

VES Series

Features

- 4 ϕ ~ 6.3 ϕ , 105°C, 1,000 hours assured
- Vertical chip type miniaturized for 5.5mm high capacitor
- Designed for surface mounting on high density PC board
- RoHS Compliance

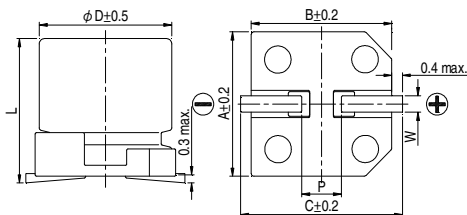


Marking color: Black

Specifications

Items	Performance																													
Category Temperature Range	-55°C ~ +105°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><tr><td>Rated Voltage</td><td>6.3</td><td>10</td><td>16</td><td>25</td><td>35</td><td>50</td></tr><tr><td>Tanδ (max)</td><td>0.30</td><td>0.26</td><td>0.22</td><td>0.16</td><td>0.13</td><td>0.12</td></tr></table>							Rated Voltage	6.3	10	16	25	35	50	Tanδ (max)	0.30	0.26	0.22	0.16	0.13	0.12									
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Low Temperature Characteristics (at 120Hz)	Impedance ratio shall not exceed the values given in the table below. <table><tr><td colspan="2">Rated Voltage</td><td>6.3</td><td>10</td><td>16</td><td>25</td><td>35</td><td>50</td></tr><tr><td rowspan="2">Impedance Ratio</td><td>Z(-25°C)/Z(+20°C)</td><td>4</td><td>3</td><td>2</td><td>2</td><td>2</td><td>2</td></tr><tr><td>Z(-55°C)/Z(+20°C)</td><td>8</td><td>5</td><td>4</td><td>3</td><td>3</td><td>3</td></tr></table>							Rated Voltage		6.3	10	16	25	35	50	Impedance Ratio	Z(-25°C)/Z(+20°C)	4	3	2	2	2	2	Z(-55°C)/Z(+20°C)	8	5	4	3	3	3
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Endurance	<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>Within specified value</td></tr></table> * The above specifications shall be satisfied when the capacitors are restored to 20°C after the rated voltage applied for 1,000 hours at 105°C.							Test Time	1,000 Hrs	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>Within specified value</td></tr></table> * The above specifications shall be satisfied when the capacitors are restored to 20°C after exposing them for 1,000 hours at 105°C without voltage applied.							Test Time	1,000 Hrs	Capacitance Change	Within ±20% of initial value	Tanδ	Less than 200% of specified value	Leakage Current	Within specified value															
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Ripple Current and Frequency Multipliers	<table><tr><td>Frequency (Hz)</td><td>50</td><td>120</td><td>1k</td><td>10k up</td></tr><tr><td>Multiplier</td><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													
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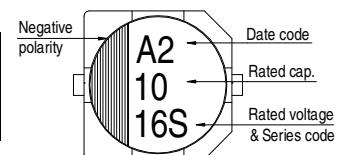
Diagram of Dimensions



Lead Spacing and Diameter

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

Marking



Dimension: $\phi D \times L$ (mm)
Ripple Current: mA/rms at 120 Hz, 105°C

V, DC		6.3V (0J)		10V (1A)		16V (1C)		25V (1E)		35V (1V)		50V (1H)	
μF	Contents	φ D×L	mA	φ D×L	mA	φ D×L	mA	φ D×L	mA	φ D×L	mA	φ D×L	mA
1	010											4×5.3	7
2.2	2R2											4×5.3	10
3.3	3R3											4×5.3	12
4.7	4R7							4×5.3	12	4×5.3	14	5×5.3	17
10	100			4×5.3	15	4×5.3	16	5×5.3	21	5×5.3	23	6.3×5.3	26
22	220	4×5.3	21	5×5.3	25	5×5.3	28	6.3×5.3	36	6.3×5.3	50	6.3×5.3	51
33	330	5×5.3	30	5×5.3	31	6.3×5.3	40	6.3×5.3	44				
47	470	5×5.3	36	6.3×5.3	43	6.3×5.3	47	6.3×5.3	60				
100	101	6.3×5.3	61	6.3×5.3	65	6.3×5.3	70						

Part Numbering System

VES Series	10μF	±20%	16V	Carrier Tape	4 ϕ × 5.3L	Pb-free and PET coating case
VES	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 15.