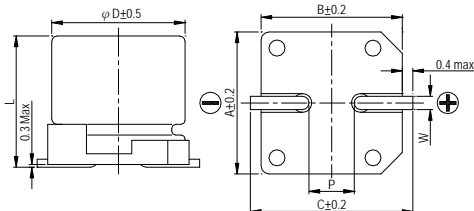


Marking color: Black

Specifications

Items	Performance																											
Category Temperature Range	-40°C ~ +85°C																											
Capacitance Tolerance	±20% (at 120Hz, 20°C)																											
Leakage Current (at 20°C)	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 120Hz, 20°C)	<table border="1"> <tr> <th>Rated Voltage</th> <td>4</td> <td>6.3</td> <td>10</td> <td>16</td> <td>25</td> <td>35</td> <td>50</td> </tr> <tr> <th>Tanδ (max)</th> <td>0.50</td> <td>0.30</td> <td>0.24</td> <td>0.19</td> <td>0.16</td> <td>0.14</td> <td>0.14</td> </tr> </table>	Rated Voltage	4	6.3	10	16	25	35	50	Tanδ (max)	0.50	0.30	0.24	0.19	0.16	0.14	0.14											
Rated Voltage	4	6.3	10	16	25	35	50																					
Tanδ (max)	0.50	0.30	0.24	0.19	0.16	0.14	0.14																					
Low Temperature Characteristics (at 120Hz)	<p>Impedance ratio shall not exceed the values given in the table below.</p> <table border="1"> <tr> <th colspan="2">Rated Voltage</th> <td>4</td> <td>6.3</td> <td>10</td> <td>16</td> <td>25</td> <td>35</td> <td>50</td> </tr> <tr> <th>Impedance</th> <th>Z(-25°C)/Z(+20°C)</th> <td>7</td> <td>4</td> <td>3</td> <td>2</td> <td>2</td> <td>2</td> <td>2</td> </tr> <tr> <th>Ratio</th> <th>Z(-40°C)/Z(+20°C)</th> <td>15</td> <td>8</td> <td>5</td> <td>4</td> <td>3</td> <td>3</td> <td>3</td> </tr> </table>	Rated Voltage		4	6.3	10	16	25	35	50	Impedance	Z(-25°C)/Z(+20°C)	7	4	3	2	2	2	2	Ratio	Z(-40°C)/Z(+20°C)	15	8	5	4	3	3	3
Rated Voltage		4	6.3	10	16	25	35	50																				
Impedance	Z(-25°C)/Z(+20°C)	7	4	3	2	2	2	2																				
Ratio	Z(-40°C)/Z(+20°C)	15	8	5	4	3	3	3																				
Endurance	<table border="1"> <tr> <th colspan="2">Test Time</th> <th colspan="2">2,000 Hrs</th> </tr> <tr> <th>Capacitance</th> <td>4 ~ 6.3V</td> <td colspan="2">Within ±30% of initial value</td> </tr> <tr> <th>Change</th> <td>10 ~ 50V</td> <td colspan="2">Within ±25% of initial value</td> </tr> <tr> <th colspan="2">Tanδ</th> <td colspan="2">Less than 300% of specified value</td> </tr> <tr> <th colspan="2">Leakage Current</th> <td colspan="2">Within specified value</td> </tr> </table> <p>* The above Specifications shall be satisfied when the capacitors are restored to 20°C after the rated voltage applied for 2,000 hours at 85°C.</p>	Test Time		2,000 Hrs		Capacitance	4 ~ 6.3V	Within ±30% of initial value		Change	10 ~ 50V	Within ±25% of initial value		Tanδ		Less than 300% of specified value		Leakage Current		Within specified value								
Test Time		2,000 Hrs																										
Capacitance	4 ~ 6.3V	Within ±30% of initial value																										
Change	10 ~ 50V	Within ±25% of initial value																										
Tanδ		Less than 300% of specified value																										
Leakage Current		Within specified value																										
Shelf Life Test	Test time: 1,000 hours; other items are the same as those for the Endurance.																											
Ripple Current & Frequency Multipliers	<table border="1"> <tr> <th>Frequency(Hz)</th> <td>50</td> <td>120</td> <td>1k</td> <td>10k up</td> </tr> <tr> <th>Multiplier</th> <td>0.7</td> <td>1.0</td> <td>1.3</td> <td>1.4</td> </tr> </table>	Frequency(Hz)	50	120	1k	10k up	Multiplier	0.7	1.0	1.3	1.4																	
Frequency(Hz)	50	120	1k	10k up																								
Multiplier	0.7	1.0	1.3	1.4																								

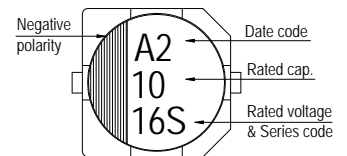
Diagram of Dimensions



Lead Spacing and Diameter

φD	L	A	B	C	W	P ± 0.2
4	4.5 ± 0.2	4.3	4.3	5.1	0.5 ~ 0.8	1.0
5	4.5 ± 0.2	5.3	5.3	5.9	0.5 ~ 0.8	1.5
6.3	4.5 ± 0.2	6.6	6.6	7.2	0.5 ~ 0.8	2.0

Marking



Dimension & Permissible Ripple Current

Dimension: φD × L(mm)

Ripple Current: mA/rms at 120 Hz, 85°C

V _{DC}	μF Contents	4V (0G)		6.3V (0J)		10V (1A)		16V (1C)		25V (1E)		35V (1V)		50V (1H)	
		φD×L	mA	φD×L	mA	φD×L	mA	φD×L	mA	φD×L	mA	φD×L	mA	φD×L	mA
0.47	R47													4×4.5	4.0
1	010													4×4.5	8.4
2.2	2R2													4×4.5	13
3.3	3R3													4×4.5	17
4.7	4R7									4×4.5	16	4×4.5	18	5×4.5	20
10	100							4×4.5	23	5×4.5	27	5×4.5	29	6.3×4.5	33
22	220			4×4.5	23	5×4.5	33	5×4.5	37	6.3×4.5	42	6.3×4.5	46		
33	330	4×4.5	28	5×4.5	37	5×4.5	41	6.3×4.5	49	6.3×4.5	52				
47	470	4×4.5	33	5×4.5	45	6.3×4.5	70	6.3×4.5	58						
100	101	5×4.5	56	6.3×4.5	70										

Part Numbering System

VSS series	10μF	±20%	16V	Carrier Tape	4 φ × 4.5L	Pb-free and PET coating case
VSS	100	M	1C	TR	-	0405
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.