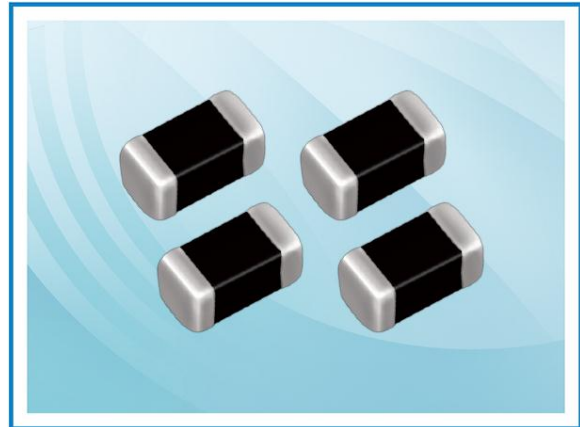


PMV0603-5R5E5R0

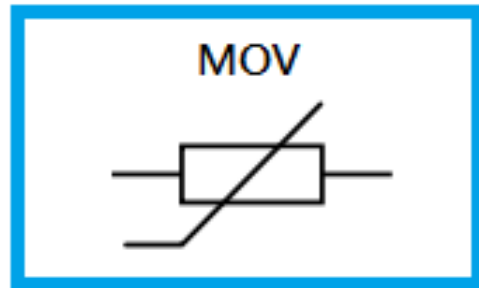
Features

- Operating voltage: 5.5 Vdc
- Fast response, instantly clamping the transient over voltage.
- High surge current handling capability.
- High energy absorption capability.
- Low clamping voltages, providing better surge protection.
- Low capacitance values, providing digital switching circuitry protection.
- High insulation resistance, preventing electric arcing to the adjacent devices or circuits.
- Meet IEC 61000-4-2 level 4 standard.



Applications

- Universal Serial Bus (USB).
- Mobile communication.
- Computer/DSP product.
- Video and audio ports.
- Portable/Hand-Held Products.
- Data, Diagnostic I/O ports.



General Characteristics Definition

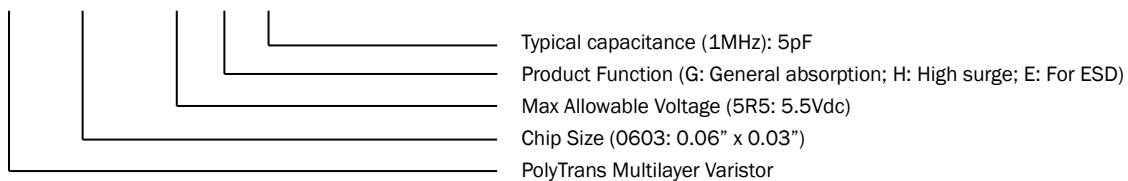
- Operating temperature: -55 ~ 125°C
- Storage temperature: -55 ~ 125°C

Material

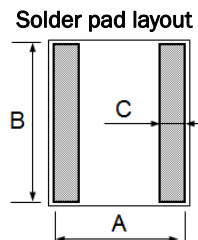
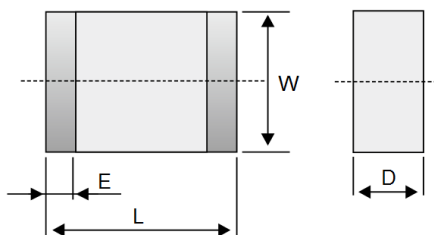
- Electrode: Ag/Ni/Sn
- Chip body: Zinc oxide

Part Number Code

PMV 0603 - 5R5 E 5R0



Physical Dimensions



| Symbol | Dimension (mm) |
|--------|----------------|
| L | 1.6±0.2 |
| W | 0.8±0.2 |
| D | 0.9 max. |
| E | 0.35±0.1 |
| A | 2.6 typ. |
| B | 0.8 typ. |
| C | 0.9 typ. |

Note:

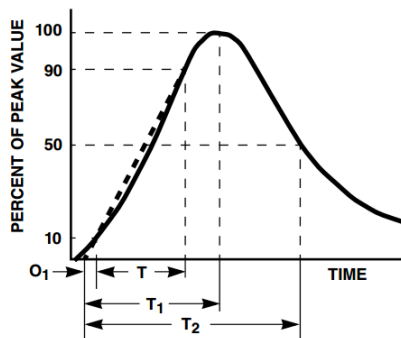
1. All dimensions are in millimeters.
2. No marking on the device.

PMV0603-5R5E5R0

Electrical Characteristics

| Part Number | Max Allowable Voltage | | Varistor Voltage $V_b @ 1 \text{ mA}$ | | Withstand Surge Current I_{PP} 8/20 μs | Max Clamping Voltage V_C | | Capacitance @ 1MHz | | |
|-------------|-----------------------|-----------------|--|------------|---|-------------------------------|----------|--------------------|-------------|-------------|
| | V_{RMS} (V) | V_{DC} (V) | Min (V) | Max (V) | | V (V) | I (A) | Min (pF) | Typ (pF) | Max (pF) |
| | PMV0603-5R5E5R0 | - | 5.5 | 24 | 30 | 1 | 150 | 1 | 2.5 | 5.0 |

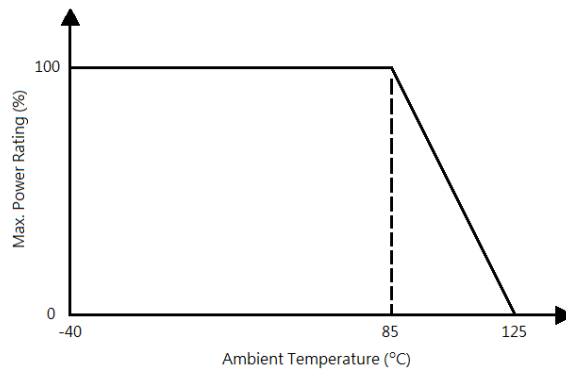
Peak Pulse Current Test Waveform



O_1 = Virtual Origin of Wave
 T = Time from 10% to 90% of Peak
 T_1 = Rise Time = $1.25 \times T$
 T_2 = Decay Time

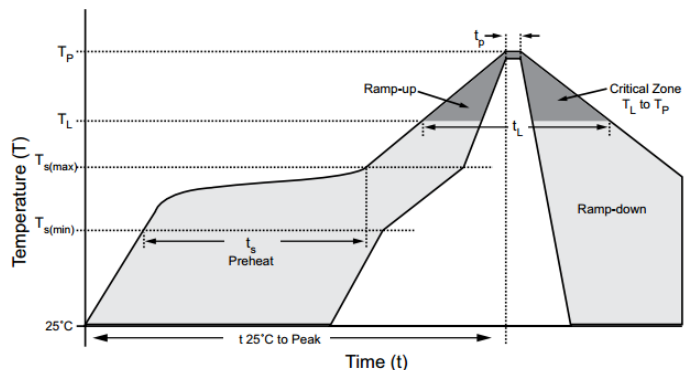
Example - For an 8/20 ms current waveform
 $8 \mu\text{s} = T_1 = \text{Rise Time}$
 $20 \mu\text{s} = T_2 = \text{Decay Time}$

Power Derating Curve



Lead Free Reflow Soldering Recommendations

| | |
|--|-------------------|
| Preheat | |
| - Temperature Min (T_{s_min}) | 150°C |
| - Temperature Max (T_{s_max}) | 200°C |
| - Time (T_{s_min} to T_{s_max}) | 60-180 seconds |
| - Average Ramp-Up Rate | 1~3°C/second |
| Peak Temperature | 260°C max. |
| Time within 5°C of actual Peak Temperature (t_p) | 40 seconds max. |
| Ramp-Down Rate | 6 °C /second max. |



Note: If the wave soldering temperatures exceed the recommended profile, devices may not meet the performance requirements.

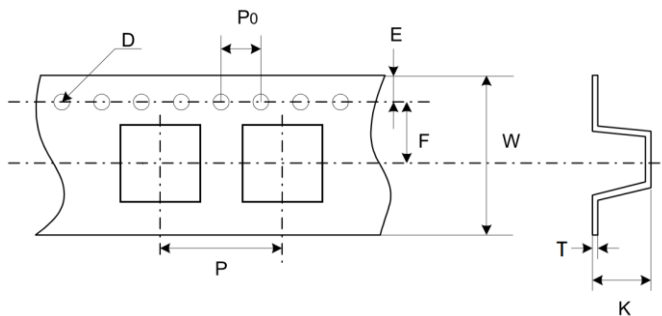
PMV0603-5R5E5R0

Reliability Test

| Environmental Ratings | | | | | | | | | | |
|--------------------------------|--|----------------------------|-----------------------------------|--------|--------------------|--------|----------------------------------|--------|--------------------|---|
| Test Parameter | Test Condition / Description | Performance Requirements | | | | | | | | |
| Dry Heat Loading | The specimen shall be applied continuously the maximum allowable voltage at the specified conditions for specified period and then stored at room temperature and normal humidity over 2 hours. Thereafter, the change of V_b and mechanical damage shall be examined. Ambient temp: $85\pm 2^\circ\text{C}$ / Period: 1000 ± 24 hours | $\Delta V_b/V_b \leq 10\%$ | | | | | | | | |
| High Temp Storage | In a dry oven without load. Ambient temp: $125\pm 2^\circ\text{C}$ / Period: 1000 ± 24 hours | $\Delta V_b/V_b \leq 10\%$ | | | | | | | | |
| Damp Heat/ Humidity Loading | The specimen shall be applied continuously the maximum allowable voltage at the specified conditions for specified period and then stored at room temperature and normal humidity over 2 hours. Thereafter, the change of V_b and mechanical damage shall be examined. Ambient temp: $40\pm 2^\circ\text{C}$, 90~95%RH / Period: 1000 ± 24 hours | $\Delta V_b/V_b \leq 10\%$ | | | | | | | | |
| Temperature Cycle | Condition the specimen to each temperature from step 1 to step 4 in this order for the period shown in the table of specifications. The change of V_b and mechanical damage shall be examined after 2 hours. <table border="1" style="margin: 10px auto;"> <tr> <td style="text-align: center;">Step 1</td> <td style="text-align: center;">$-40\pm 3^\circ\text{C}$ / 30min.</td> </tr> <tr> <td style="text-align: center;">Step 2</td> <td style="text-align: center;">Room temp / 15min.</td> </tr> <tr> <td style="text-align: center;">Step 3</td> <td style="text-align: center;">$85\pm 2^\circ\text{C}$ / 30min.</td> </tr> <tr> <td style="text-align: center;">Step 4</td> <td style="text-align: center;">Room temp / 15min.</td> </tr> </table> | Step 1 | $-40\pm 3^\circ\text{C}$ / 30min. | Step 2 | Room temp / 15min. | Step 3 | $85\pm 2^\circ\text{C}$ / 30min. | Step 4 | Room temp / 15min. | No Visible damage $\Delta V_b/V_b \leq 10\%$ |
| Step 1 | $-40\pm 3^\circ\text{C}$ / 30min. | | | | | | | | | |
| Step 2 | Room temp / 15min. | | | | | | | | | |
| Step 3 | $85\pm 2^\circ\text{C}$ / 30min. | | | | | | | | | |
| Step 4 | Room temp / 15min. | | | | | | | | | |
| Low Temp Storage | In a cooling chamber without load. Ambient temp: $-40\pm 2^\circ\text{C}$ / Period: 1000 ± 24 hours | $\Delta V_b/V_b \leq 10\%$ | | | | | | | | |

Packaging Information

| Part Number | Quantity (EA/Roll) | Reel Dimension (mm) | |
|-----------------|-----------------------|-----------------------------------|--------------|
| | | Diameter | Thickness |
| PMV0603-5R5E5R0 | 4000 | 178.0 ± 1.0 (7" Paper Reel) | 9.0 ± 0.5 |



| Symbol | Dimension (mm) |
|--------|-------------------|
| P | 4.0 ± 0.1 |
| P0 | 4.0 ± 0.1 |
| D | 1.55 ± 0.05 |
| E | 1.75 ± 0.1 |
| F | 3.5 ± 0.1 |
| W | 8.0 ± 0.2 |
| T | 0.22 ± 0.05 |
| K | 1.2 ± 0.1 |