Features

- Meets IEC 61000-4-5 standard
- Compact size for EIA 1812
- Quick response time (< 1.0 ns)
- High transient current capability
- RoHS compliant*

Applications

- Power supplies
- Entertainment electronics
- White goods

Description

The Model BVR1812 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 BVR1812 Series is available with 5.5 to 14 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>VDC (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>
</tr>
</thead>
<tbody>
<tr>
<td>BVR1812-04</td>
<td>&lt;10 µA</td>
<td>1 mA DC</td>
<td>1 A @ 8/20 µs</td>
<td>1 A @ 8/20 µs</td>
<td>30</td>
<td>800</td>
<td>5400</td>
</tr>
<tr>
<td>BVR1812-10</td>
<td>10</td>
<td>14</td>
<td>16</td>
<td>22</td>
<td>42</td>
<td>800</td>
<td>3800</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
Moisture Sensitivity Level: 1
ESD Classification (HBM): N/A

Device Symbol

U

How to Order

BVR 1812 - nn R

Series Designator
BVR = BVR Series
Model Size
1812 = 1812 Package
Max. RMS Voltage
04 = 4 V
14 = 14 V
Packaging
R = Tape and reel packaging
(1000 pcs. per 7-inch reel)

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BVR1812 SMD Series - Low Voltage Varistors

**Product Dimensions**

**Recommended Pad Layout**

**Construction**

**Solder Reflow Recommendations**

### Dimensions:

<table>
<thead>
<tr>
<th>DIMENSIONS:</th>
<th>MM (INCHES)</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.20 ± 0.35</td>
<td>(.126 ± .012)</td>
</tr>
<tr>
<td>2.45 ± 0.10</td>
<td>(.096 ± .004)</td>
</tr>
<tr>
<td>0.60 ± 0.30</td>
<td>(.024 ± .012)</td>
</tr>
<tr>
<td>4.50 ± 0.40</td>
<td>(.177 ± .016)</td>
</tr>
</tbody>
</table>

### Recommended Pad Layout:

- 6.0 (2.36)
- 3.0 (1.18)
- 1.5 (0.59)

### Construction:

- Lead Free Overcoating
- Metal Oxide Layer
- Inner Electrode
- 100% Ag Layer
- 100% Ni Barrier Layer
- 100% Sn Plated Layer

### Solder Reflow Recommendations:

**A** Stage 1 Preheat Ramp
- Ambient to Preheating Temperature
- 3 °C/s max.

**B** Stage 2 Preheat
- Preheat min./max. Temperature Range
- 150 °C to 200 °C

**C** Stage 3 Preheat to Main Heating
- Max. Time Above Stated Temperature
- 217 °C
- 60 s to 150 s

**D** Main Heating
- Max Time Within 5 °C of Peak Temperature (260 °C)
- 255 °C
- 20 s to 40 s

**E** Cool Down
- Rate from Peak Temperature
- 6 °C/s max.

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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Packaging Dimensions

REV. 12/23
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