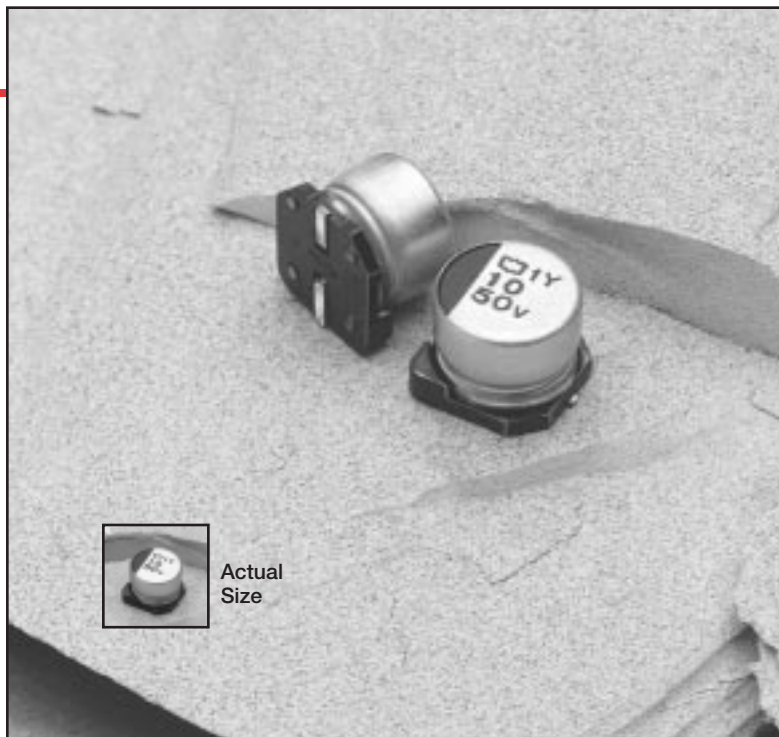


- **Surface Mount**
- **Low Profile Vertical Chip**
- **Solvent Proof**
- **+85°C Maximum Temperature**



The MV series capacitors are the standard vertical chip capacitors designed for reflow soldering. The maximum height for most of these capacitors is 5.5mm, making them ideal for use in low profile situations.

The MV series capacitors were developed to withstand HCFC cleaning agents for five minutes by ultrasonic, vapor or immersion. This solvent proof design allows all circuit board components to be cleaned together, at the same time, without resorting to more expensive epoxy end-sealed capacitors. Refer to the Mini-Glossary for recommended cleaning conditions.

Summary of Specifications

- **Surface mount lead terminals.**
- **Capacitance range: 0.1 to 1,000 μ F.**
- **Voltage range: 4 to 63VDC.**
- **Operating temperature range: -40°C to +85°C.**
- **Leakage current: 0.01CV or 3 μ A, whichever is greater, after 2 minutes at +20°C.**
- **Standard capacitance tolerance: \pm 20%**
- **Nominal case size (D \times L): 3 \times 5.2mm to 10 \times 10mm.**
- **Rated lifetime: 1,000 to 2,000 hours at +85°C depending on case size.**

Item	Characteristics																																																
Operating Temperature Range	-40 to +85°C																																																
Rated Voltage Range	4 to 63VDC																																																
Capacitance Range	0.1 to 1,000μF																																																
Capacitance Tolerance	±20% (M) at +20°C, 120Hz																																																
Leakage Current	I = 0.01CV or 3μA, whichever is greater, after 2 minutes at +20°C. Where I = Leakage current (μA), C = Nominal capacitance (μF) and V = Rated voltage (V)																																																
Dissipation Factor (Tan δ)	At +20°C, 120Hz <table border="1"> <thead> <tr> <th>Rated Voltage (V)</th> <th>4</th> <th>6.3</th> <th>10</th> <th>16</th> <th>25</th> <th>35</th> <th>50</th> <th>63</th> </tr> </thead> <tbody> <tr> <td>Size Ø3</td> <td>0.42</td> <td>0.27</td> <td>0.23</td> <td>0.19</td> <td>0.16</td> <td>0.14</td> <td>0.12</td> <td>-</td> </tr> <tr> <td>Size Ø4-Ø6.3</td> <td>0.42</td> <td>0.24</td> <td>0.20</td> <td>0.16</td> <td>0.14</td> <td>0.12</td> <td>0.10</td> <td>0.12</td> </tr> <tr> <td>Size Ø8-Ø10</td> <td>-</td> <td>0.40</td> <td>0.30</td> <td>0.26</td> <td>0.16</td> <td>0.14</td> <td>0.12</td> <td>0.12</td> </tr> </tbody> </table>	Rated Voltage (V)	4	6.3	10	16	25	35	50	63	Size Ø3	0.42	0.27	0.23	0.19	0.16	0.14	0.12	-	Size Ø4-Ø6.3	0.42	0.24	0.20	0.16	0.14	0.12	0.10	0.12	Size Ø8-Ø10	-	0.40	0.30	0.26	0.16	0.14	0.12	0.12												
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Low Temperature Characteristics	At 120Hz, impedance (Z) ratio between the -25°C or -40°C value and +20°C value shall not exceed the values given below. <table border="1"> <thead> <tr> <th colspan="2">Rated Voltage (V)</th> <th>4</th> <th>6.3</th> <th>10</th> <th>16</th> <th>25</th> <th>35</th> <th>50</th> <th>63</th> </tr> </thead> <tbody> <tr> <td rowspan="2">Z(-25°C)/Z(+20°C)</td> <td>Size Ø3-Ø10</td> <td>4</td> <td>4</td> <td>3</td> <td>2</td> <td>2</td> <td>2</td> <td>2</td> <td>2</td> </tr> <tr> <td>Size Ø3</td> <td>17</td> <td>10</td> <td>8</td> <td>6</td> <td>4</td> <td>3</td> <td>3</td> <td>3</td> </tr> <tr> <td rowspan="3">Z(-40°C)/Z(+20°C)</td> <td>Size Ø4-Ø6.3</td> <td>15</td> <td>10</td> <td>8</td> <td>6</td> <td>4</td> <td>3</td> <td>3</td> <td>3</td> </tr> <tr> <td>Size Ø8-Ø10</td> <td>-</td> <td>10</td> <td>8</td> <td>6</td> <td>4</td> <td>3</td> <td>3</td> <td>3</td> </tr> </tbody> </table>	Rated Voltage (V)		4	6.3	10	16	25	35	50	63	Z(-25°C)/Z(+20°C)	Size Ø3-Ø10	4	4	3	2	2	2	2	2	Size Ø3	17	10	8	6	4	3	3	3	Z(-40°C)/Z(+20°C)	Size Ø4-Ø6.3	15	10	8	6	4	3	3	3	Size Ø8-Ø10	-	10	8	6	4	3	3	3
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	Load Life	The following specifications shall be satisfied when the capacitors are restored to +20°C after subjecting them to the DC rated voltage for the specified test time at +85°C. The sum of DC voltage and peak AC voltage must not exceed the full rated voltage of the capacitors. Size Ø3: 1,000 hours Size Ø4-Ø10: 2,000 hours Capacitance change: ≤ ±20% of the initial measured value Tan δ (DF) : ≤ 200% of the initial specified value Leakage current : ≤ initial specified value																																															
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to +20°C after exposing them for 500 hours at +85°C without voltage applied. The rated voltage shall be applied to the capacitors for a minimum of 30 minutes, at least 24 hours and not more than 48 hours before the measurements. Capacitance change: Size Ø3 : ≤ ±20% of the initial measured value Size Ø4-Ø10 : ≤ ±15% of the initial measured value Tan δ (DF): Size Ø3 : ≤ 200% of the initial specified value Size Ø4-Ø10 : ≤ 150% of the initial specified value Leakage current : ≤ initial specified value																																																
Others	Satisfies characteristic W of JIS C5141																																																

Part Numbering System for MV Series

When ordering, always specify complete catalog number for MV Series.

