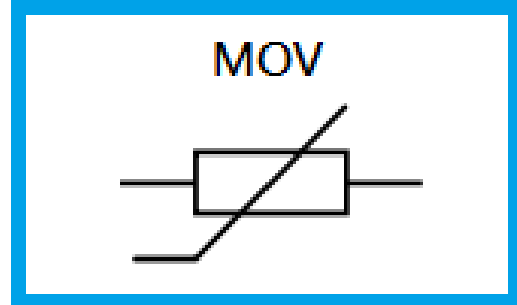


## PMV0603 Series MOV Devices

### Features

- Wide operating voltages ranging from 2.4 Vrms to 30 Vrms (3.3 Vdc to 38 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

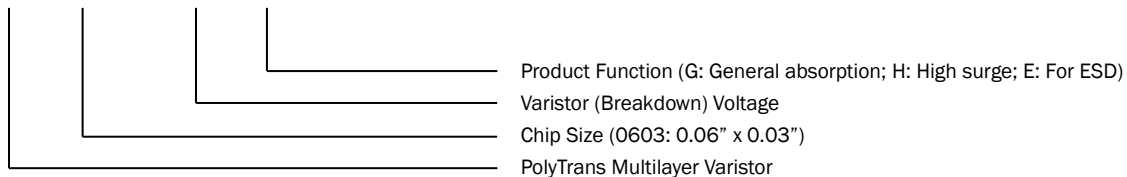
- Operating temperature: -40 ~ 125°C
- Storage temperature: -40 ~ 125°C

### Material

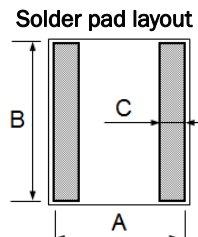
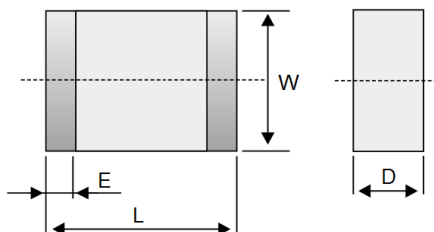
- Electrode: Ag/Ni/Sn
- Chip body: Zinc oxide

### Part Number Code

PMV 0603 - □□□ □



### 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:**

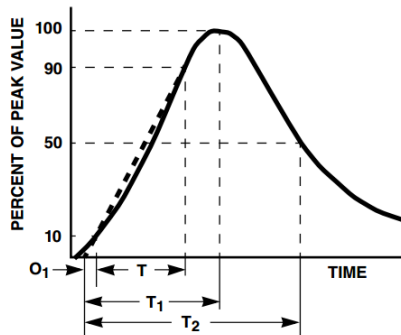
1. All dimensions are in millimeters.
2. No marking on the device.

## PMV0603 Series MOV Devices

### Electrical Characteristics

Part Number	Max Allowable Voltage		Varistor Voltage $V_b$ @ 1 mA	Energy 10/1000 $\mu$ s	Withstand Surge Current $I_{PP}$ 8/20 $\mu$ s	Max Clamping Voltage $V_c$		Typical Capacitance (pF)	Safety Certification UL/CSA
	$V_{RMS}$	$V_{DC}$				V	I		
	(V)	(V)	(V)	(J)	(A)	(V)	(A)	(pF)	UL/CSA
PMV0603-5R0G	2.4	3.3	5	0.1	30	12	1	130	-
PMV0603-8R0G	4.0	5.5	8	0.1	30	18	1	360	-
PMV0603-120G	7.0	9.0	12	0.1	30	24	1	150	-
PMV0603-180G	11	14	18	0.1	30	30	1	150	-
PMV0603-240G	14	18	24	0.1	30	38	1	270	-
PMV0603-270G	17	22	27	0.1	30	44	1	250	-
PMV0603-300G	19	24	30	0.1	30	48	1	250	-
PMV0603-330G	20	26	33	0.1	30	54	1	250	-
PMV0603-360G	22	28	36	0.1	30	59	1	250	-
PMV0603-390G	25	30	39	0.1	30	65	1	250	-
PMV0603-420G	26	33	42	0.1	30	72	1	250	-
PMV0603-470G	30	38	47	0.1	30	77	1	250	-

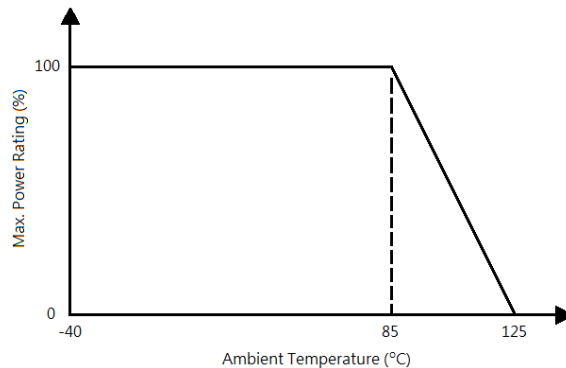
### Peak Pulse Current Test Waveform



$O_1$  = 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  
 $8 \mu$ s =  $T_1$  = Rise Time  
 $20 \mu$ s =  $T_2$  = Decay Time

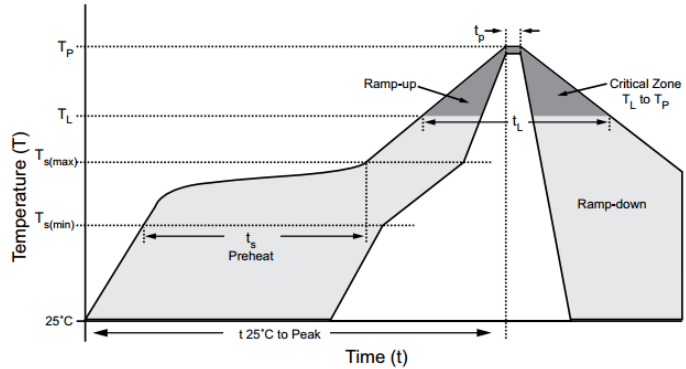
### Power Derating Curve



## PMV0603 Series MOV Devices

### 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.

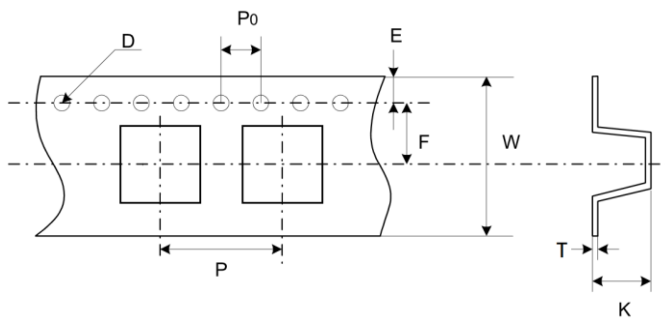
### Reliability Test

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±2°C / Period: 1000±24hours	$\Delta V_b/V_b \leq 10\%$								
High Temp Storage	In a dry oven without load. Ambient temp: 125±2°C / Period: 1000±24hours	$\Delta V_b/V_b \leq 10\%$								
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±2°C, 90~95%RH / Period: 1000±24hours	$\Delta V_b/V_b \leq 10\%$								
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>-40±3°C / 30min.</td> </tr> <tr> <td>Step 2</td> <td>Room temp / 15min.</td> </tr> <tr> <td>Step 3</td> <td>85±2°C / 30min.</td> </tr> <tr> <td>Step 4</td> <td>Room temp / 15min.</td> </tr> </table>	Step 1	-40±3°C / 30min.	Step 2	Room temp / 15min.	Step 3	85±2°C / 30min.	Step 4	Room temp / 15min.	No Visible damage $\Delta V_b/V_b \leq 10\%$
Step 1	-40±3°C / 30min.									
Step 2	Room temp / 15min.									
Step 3	85±2°C / 30min.									
Step 4	Room temp / 15min.									
Low Temp Storage	In a cooling chamber without load. Ambient temp: -40±2°C / Period: 1000±24hours	$\Delta V_b/V_b \leq 10\%$								

## PMV0603 Series MOV Devices

### Packaging Information

Part Number	Carrier Material	Quantity (EA/Roll)	Reel Dimension (mm)	
			Diameter	Thickness
PMV0603 Series	Paper	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