



Features

- Meets IEC 61000-4-5 standard
- Compact EIA 1210 size
- Quick response time (< 1.0 ns)
- High transient current capability
- Lead free
- AEC-Q200 compliant
- RoHS compliant*

Applications

- Power supplies
- Entertainment electronics
- Circuit board level protection against transient events
- CAN, LIN, FLEXRAY based modules
- Module load dump protection
- Motor/inductive load transient suppression

BVRA1210 Automotive Grade SMD Low Voltage Varistor Series

Description

The Bourns® BVRA1210 Low Voltage Multilayered Varistor Series is designed specifically for use in automotive circuits requiring surge protection. This series offers excellent transient energy absorption due to improved energy volume distribution and power dissipation. The BVRA1210 Series is available with working voltages from 11 to 100 V_{DC}.

BVRA Series varistors are typically applied to protect integrated circuits and other components at the circuit board level.

Additional Information

Click these links for more information:



[PRODUCT
SELECTOR](#)



[TECHNICAL
LIBRARY](#)



[INVENTORY](#)



[SAMPLES](#)



[CONTACT](#)

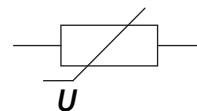
Electrical Characteristics @ 25 °C (unless otherwise noted)

Model	V _{rms} (V)	V _{DC} (V)	V _n Min. (V)	V _n Max. (V)	V _c (V)	I _{max} (A)	W _{max} (J)	C _p Typ. (pF)
	<10 µA		1 mA DC		2.5 A @ 8/20 µs	@ 8/20 µs	@ 10/1000 µs	@ 1 KHz
BVRA1210-09PF	9	11	12	16	40	400	1.0	6200
BVRA1210-14PF	14	18	22	29	60	500	1.2	3700
BVRA1210-18PF	18	26	31	38	65	400	1.9	2600
BVRA1210-25PF	25	31	37	45	100	300	2.0	1000
BVRA1210-34PF	34	48	54	67	125	300	2.2	730
BVRA1210-46PF	46	60	69	83	135	450	2.5	730
BVRA1210-50PF	50	65	73	91	165	300	2.5	580
BVRA1210-60PF	60	85	90	110	190	400	2.8	310
BVRA1210-75PF	75	100	108	132	220	200	2.8	180

Environmental Characteristics

Operating Temperature..... -40 °C to +125 °C
 Storage Temperature..... -40 °C to +125 °C
 Standard..... IEC 61000-4-5

Device Symbol



How to Order

BVRA 1210 - nn PF R	
Series Designator	BVR = BVR Series
Automotive Grade	
Model Size	1210 = 1210 Package
Max. RMS Voltage	09 = 9 V 46 = 46 V 14 = 14 V 50 = 50 V 18 = 18 V 60 = 60 V 25 = 25 V 75 = 75 V 34 = 34 V
RoHS Compliance	PF = Lead free
Packaging	R = Tape and reel packaging (2,000 pcs. per 7-inch reel)

BOURNS®

Americas: Tel: +1 951-781-5500 • Email: americus@bourns.com

Mexico: Tel: +52-614-478-0400 • Email: mexicus@bourns.com

Asia: Tel: +886-2-2562-4117 • Email: asiacus@bourns.com

EMEA: Tel: +36 88 885 877 • Email: eurocus@bourns.com

www.bourns.com



CALIFORNIA WARNING: Can expose you to lead, a carcinogen and reproductive toxicant.
 See www.P65Warnings.ca.gov

*RoHS Directive 2015/863, Mar 31, 2015 and Annex.

Specifications are subject to change without notice.

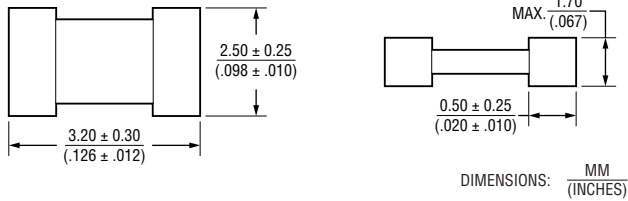
Users should verify actual device performance in their specific applications.

The products described herein and this document are subject to specific legal disclaimers as set forth on the last page of this document, and at www.bourns.com/docs/legal/disclaimer.pdf.

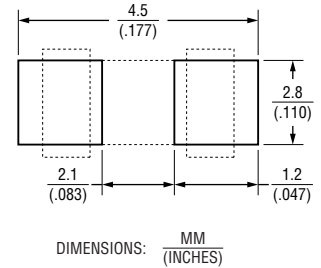
BVRA1210 Automotive Grade SMD Low Voltage Varistor Series

BOURNS®

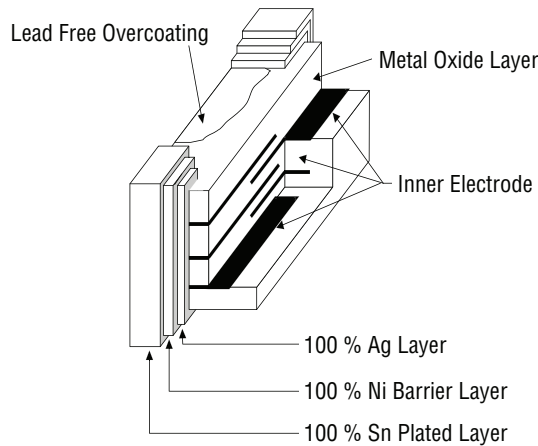
Product Dimensions



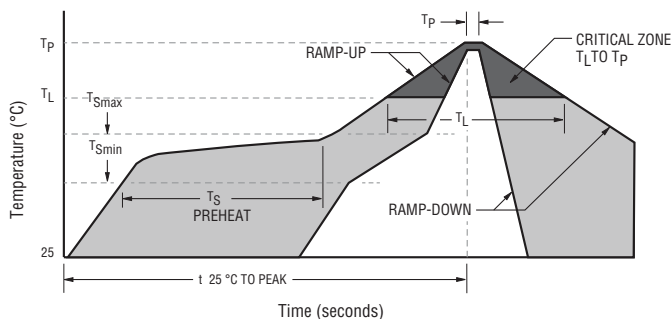
Recommended Pad Layout



Construction



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 60 s to 180 s
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.

Specifications are subject to change without notice.

Users should verify actual device performance in their specific applications.

The products described herein and this document are subject to specific legal disclaimers as set forth on the last page of this document, and at www.bourns.com/docs/legal/disclaimer.pdf.

BOURNS®

Technical drawing of a circular component with a central feature and a side view showing a series of rectangular features. Dimensions are provided in both millimeters and inches.

Top View Dimensions:

- Overall Diameter: 178.0 ± 2.0 (7.008 $\pm$.079)
- Central Feature Diameter: 2.0 ± 0.05 (.079 $\pm$.002)
- Distance from Center to Feature: 21.0 ± 0.8 (.827 $\pm$.031)
- Distance from Edge to Feature: 9.0 ± 0.5 (.354 $\pm$.020)
- Distance from Center to Feature (Alternative): 13.0 ± 0.5 (.512 $\pm$.020)
- Distance from Edge to Feature (Alternative): 62.0 ± 1.5 (2.441 $\pm$.059)
- Distance from Edge to Feature (Alternative): 13.0 ± 1.0 (.512 $\pm$.039)

Side View Dimensions:

- Overall Width: 1.50 ± 0.10 (.059 $\pm$.004)
- Distance from Edge to Feature: 2.00 ± 0.05 (.079 $\pm$.002)
- Distance between Features: 4.00 ± 0.10 (.157 $\pm$.004)
- Distance from Edge to Feature (Alternative): 1.75 ± 0.10 (.069 $\pm$.004)
- Distance from Edge to Feature (Alternative): 3.50 ± 0.05 (.138 $\pm$.002)
- Distance from Edge to Feature (Alternative): 8.00 ± 0.30 (.315 $\pm$.012)
- Distance from Edge to Feature (Alternative): 3.63 ± 0.10 (.143 $\pm$.004)
- Distance between Features (Alternative): 2.84 ± 0.10 (.112 $\pm$.004)

USER DIRECTION OF FEED →

QTY: 2000 PCS. PER REEL

DIMENSIONS: $\frac{\text{MM}}{(\text{INCHES})}$

Specifications are subject to change without notice.
Users should verify actual device performance in their specific applications.
The products described herein and this document are subject to specific legal disclaimers as set forth on the last page of this document, and at www.bourns.com/docs/legal/disclaimer.pdf.

This legal disclaimer applies to purchasers and users of Bourns® products manufactured by or on behalf of Bourns, Inc. and its affiliates (collectively, "Bourns").

Unless otherwise expressly indicated in writing, Bourns® products and data sheets relating thereto are subject to change without notice. Users should check for and obtain the latest relevant information and verify that such information is current and complete before placing orders for Bourns® products.

The characteristics and parameters of a Bourns® product set forth in its data sheet are based on laboratory conditions, and statements regarding the suitability of products for certain types of applications are based on Bourns' knowledge of typical requirements in generic applications. The characteristics and parameters of a Bourns® product in a user application may vary from the data sheet characteristics and parameters due to (i) the combination of the Bourns® product with other components in the user's application, or (ii) the environment of the user application itself. The characteristics and parameters of a Bourns® product also can and do vary in different applications and actual performance may vary over time. Users should always verify the actual performance of the Bourns® product in their specific devices and applications, and make their own independent judgments regarding the amount of additional test margin to design into their device or application to compensate for differences between laboratory and real world conditions.

Unless Bourns has explicitly designated an individual Bourns® product as meeting the requirements of a particular industry standard (e.g., IATF 16949) or a particular qualification (e.g., UL listed or recognized), Bourns is not responsible for any failure of an individual Bourns® product to meet the requirements of such industry standard or particular qualification. Users of Bourns® products are responsible for ensuring compliance with safety-related requirements and standards applicable to their devices or applications.

Bourns® products are not recommended, authorized or intended for use in nuclear, lifesaving, life-critical or life-sustaining applications, nor in any other applications where failure or malfunction may result in personal injury, death, or severe property or environmental damage. Unless expressly and specifically approved in writing by two authorized Bourns representatives on a case-by-case basis, use of any Bourns® products in such unauthorized applications might not be safe and thus is at the user's sole risk. Life-critical applications include devices identified by the U.S. Food and Drug Administration as Class III devices and generally equivalent classifications outside of the United States.

Bourns expressly identifies those Bourns® standard products that are suitable for use in automotive applications on such products' data sheets in the section entitled "Applications." Unless expressly and specifically approved in writing by two authorized Bourns representatives on a case-by-case basis, use of any other Bourns® standard products in an automotive application might not be safe and thus is not recommended, authorized or intended and is at the user's sole risk. If Bourns expressly identifies a sub-category of automotive application in the data sheet for its standard products (such as infotainment or lighting), such identification means that Bourns has reviewed its standard product and has determined that if such Bourns® standard product is considered for potential use in automotive applications, it should only be used in such sub-category of automotive applications. Any reference to Bourns® standard product in the data sheet as compliant with the AEC-Q standard or "automotive grade" does not by itself mean that Bourns has approved such product for use in an automotive application.

Bourns® standard products are not tested to comply with United States Federal Aviation Administration standards generally or any other generally equivalent governmental organization standard applicable to products designed or manufactured for use in aircraft or space applications. Bourns expressly identifies Bourns® standard products that are suitable for use in aircraft or space applications on such products' data sheets in the section entitled "Applications." Unless expressly and specifically approved in writing by two authorized Bourns representatives on a case-by-case basis, use of any other Bourns® standard product in an aircraft or space application might not be safe and thus is not recommended, authorized or intended and is at the user's sole risk.

The use and level of testing applicable to Bourns® custom products shall be negotiated on a case-by-case basis by Bourns and the user for which such Bourns® custom products are specially designed. Absent a written agreement between Bourns and the user regarding the use and level of such testing, the above provisions applicable to Bourns® standard products shall also apply to such Bourns® custom products.

Users shall not sell, transfer, export or re-export any Bourns® products or technology for use in activities which involve the design, development, production, use or stockpiling of nuclear, chemical or biological weapons or missiles, nor shall they use Bourns® products or technology in any facility which engages in activities relating to such devices. The foregoing restrictions apply to all uses and applications that violate national or international prohibitions, including embargos or international regulations. Further, Bourns® products and Bourns technology and technical data may not under any circumstance be exported or re-exported to countries subject to international sanctions or embargoes. Bourns® products may not, without prior authorization from Bourns and/or the U.S. Government, be resold, transferred, or re-exported to any party not eligible to receive U.S. commodities, software, and technical data.

To the maximum extent permitted by applicable law, Bourns disclaims (i) any and all liability for special, punitive, consequential, incidental or indirect damages or lost revenues or lost profits, and (ii) any and all implied warranties, including implied warranties of fitness for particular purpose, non-infringement and merchantability.

For your convenience, copies of this Legal Disclaimer Notice with German, Spanish, Japanese, Traditional Chinese and Simplified Chinese bilingual versions are available at:

Web Page: <http://www.bourns.com/legal/disclaimers-terms-and-policies>

PDF: <http://www.bourns.com/docs/Legal/disclaimer.pdf>