

Features

- $4\phi \sim 6.3\phi$, 105°C, 1,000 hours assured
- Low ESR capacitors
- Designed for surface mounting on high density PC board
- RoHS compliance
- AEC-Q200 qualified

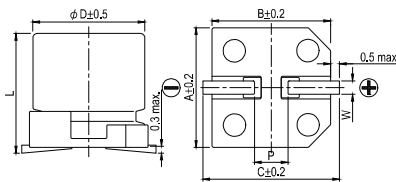


Marking color: Black

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"> <thead> <tr> <th>Rated Voltage</th> <th>6.3</th> <th>10</th> <th>16</th> <th>25</th> <th>35</th> <th>50</th> </tr> </thead> <tbody> <tr> <td>Tanδ (max)</td> <td>0.28</td> <td>0.24</td> <td>0.20</td> <td>0.16</td> <td>0.14</td> <td>0.12</td> </tr> </tbody> </table> | Rated Voltage | 6.3 | 10 | 16 | 25 | 35 | 50 | Tanδ (max) | 0.28 | 0.24 | 0.20 | 0.16 | 0.14 | 0.12 | | | | | | | | | |
| Rated Voltage | 6.3 | 10 | 16 | 25 | 35 | 50 | | | | | | | | | | | | | | | | | | |
| Tanδ (max) | 0.28 | 0.24 | 0.20 | 0.16 | 0.14 | 0.12 | | | | | | | | | | | | | | | | | | |
| Low Temperature Characteristics (at 120 Hz) | <p>Impedance ratio shall not exceed the values given in the table below.</p> <table border="1"> <thead> <tr> <th colspan="2">Rated Voltage</th> <th>6.3</th> <th>10</th> <th>16</th> <th>25</th> <th>35</th> <th>50</th> </tr> </thead> <tbody> <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>10</td> <td>7</td> <td>5</td> <td>3</td> <td>3</td> <td>3</td> </tr> </tbody> </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) | 10 | 7 | 5 | 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) | 10 | 7 | 5 | 3 | 3 | 3 | | | | | | | | | | | | | | | | | |
| Endurance | <table border="1"> <thead> <tr> <th>Test Time</th> <th>1,000 Hrs</th> </tr> </thead> <tbody> <tr> <td>Capacitance Change</td> <td>Within ±25% 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> </tbody> </table> <p>* 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.</p> | Test Time | 1,000 Hrs | Capacitance Change | Within ±25% of initial value | Tanδ | Less than 200% of specified value | Leakage Current | Within specified value | | | | | | | | | | | | | | | |
| Test Time | 1,000 Hrs | | | | | | | | | | | | | | | | | | | | | | | |
| Capacitance Change | Within ±25% 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 and Frequency Multipliers | <table border="1"> <thead> <tr> <th>Frequency(Hz)</th> <th>50, 60</th> <th>120</th> <th>1k</th> <th>10k up</th> </tr> </thead> <tbody> <tr> <td>Multiplier</td> <td>0.64</td> <td>0.8</td> <td>0.93</td> <td>1.0</td> </tr> </tbody> </table> | Frequency(Hz) | 50, 60 | 120 | 1k | 10k up | Multiplier | 0.64 | 0.8 | 0.93 | 1.0 | | | | | | | | | | | | | |
| Frequency(Hz) | 50, 60 | 120 | 1k | 10k up | | | | | | | | | | | | | | | | | | | | |
| Multiplier | 0.64 | 0.8 | 0.93 | 1.0 | | | | | | | | | | | | | | | | | | | | |

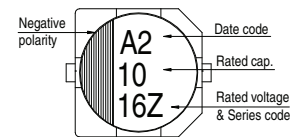
Diagram of Dimensions



Lead Spacing and Diameter

| φ D | 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 |
| 6.3 | 7.7 ± 0.3 | 6.6 | 6.6 | 7.2 | 0.5 ~ 0.8 | 2.0 |

Marking



Dimension: φ D × 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. (Voc) | 6.3V (0J) | | | 10V (1A) | | | 16V (1C) | | | 25V (1E) | | | 35V (1V) | | | 50V (1H) | | | |
|-------------------|-----------|----------|---------|----------|---------|---------|----------|---------|---------|----------|---------|---------|----------|---------|---------|----------|---------|-----|-----|
| | Cap. (μF) | Contents | φ D × L | Imp. | mA | φ D × L | Imp. | mA | φ D × L | Imp. | mA | φ D × L | Imp. | mA | φ D × L | Imp. | mA | | |
| 1.0 | 010 | | | | | | | | | | | | | | 4×5.3 | 5.0 | 30 | | |
| 2.2 | 2R2 | | | | | | | | | | | | | | 4×5.3 | 5.0 | 30 | | |
| 3.3 | 3R3 | | | | | | | | | | | | | | 4×5.3 | 5.0 | 30 | | |
| 4.7 | 4R7 | | | | | | | | | | | | | | 5×5.3 | 3.0 | 50 | | |
| 10 | 100 | | | | 4×5.3 | 3.20 | 65 | 4×5.3 | 3.20 | 65 | 5×5.3 | 1.50 | 110 | 5×5.3 | 1.50 | 110 | 6.3×5.3 | 2.0 | 70 |
| 22 | 220 | 4×5.3 | 3.20 | 65 | 5×5.3 | 1.50 | 110 | 5×5.3 | 1.50 | 110 | 6.3×5.3 | 0.85 | 170 | 6.3×5.3 | 0.85 | 170 | 6.3×5.3 | 2.0 | 70 |
| 33 | 330 | 5×5.3 | 1.50 | 110 | 5×5.3 | 1.50 | 110 | 6.3×5.3 | 0.85 | 170 | 6.3×5.3 | 0.85 | 170 | 6.3×5.3 | 0.85 | 170 | 6.3×7.7 | 1.0 | 170 |
| 47 | 470 | 5×5.3 | 1.50 | 110 | 6.3×5.3 | 0.85 | 170 | 6.3×5.3 | 0.85 | 170 | 6.3×5.3 | 0.85 | 170 | 6.3×7.7 | 0.50 | 255 | | | |
| 100 | 101 | 6.3×5.3 | 0.85 | 170 | 6.3×5.3 | 0.85 | 170 | 6.3×5.3 | 0.85 | 170 | 6.3×7.7 | 0.50 | 255 | | | | | | |
| 150 | 151 | 6.3×7.7 | 0.50 | 255 | 6.3×7.7 | 0.50 | 255 | 6.3×7.7 | 0.50 | 255 | | | | | | | | | |
| 220 | 221 | 6.3×7.7 | 0.50 | 255 | 6.3×7.7 | 0.50 | 255 | 6.3×7.7 | 0.50 | 255 | | | | | | | | | |

Part Numbering System

VEZ Series 10μF ±20% 16V Carrier Tape 4φ × 5.3L

VEZ **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