VES Series

Features

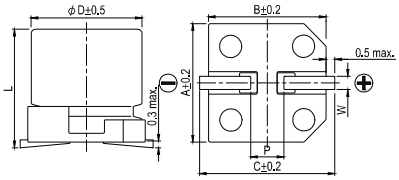
- 4φ ~ 6.3φ, 105℃, 1,000 hours assured
- Vertical chip type miniaturized for 5.5mm high capacitor
- Designed for surface mounting on high density PC board
- RoHS compliance
- AEC-Q200 qualified

Marking color: Black

Specifications

Items	Performance
Category Temperature Range	-55℃ ~ +105℃
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℃)	Rated Voltage: 6.3 / 10 / 16 / 25 / 35 / 50 Tanδ (max): 0.30 / 0.26 / 0.22 / 0.16 / 0.13 / 0.12
Low Temperature Characteristics (at 120 Hz)	Impedance ratio shall not exceed the values given in the table below. Rated Voltage: 6.3 / 10 / 16 / 25 / 35 / 50 Impedance Ratio Z(-25℃)/Z(+20℃): 4 / 3 / 2 / 2 / 2 / 2 Impedance Ratio Z(-55℃)/Z(+20℃): 8 / 5 / 4 / 3 / 3 / 3
Endurance	Test Time: 1,000 Hrs Capacitance Change: Within ±20% of initial value Tanδ: Less than 200% of specified value Leakage Current: Within specified value * The above specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage applied for 1,000 hours at 105℃.
Shelf Life Test	Test time: 1,000 hours; other items are the same as those for the Endurance.
Ripple Current and Frequency Multipliers	Frequency (Hz): 50 / 120 / 1k / 10k up Multiplier: 0.7 / 1.0 / 1.3 / 1.4

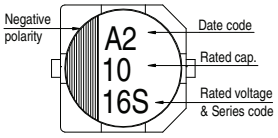
Diagram of Dimensions



Lead Spacing and Diameter — Unit: mm

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 and Permissible Ripple Current

Dimension: φD × L(mm)
Ripple Current: mA/rms at 120 Hz, 105℃

Rated Volt. (Vdc) / Cap. (μF)	Contents	6.3V (0J) φD×L	6.3V (0J) mA	10V (1A) φD×L	10V (1A) mA	16V (1C) φD×L	16V (1C) mA	25V (1E) φD×L	25V (1E) mA	35V (1V) φD×L	35V (1V) mA	50V (1H) φD×L	50V (1H) 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		4φ×5.3L	
VES	**100**	**M**	**1C**	**TR**	**-**	**0405**	**xx**
Series Name	Capacitance	Capacitance Tolerance	Rated Voltage	Package Type	Terminal Type	Case Size	

S = Standard
KS = AEC-Q200 Qualified, Safety Critical Application
LS = AEC-Q200 Qualified, Non-Safety Critical Application

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