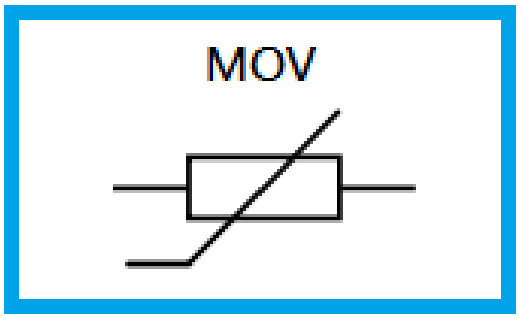
PMV1210 Series MOV Devices

Features

- Wide operating voltages ranging from 4 Vrms to 60 Vrms (5.5 Vdc to 85 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

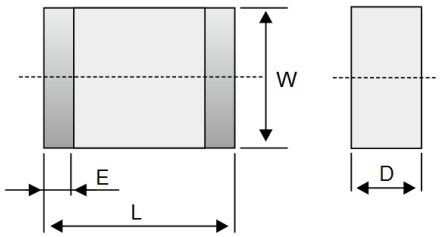
- Electrode: Ag/Ni/Sn
- Chip body: Zinc oxide

Part Number Code

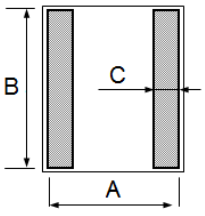
PMV 1210 - □□□ □

- Product Function (G: General absorption; H: High surge; E: For ESD)
- Varistor (Breakdown) Voltage
- Chip Size (1210: 0.12" x 0.10")
- PolyTrans Multilayer Varistor

Physical Dimensions



Solder pad layout



Symbol	Dimension (mm)
L	3.2±0.2
W	2.5±0.2
D	2.5 max.
E	-
A	4.2 typ.
B	2.5 typ.
C	0.9 typ.

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

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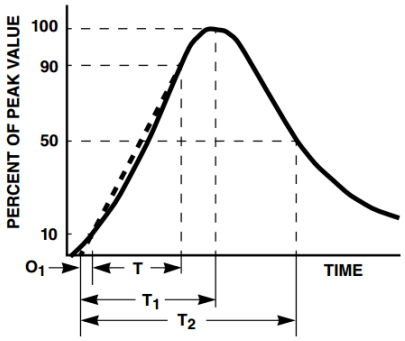
Electrical Characteristics

Part Number	Max Allowable Voltage		Varistor Voltage V_b @ 1 mA	Energy 10/1000 μs	Withstand Surge Current I_{PP} 8/20 μs	Max Clamping Voltage V_C		Typical Capacitance	Safety Certification
	V_{RMS}	V_{DC}				V	I		
	(V)	(V)	(V)	(J)	(A)	(V)	(A)	(pF)	UL/CSA
PMV1210-8R0G	4.0	5.5	8	0.4	250	18	5	5000	-
PMV1210-120G	7.0	9.0	12	1.5	250	24	5	850	-
PMV1210-180G	11	14	18	1.5	250	30	5	850	-
PMV1210-240G	14	18	24	0.8	250	38	5	1950	-
PMV1210-270G	17	22	27	1.5	250	44	5	950	-
PMV1210-300G	19	24	30	1.5	200	47	5	850	-
PMV1210-330G	20	26	33	1.5	250	54	5	850	-
PMV1210-360G	22	28	36	1.5	250	59	5	850	-
PMV1210-390G	24	30	39	1.5	250	65	5	1000	-
PMV1210-470G	30	38	47	1.5	250	77	5	780	-
PMV1210-560G	35	45	56	1.5	250	90	5	850	-
PMV1210-680G	40	56	68	1.5	250	110	5	450	-
PMV1210-820G	50	65	82	1.2	250	135	5	1000	-
PMV1210-101G	60	85	100	1.5	200	165	5	250	-

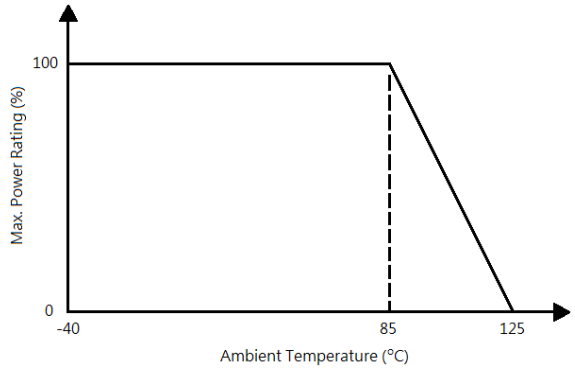
Peak Pulse Current Test Waveform



O_1 = Virtual Origin of Wave
T = Time from 10% to 90% of Peak
T1 = Rise Time = 1.25 x T
T2 = Decay Time

Example – For an 8/20 ms current waveform
8 μs = T1 = Rise Time
20 μs = T2 = Decay Time

Power Derating Curve



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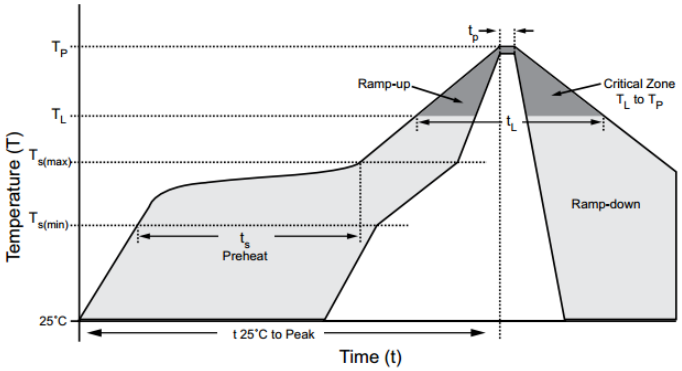
Lead Free Reflow Soldering Recommendations

Preheat - Temperature Min (T_{s_min}) - Temperature Max (T_{s_max}) - Time (T_{s_min} to T_{s_max}) - Average Ramp-Up Rate	 150°C 200°C 60-180 seconds 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	$\Delta V_b/V_b \leqq 10\%$
High Temp Storage	In a dry oven without load. Ambient temp: 125±2°C / Period: 1000±24hours	$\Delta V_b/V_b \leqq 10\%$
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	$\Delta V_b/V_b \leqq 10\%$
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. 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 $\Delta V_b/V_b \leqq 10\%$
Low Temp Storage	In a cooling chamber without load. Ambient temp: -40±2°C / Period: 1000±24hours	$\Delta V_b/V_b \leqq 10\%$

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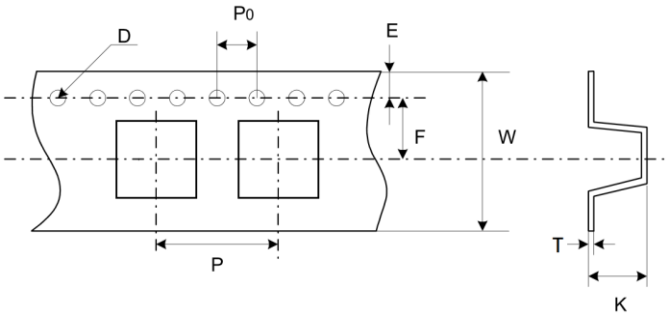
Packaging Information

Part Number	Carrier Material	Quantity (EA/Roll)	Reel Dimension (mm)	
			Diameter	Thickness
PMV1210 Series	Plastic	3000	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	1.8±0.1