



VZT Series

Features

- 5 φ ~ 10 φ , 105°C, 2,000 ~ 5000 hours assured
- Low impedance 30 ~ 50% less than VZS series
- 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 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> | Rated Voltage | 6.3 | 10 | 16 | 25 | 35 | 50 | Tanδ (max) | 0.26 | 0.19 | 0.16 | 0.14 | 0.12 | 0.10 | | | | | | | | | |
| Rated Voltage | 6.3 | 10 | 16 | 25 | 35 | 50 | | | | | | | | | | | | | | | | | | |
| Tanδ (max) | 0.26 | 0.19 | 0.16 | 0.14 | 0.12 | 0.10 | | | | | | | | | | | | | | | | | | |
| Low Temperature Characteristics (at 120Hz) | <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 | <table border="1"> <tr> <td>Test Time</td> <td>2,000 Hrs for φ D ≤ 6.3mm ; 5,000 Hrs for φ D ≥ 8mm</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 ~ 5,000 hours at 105°C.</p> | Test Time | 2,000 Hrs for φ D ≤ 6.3mm ; 5,000 Hrs for φ D ≥ 8mm | Capacitance Change | Within ±30% of initial value | Tanδ | Less than 200% of specified value | Leakage Current | Within specified value | | | | | | | | | | | | | | | |
| Test Time | 2,000 Hrs for φ D ≤ 6.3mm ; 5,000 Hrs for φ D ≥ 8mm | | | | | | | | | | | | | | | | | | | | | | | |
| Capacitance Change | Within ±30% of initial value | | | | | | | | | | | | | | | | | | | | | | | |
| Tanδ | Less than 200% 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> <td>Freq.(Hz)</td> <td>120</td> <td>1K</td> <td>10k</td> <td>10k up</td> </tr> <tr> <td>Cap. (μF)</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Under 470</td> <td>0.65</td> <td>0.85</td> <td>0.95</td> <td>1.00</td> </tr> <tr> <td>560 < C < 2200</td> <td>0.70</td> <td>0.90</td> <td>0.95</td> <td>1.00</td> </tr> </table> | Freq.(Hz) | 120 | 1K | 10k | 10k up | Cap. (μF) | | | | | Under 470 | 0.65 | 0.85 | 0.95 | 1.00 | 560 < C < 2200 | 0.70 | 0.90 | 0.95 | 1.00 | | | |
| Freq.(Hz) | 120 | 1K | 10k | 10k up | | | | | | | | | | | | | | | | | | | | |
| Cap. (μF) | | | | | | | | | | | | | | | | | | | | | | | | |
| Under 470 | 0.65 | 0.85 | 0.95 | 1.00 | | | | | | | | | | | | | | | | | | | | |
| 560 < C < 2200 | 0.70 | 0.90 | 0.95 | 1.00 | | | | | | | | | | | | | | | | | | | | |

Diagram of Dimensions



Lead Spacing and Diameter

Unit: mm

| φD | L | A | B | C | W | P ± 0.2 |
|-----|-----------|------|------|-----|-----------|---------|
| 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 | 8.4 | 8.4 | 9.0 | 0.7 ~ 1.1 | 3.1 |
| 10 | 10 ± 0.5 | 10.4 | 10.4 | 11 | 0.7 ~ 1.3 | 4.7 |

Marking

φ D ≤ 6.3mm

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 & Permissible Ripple Current

| μF | V. DC 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 | | | | | | | | | | | | | | | | 4×5.8 | 2.30 | 85 | | |
| 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 | 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 | 10×10 | 0.12 | 900 | |
| 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 | | | | | | | | | | | | | | | | |

Part Numbering System

| | | | | | | | |
|-------------|--------------|-----------------------|---------------|--------------|---------------|---------------------|------------------------------|
| VZS series | 1500 μF | $\pm 20\%$ | 6.3V | Carrier Tape | | 8 $\phi \times 10L$ | Pb-free and PET coating case |
| VZT | 152 | M | 0J | TR | - | 0810 | |
| 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 13.