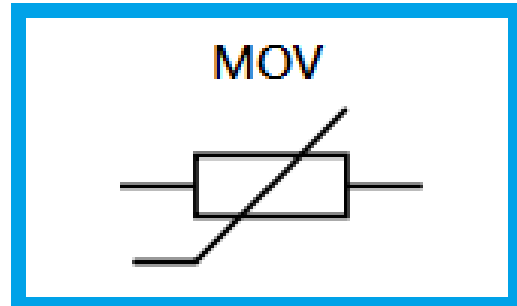


## PMV0805 Series MOV Devices

### Features

- Wide operating voltages ranging from 1.4 Vrms to 35 Vrms (2.0 Vdc to 45 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.



### 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

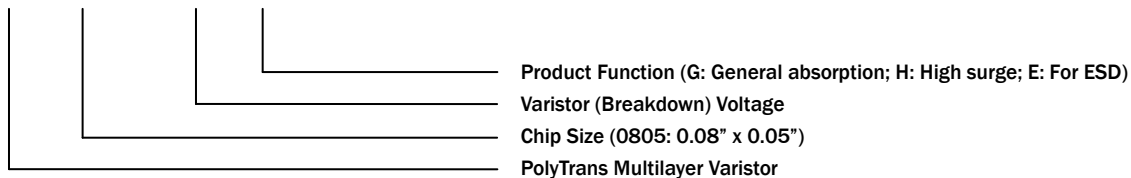
- Operating temperature: -40 ~ 125°C
- Storage temperature: -40 ~ 125°C

### Material

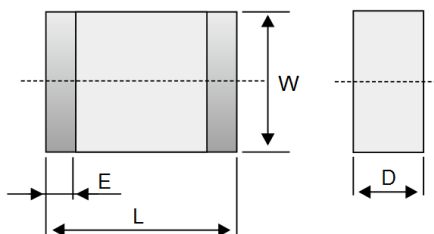
- Electrode: Ag/Ni/Sn
- Chip body: Zinc oxide

### Part Number Code

PMV 0805 - □□□ □



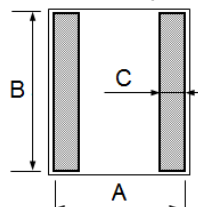
### Physical Dimensions



Note:

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

#### Solder pad layout



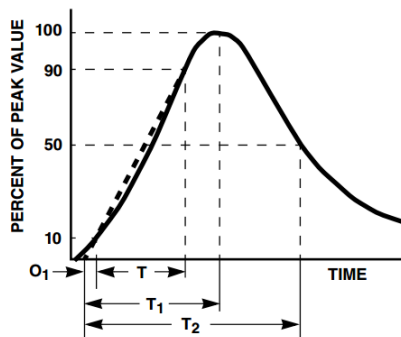
| Symbol | Dimension (mm) |
|--------|----------------|
| L      | 2.0±0.2        |
| W      | 1.2±0.2        |
| D      | 1.0 max.       |
| E      | -              |
| A      | 3.0 typ.       |
| B      | 1.2 typ.       |
| C      | 0.9 typ.       |

## PMV0805 Series MOV Devices

### Electrical Characteristics

| Part Number  | Max Allowable Voltage |          | Varistor Voltage<br>$V_b @ 1 \text{ mA}$ | Energy<br>10/1000 $\mu\text{s}$ | Withstand Surge<br>Current $I_{PP}$<br>8/20 $\mu\text{s}$ | Max Clamping<br>Voltage $V_c$ |     | Typical<br>Capacitance<br>(pF) | Safety<br>Certification<br>UL/CSA |
|--------------|-----------------------|----------|--|---------------------------------|---|-------------------------------|-----|--------------------------------|-----------------------------------|
|              | $V_{RMS}$             | $V_{DC}$ |  |                                 |   | V                             | I   |                                |                                   |
|              | (V)                   | (V)      | (V)                                      | (J)                             | (A)   | (V)                           | (A) | (pF)                           | UL/CSA                            |
| PMV0805-3R0G | 1.4                   | 2.0      | 3  | 0.2                             | 60  | 9                             | 2   | 1200                           | -                                 |
| PMV0805-5R0G | 2.4                   | 3.3      | 5  | 0.2                             | 80  | 12                            | 2   | 900                            | -                                 |
| PMV0805-8R0G | 4.0                   | 5.5      | 8  | 0.2                             | 80  | 18                            | 2   | 1100                           | -                                 |
| PMV0805-120G | 7.0                   | 9.0      | 12                                       | 0.2                             | 100   | 24                            | 2   | 1000                           | -                                 |
| PMV0805-180G | 11                    | 14       | 18                                       | 0.2                             | 100   | 30                            | 2   | 450                            | -                                 |
| PMV0805-220G | 12                    | 16       | 22                                       | 0.2                             | 100   | 36                            | 2   | 850                            | -                                 |
| PMV0805-240G | 14                    | 18       | 24                                       | 0.2                             | 100   | 38                            | 2   | 500                            | -                                 |
| PMV0805-270G | 17                    | 22       | 27                                       | 0.2                             | 100   | 44                            | 2   | 350                            | -                                 |
| PMV0805-300G | 19                    | 24       | 30                                       | 0.2                             | 100   | 48                            | 2   | 350                            | -                                 |
| PMV0805-330G | 20                    | 26       | 33                                       | 0.2                             | 100   | 54                            | 2   | 300                            | -                                 |
| PMV0805-360G | 22                    | 28       | 36                                       | 0.2                             | 100   | 59                            | 2   | 350                            | -                                 |
| PMV0805-390G | 25                    | 30       | 39                                       | 0.2                             | 100   | 65                            | 2   | 350                            | -                                 |
| PMV0805-420G | 26                    | 33       | 42                                       | 0.2                             | 80  | 72                            | 2   | 350                            | -                                 |
| PMV0805-470G | 30                    | 38       | 47                                       | 0.2                             | 80  | 77                            | 2   | 280                            | -                                 |
| PMV0805-560G | 35                    | 45       | 56                                       | 0.2                             | 80  | 90                            | 2   | 500                            | -                                 |

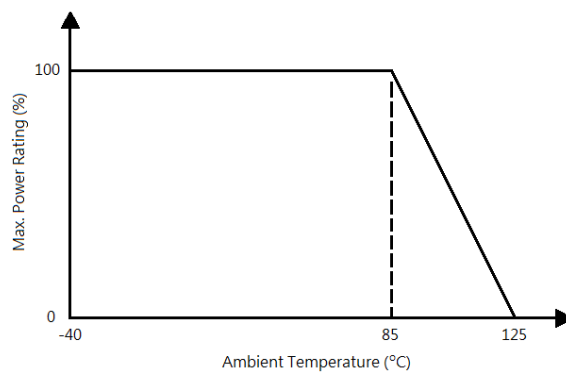
### Peak Pulse Current Test Waveform



O<sub>1</sub> = Virtual Origin of Wave  
 T = Time from 10% to 90% of Peak  
 T<sub>1</sub> = Rise Time = 1.25 x T  
 T<sub>2</sub> = Decay Time

**Example** - For an 8/20 ms current waveform  
 8  $\mu\text{s}$  = T<sub>1</sub> = Rise Time  
 20  $\mu\text{s}$  = T<sub>2</sub> = Decay Time

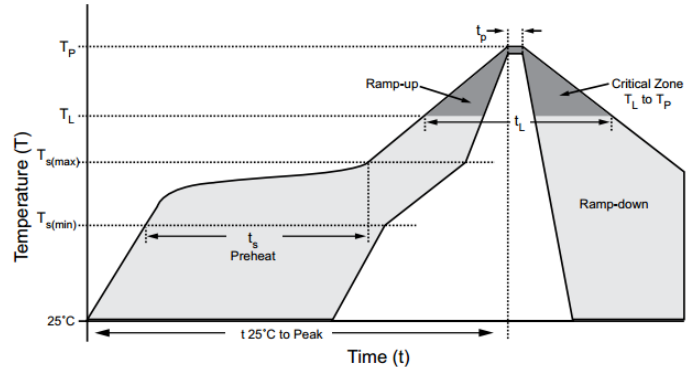
### Power Derating Curve



## PMV0805 Series MOV Devices

### Lead Free Reflow Soldering Recommendations

|  |                   |
|--|-------------------|
| <b>Preheat</b>   |                   |
| - 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      |
| <b>Peak Temperature</b>  | 260°C max.        |
| <b>Time within 5°C of actual Peak Temperature (<math>t_p</math>)</b> | 40 seconds max.   |
| <b>Ramp-Down Rate</b>  | 6 °C /second max. |



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

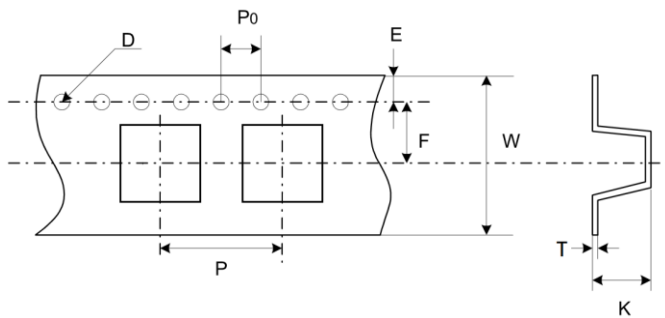
### Reliability Test

| 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.<br>Ambient temp: $85 \pm 2^\circ\text{C}$ / Period: $1000 \pm 24$ hours   | $\Delta V_b / V_b \leq 10\%$ |                                    |        |                    |        |                                   |        |                    |   |
| High Temp Storage           | In a dry oven without load.<br>Ambient temp: $125 \pm 2^\circ\text{C}$ / Period: $1000 \pm 24$ 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.<br>Ambient temp: $40 \pm 2^\circ\text{C}$ , 90~95%RH / Period: $1000 \pm 24$ 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-left: 20px;"> <tr> <td>Step 1</td> <td><math>-40 \pm 3^\circ\text{C}</math> / 30min.</td> </tr> <tr> <td>Step 2</td> <td>Room temp / 15min.</td> </tr> <tr> <td>Step 3</td> <td><math>85 \pm 2^\circ\text{C}</math> / 30min.</td> </tr> <tr> <td>Step 4</td> <td>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<br>$\Delta V_b / V_b \leq 10\%$ |
| 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.<br>Ambient temp: $-40 \pm 2^\circ\text{C}$ / Period: $1000 \pm 24$ hours  | $\Delta V_b / V_b \leq 10\%$ |                                    |        |                    |        |                                   |        |                    |   |

## PMV0805 Series MOV Devices

### Packaging Information

| Part Number    | Carrier Material | Quantity<br>(EA/Roll) | Reel Dimension (mm)          |           |
|----------------|------------------|-----------------------|------------------------------|-----------|
|                |                  |                       | Diameter                     | Thickness |
| PMV0805 Series | Paper            | 4000                  | 178.0±1.0<br>(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      | 1.3±0.1        |