Features
- Meets IEC 61000-4-5 standard
- Compact size for EIA 1210
- Quick response time (< 0.5 ns)
- High transient current capability
- RoHS compliant*

Applications
- Power supplies
- Entertainment electronics
- White goods

Description
The Model BVR1210 Low Voltage Multilayered Varistor Series is designed to protect sensitive electronic devices against high voltage surges in the low voltage regions. These varistors offer excellent transient energy absorption due to improved energy volume distribution and power dissipation. The Model BVR1210 Series is available with 5.5 to 18 VDC working voltages.

Model BVR Series Varistors are typically utilized to protect integrated circuits and other components at the circuit board level.

Electrical Characteristics @ 25 °C (unless otherwise noted)

<table>
<thead>
<tr>
<th>Model</th>
<th>$V_{\text{rms}}$ (V)</th>
<th>$V_{\text{DC}}$ (V)</th>
<th>$V_n$ Min. (V)</th>
<th>$V_n$ Max. (V)</th>
<th>$V_c$ (V)</th>
<th>$I_{\text{max}}$ (A)</th>
<th>$C_p$ Typ. (pF)</th>
<th>@ 8/20 µs</th>
<th>@ 1 KHz</th>
</tr>
</thead>
<tbody>
<tr>
<td>BVR1210-04</td>
<td>4</td>
<td>5.5</td>
<td>9</td>
<td>14</td>
<td>28</td>
<td>400</td>
<td>2100</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BVR1210-14</td>
<td>14</td>
<td>18</td>
<td>22</td>
<td>29</td>
<td>45</td>
<td>500</td>
<td>1100</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Environmental Characteristics
- Operating Temperature: -40 °C to +125 °C
- Storage Temperature: -40 °C to +125 °C
- Standard: IEC 61000-4-5

How to Order
- **BVR 1210 - nn R**
  - Series Designator: BVR = BVR Series
  - Model Size: 1210 = 1210 Package
  - Max. RMS Voltage: 04 = 4 V, 14 = 14 V
  - Packaging: R = Tape and reel packaging (2000 pcs. per 7-inch reel)

**WARNING** Cancer and Reproductive Harm - [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov)

BVR1210 SMD Series - Low Voltage Varistors

**Product Dimensions**

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Value</th>
<th>Tolerance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Width</td>
<td>3.20 ± 0.30</td>
<td>(.126 ± 0.012)</td>
</tr>
<tr>
<td>Height</td>
<td>2.50 ± 0.25</td>
<td>(.098 ± 0.010)</td>
</tr>
<tr>
<td>Thickness</td>
<td>1.65 ± 0.10</td>
<td>(.065 ± 0.004)</td>
</tr>
<tr>
<td>Strain (max)</td>
<td>0.50 ± 0.25</td>
<td>(.020 ± 0.010)</td>
</tr>
<tr>
<td>Inrush (max)</td>
<td>3.20 ± 0.30</td>
<td>(.126 ± 0.012)</td>
</tr>
</tbody>
</table>

**Recommended Pad Layout**

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Value</th>
<th>Tolerance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>4.5</td>
<td>(1.77)</td>
</tr>
<tr>
<td>Width</td>
<td>2.1</td>
<td>(0.83)</td>
</tr>
<tr>
<td>Thickness</td>
<td>2.8</td>
<td>(1.10)</td>
</tr>
<tr>
<td>Height</td>
<td>1.2</td>
<td>(0.47)</td>
</tr>
</tbody>
</table>

**Construction**

![Diagram showing Lead Free Overcoating, Metal Oxide Layer, Inner Electrode, 100% Ag Layer, 100% Ni Barrier Layer, 100% Sn Plated Layer]

**Solder Reflow Recommendations**

<table>
<thead>
<tr>
<th>Stage</th>
<th>Description</th>
<th>Temperature (°C)</th>
<th>Time (seconds)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Stage 1 Preheat Ramp</td>
<td></td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>Stage 2 Preheat</td>
<td></td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>Stage 3 Preheat to Main Heating</td>
<td></td>
<td></td>
</tr>
<tr>
<td>D</td>
<td>Main Heating</td>
<td></td>
<td></td>
</tr>
<tr>
<td>E</td>
<td>Cool Down</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**CAUTION:**
- This product can be damaged by rapid heating, cooling or localized heating.
- Heat shocks should be avoided. Preheating and gradual cooling recommended.
- Solder gun tip temperature should be kept below 280 °C and should not touch the device directly. Contact should be less than 3 seconds. A solder gun under 30 watts is recommended.
- Excess solder volume can damage the body of the product.

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BVR1210 SMD Series - Low Voltage Varistors

Packaging Dimensions

REV. 12/23
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