

## VZT/VZU Series

### FeaturesU

- $4\phi \sim 10\phi$ , 105°C, 2,000 ~ 5,000 hours assured
- Capacitance more than VZS series
- Designed for surface mounting on high density PC board
- RoHS compliance
- AEC-Q200 Parts Available: Replace "S" Suffix with "KS" or "LS" Suffix

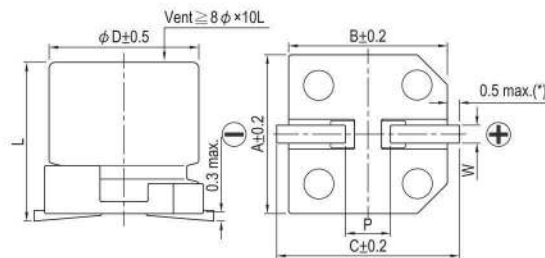


Marking color: Black

### Specifications

Items	Performance																							
Category Temperature Range	-55°C ~ +105°C																							
Capacitance Tolerance	±20% (at 120 Hz, 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 120 Hz, 20°C)	<table border="1"> <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>0.26</td> <td>0.19</td> <td>0.16</td> <td>0.14</td> <td>0.12</td> <td>0.10</td> </tr> </table> <p>When the capacitance exceeds 1,000μF, 0.02 shall be added every 1,000μF increase.</p>	Rated Voltage	6.3	10	16	25	35	50	Tanδ (max)	0.26	0.19	0.16	0.14	0.12	0.10									
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Low Temperature Characteristics (at 120 Hz)	<p>Impedance ratio shall not exceed the values given in the table below.</p> <table border="1"> <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
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																	
Endurance of VZT Series	<table border="1"> <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 200% of specified value</td> </tr> <tr> <td>Leakage Current</td> <td>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 105°C.</p>	Test Time	2,000 Hrs	Capacitance Change	Within ±30% of initial value	Tanδ	Less than 200% of specified value	Leakage Current	Within specified value															
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Endurance of VZU Series	<table border="1"> <tr> <td>Test Time</td> <td>3,000 Hrs for voltage = 6.3 V 5,000 Hrs for voltage ≥ 10 V</td> </tr> <tr> <td>Capacitance Change</td> <td>Within ±35% 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> <p>* The above specifications shall be satisfied when the capacitors are restored to 20°C after the rated voltage applied for 3,000 ~ 5,000 hours at 105°C.</p>	Test Time	3,000 Hrs for voltage = 6.3 V 5,000 Hrs for voltage ≥ 10 V	Capacitance Change	Within ±35% 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 border="1"> <tr> <td rowspan="2">Cap. (μF)</td> <td>Frequency (Hz)</td> <td>50, 60</td> <td>120</td> <td>1k</td> <td>10k up</td> </tr> <tr> <td>≤ 470</td> <td>0.50</td> <td>0.65</td> <td>0.85</td> <td>1.00</td> </tr> <tr> <td>470 &lt; C ≤ 2,200</td> <td></td> <td>0.55</td> <td>0.70</td> <td>0.90</td> <td>1.00</td> </tr> </table>	Cap. (μF)	Frequency (Hz)	50, 60	120	1k	10k up	≤ 470	0.50	0.65	0.85	1.00	470 < C ≤ 2,200		0.55	0.70	0.90	1.00						
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	≤ 470	0.50	0.65	0.85	1.00																			
470 < C ≤ 2,200		0.55	0.70	0.90	1.00																			

### Diagram of Dimensions



### Lead Spacing and Diameter

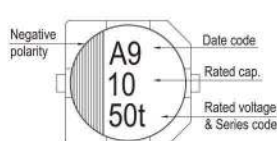
Unit: mm

φD	L	A	B	C	W	P ± 0.2
4	5.8 ± 0.3	4.3	4.3	5.1	0.5 ~ 0.8	1.0
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	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 ~ 1.3	4.7

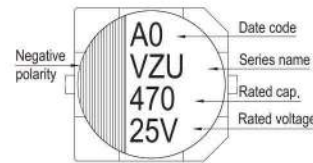
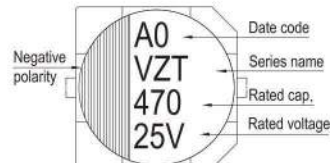
(\*): For 4 ~ 6.3φ is 0.4 max.

### Marking

φD ≤ 6.3mm



φD = 8 ~ 10 mm



Dimension:  $\phi D \times L$ (mm)  
 Ripple Current: mA/rms at 100k Hz, 105°C  
 Impedance:  $\Omega$ / at 100k Hz, 20°C

### Dimension and Permissible Ripple Current

Rated Volt. (V <sub>DC</sub> )	Cap. (μF)	Contents	6.3V (0J)			10V (1A)			16V (1C)			25V (1E)			35V (1V)			50V (1H)		
			$\phi D \times L$	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
10	100																	4×5.8	2.30	85
																		5×5.8	0.88	165
22	220											4×5.8	0.85	160	4×5.8	0.85	160	5×5.8	0.88	165
33	330											4×5.8	0.85	160	5×5.8	0.36	240			
47	470											4×5.8	0.85	160	5×5.8	0.36	240	6.3×5.8	0.68	195
68	680				4×5.8	0.85	160	5×5.8	0.36	240	5×5.8	0.36	240	6.3×5.8	0.26	300				
100	101	4×5.8	0.85	160				5×5.8	0.36	240	6.3×5.8	0.26	300	6.3×5.8	0.26	300	6.3×7.7	0.34	350	
150	151				5×5.8	0.36	240	6.3×5.8	0.26	300	6.3×7.7	0.16	600	6.3×7.7	0.16	600				
220	221	5×5.8	0.36	240	6.3×5.8	0.26	300	6.3×5.8	0.26	300	6.3×7.7	0.16	600				8×10*	0.18	670	
330	331	6.3×5.8	0.26	300	6.3×7.7	0.16	600	6.3×7.7	0.16	600							8×10*	0.08	850	
470	471	6.3×7.7	0.16	600	6.3×7.7	0.16	600						8×10*	0.08	850					
560	561																10×10*	0.06	1,190	
680	681	6.3×7.7	0.16	600				8×10*	0.08	850										
820	821											10×10*	0.06	1,190						
1,000	102				8×10*	0.08	850	10×10*	0.06	1,190										
1,500	152	8×10*	0.08	850	10×10*	0.06	1,190													
2,200	222	10×10*	0.06	1,190																

Note: For the case sizes with the mark of " \* ", the endurance requirements of VZU series are available.

### Part Numbering System

VZT Series	1500 μF	±20%	6.3V	Carrier Tape		8 φ × 10L	
<b>VZT</b>	<b>152</b>	<b>M</b>	<b>0J</b>	<b>TR</b>	-	<b>0810</b>	<b>S</b>
Series Name	Capacitance	Capacitance Tolerance	Rated Voltage	Package Type	Terminal Type	Case size	Regional Code

Note: 1. If the life time of product was required 5,000 hours, the series name is VZU.  
 2. For more details, please refer to "Part Numbering System (SMD Type)" on page 15.