

VZS Series

Features

- 5 ϕ ~ 10 ϕ , 105°C, 2,000 hours assured
- Low impedance 30 ~ 50% less than VZH series
- Large capacitance with ultra low impedance capacitors
- Designed for surface mounting on high density PC board
- RoHS compliant
- AEC-Q200 compliant

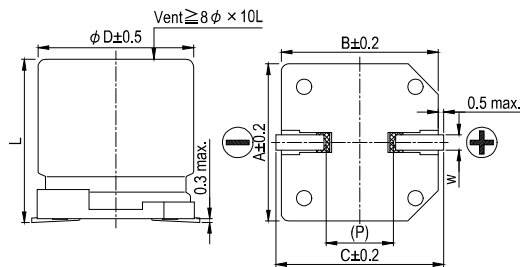
Marking color: Black



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℃)	<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>0.10</td></tr></table> When the capacitance exceeds 1,000μF, 0.02 shall be added every 1,000μF increase.	Rated Voltage	6.3	10	16	25	35	50	Tanδ (max.)	0.30	0.26	0.22	0.16	0.13	0.10									
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Tanδ (max.)	0.30	0.26	0.22	0.16	0.13	0.10																		
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>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℃) / Z(+20℃)</td><td>4</td><td>3</td><td>2</td><td>2</td><td>2</td><td>2</td></tr><tr><td>Z(-55℃) / Z(+20℃)</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℃) / Z(+20℃)	4	3	2	2	2	2	Z(-55℃) / Z(+20℃)	8	5	4	3	3	3
Rated Voltage		6.3	10	16	25	35	50																	
Impedance Ratio	Z(-25℃) / Z(+20℃)	4	3	2	2	2	2																	
	Z(-55℃) / Z(+20℃)	8	5	4	3	3	3																	
Endurance	<table><tr><td>Test Time</td><td>2,000 Hrs</td></tr><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></table> * The above specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage applied for 2,000 hours at 105℃.	Test Time	2,000 Hrs	Capacitance Change	Within ± 30% of initial value	Tanδ	Less than 300% of specified value	Leakage Current	Within specified value															
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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 and Frequency Multipliers	<table><tr><td>Frequency (Hz)</td><td>50, 60</td><td>120</td><td>1k</td><td>10k up</td></tr><tr><td>Multiplier</td><td>0.60</td><td>0.70</td><td>0.85</td><td>1.0</td></tr></table>	Frequency (Hz)	50, 60	120	1k	10k up	Multiplier	0.60	0.70	0.85	1.0													
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Diagram of Dimensions



Lead Spacing and Diameter

Unit: mm

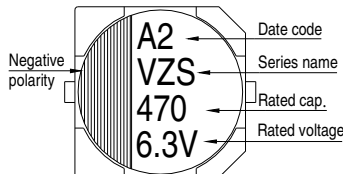
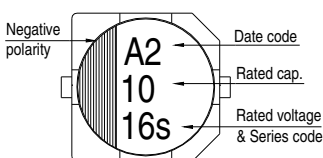
φ D	L	A	B	C	W	P
5	5.8 ± 0.3	5.3	5.3	5.9	0.5 ~ 0.8	1.5
6.3	5.8 ± 0.3	6.6	6.6	7.2	0.5 ~ 0.8	2.0
6.3	7.7 ± 0.3	6.6	6.6	7.2	0.5 ~ 0.8	2.0
8	6.5 ± 0.3	8.3	8.3	9.0	0.5 ~ 0.8	2.3
8	10 ± 0.5	8.3	8.3	9.0	0.7 ~ 1.1	3.1
10	10 ± 0.5	10.3	10.3	11	0.7 ~ 1.1	4.7
10	12.5 ± 0.5	10.3	10.3	11	0.7 ~ 1.1	4.7

The diagram is marking " () " for reference dimension.

Marking

φ D ≤ 6.3 mm

φ D = 8 ~ 10 mm





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

Ripple Current: mA/rms at 100k Hz, 105°C

Impedance: Ω / at 100k Hz, 20°C

Dimension and Permissible Ripple Current

Rated Volt. (V _{DC})		6.3V (0J)			10V (1A)			16V (1C)			25V (1E)			35V (1V)			50V (1H)		
Cap. (μF)	Contents	$\phi D \times L$	Imp.	mA	$\phi D \times L$	Imp.	mA	$\phi D \times L$	Imp.	mA	$\phi D \times L$	Imp.	mA	$\phi D \times L$	Imp.	mA	$\phi D \times L$	Imp.	mA
22	220							5×5.8	0.36	240	5×5.8	0.36	240	5×5.8	0.36	240			
33	330				5×5.8	0.36	240				5×5.8 6.3×5.8	0.36 0.26	240 300	6.3×5.8	0.26	300			
47	470	5×5.8	0.36	240				5×5.8 6.3×5.8	0.36 0.26	240 300	6.3×5.8	0.26	300	6.3×5.8	0.26	300			
68	680							6.3×5.8	0.26	300	6.3×5.8	0.26	300	6.3×7.7	0.16	600			
100	101	5×5.8 6.3×5.8	0.36 0.26	240 300	5×5.8	0.36	240	6.3×5.8 6.3×7.7	0.26 0.16	300 600	6.3×5.8 6.3×7.7 8×6.5	0.26 0.16 0.18	300 600 500	8×10	0.08	850	8×10	0.18	670
150	151				6.3×5.8	0.26	300	6.3×7.7	0.16	600	8×10	0.08	850	8×10	0.08	850			
220	221	6.3×5.8	0.26	300	6.3×7.7 8×6.5	0.16 0.18	600 500	6.3×7.7 8×6.5 8×10	0.16 0.18 0.08	600 500 850	8×10	0.08	850				10×10	0.15	900
330	331	6.3×7.7 8×6.5	0.16 0.18	600 500	8×10	0.08	850	8×10	0.08	850				10×10	0.06	1,190			
470	471	8×10	0.08	850	8×10	0.08	850	8×10	0.08	850	10×10	0.06	1,190	10×12.5	0.06	1,190			
680	681	8×10	0.08	850	8×10	0.08	850	10×10	0.06	1,190	10×12.5	0.06	1,190						
1,000	102				10×10	0.06	1,190	10×10	0.06	1,190									
1,500	152	10×10	0.06	1,190	10×12.5	0.06	1,190												
2,200	222	10×12.5	0.06	1,190															

Part Numbering System

VZS Series	470μF	± 20%	6.3V	Carrier Tape		8 ϕ ×10L	General Purpose
<u>VZS</u>	<u>471</u>	<u>M</u>	<u>0J</u>	<u>TR</u>	-	<u>0810</u>	
Series Name	Capacitance	Capacitance Tolerance	Rated Voltage	Package Type	Terminal Type	Case Size	Application

Note: For more details, please refer to "Part Numbering System - SMD Type" on page 106.