BOURNS®

Features

- Surface mount for economical assembly
- High surge current rating
- Designed to meet ITU-T K.12 class 5 surge current requirements
- Low capacitance and insertion loss
- Stable breakdown throughout life
- UL Recognized

Applications

- Telecommunications
- Industrial electronics
- Commercial electronics

2029-xx-SMLF Heavy Duty Gas Discharge Tube Surge Arrestor

Bourns offers a heavy duty 2-electrode GDT surge arrestor in an 8x6 mm surface mount (SM) package. The Model 2029-xx-SMLF Series is categorized as a Class 5 rated GDT and attains the highest performance classification available under ITU K.12 requirements. High performance in a compact surface mount package makes this series ideal for use in heavily exposed telecommunications, commercial and industrial applications.

Characteristics

Test Methods per ITU-T K.12, IEEE C62.31 and IEC 61643-311 GDT standards.

Characteristic	Model No.				
	2029-09-SMLF	2029-15-SMLF	2029-23-SMLF	2029-35-SMLF	2029-42-SMLF
DC Sparkover ±20 % @ 100 V/s	90 V	150 V	230 V	350 V	420 V
Impulse Sparkover (1) 100 V/µs (Typical) 100 V/µs (99 %)	 275 V 375 V	 325 V 375 V	 450 V 500 V	 600 V 625 V	 650 V 750 V
Impulse Sparkover (1) 1 kV/µs (Typical) 1 kV/µs (99 %)	 525 V 600 V	 525 V 625 V	 650 V 750 V	 775 V 875 V	 850 V 1000 V

(1) Impulse Sparkover voltage is defined as typical values of distribution.

Insulation Resistance	100 V (50 V for Model 2029-09-SMLF)	> 10^{10} Ω	
Glow Voltage	10 mA	~ 70 V	
Arc Voltage	> 1A	~ 12 V	
Glow-Arc Transition Current		< 0.5 A	
Capacitance	1 MHz	< 1 pF	
DC Holdover Voltage (2)	135 V, (52 V for Model 2029-09-SMLF; 80 V for Model 2029-15-SMLF)	< 150 ms	
Impulse Discharge Current	25000 A, 8/20 µs	1 operation minimum (3)	
	20000 A, 8/20 µs	10 operations	
	5 kA, 10/350 µs	1 operation minimum (3)	
	100 A, 10/1000 µs	300 operations	
	10 A, 10/1000 µs	1500 operations	
Alternating Discharge Current	65 Arms, 11 cycles	1 operation minimum (3)	
	20 Arms, 1 s	10 operations	
Storage Temperature		-55 to +105 °C	
Operating Temperature		-55 to +105 °C	
Climatic Category (IEC 60068-1)		55/105/21	
Moisture Sensitivity Level		1	
ESD Classification (HBM)		N/A	

Notes:

- **UL recognized component, UL File E153537.**
- Model number marking on tube: 2029-xxxV.
- Surface Mount (SM) parts may show a temporary increase in DCBD after the solder reflow process. Most devices will recover within 24 hours time. It should be noted that there is no quality defect nor change in protection levels during the temporary change in DCBD.
- Sparkover limits ± 25% and IR >10^7 Ω after life (-25%/+30% for Model 2029-09-SM)
- At delivery AQL 0.65 Level II, DIN ISO 2859. .
- Bourns recommends reflowing surface mount devices per IPC/JEDEC J-STD-020 rev D.

(2) Network applied.

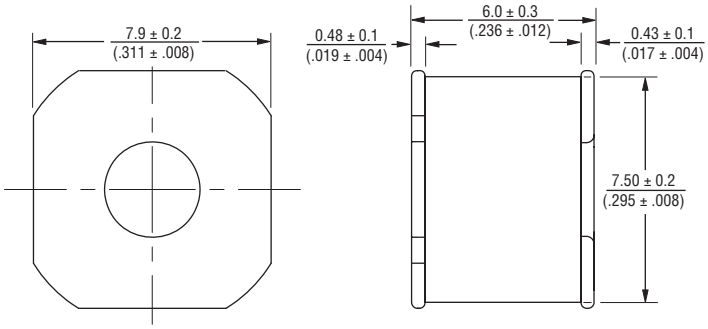
(3) DC Sparkover may exceed ±20 % after discharge, but will continue to protect without venting.

WARNING Cancer and Reproductive Harm - www.P65Warnings.ca.gov

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

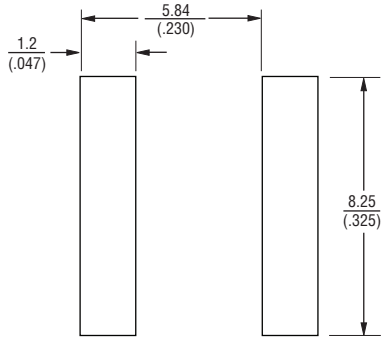
** Bourns considers a product to be "halogen free" if (a) the Bromine (Br) content is 900 ppm or less; (b) the Chlorine (Cl) content is 900 ppm or less; and (c) the total Bromine (Br) and Chlorine (Cl) content is 1500 ppm or less.

Product Dimensions



DIMENSIONS: MM / (INCHES)

Recommended Pad Layout



TOLERANCES: ± 0.25 / (0.10)

How to Order

2029 - xx - SM -RP LF

Model Number Designator

Voltage (Divided by 10)
- 09 = 90 V
- 15 = 150 V
- 23 = 230 V
- 35 = 350 V
- 42 = 420 V

Surface Mount

Packaging Option
- Blank = Bulk Packaging (Standard)
- -RP = 16 mm Reelpack (Optional)

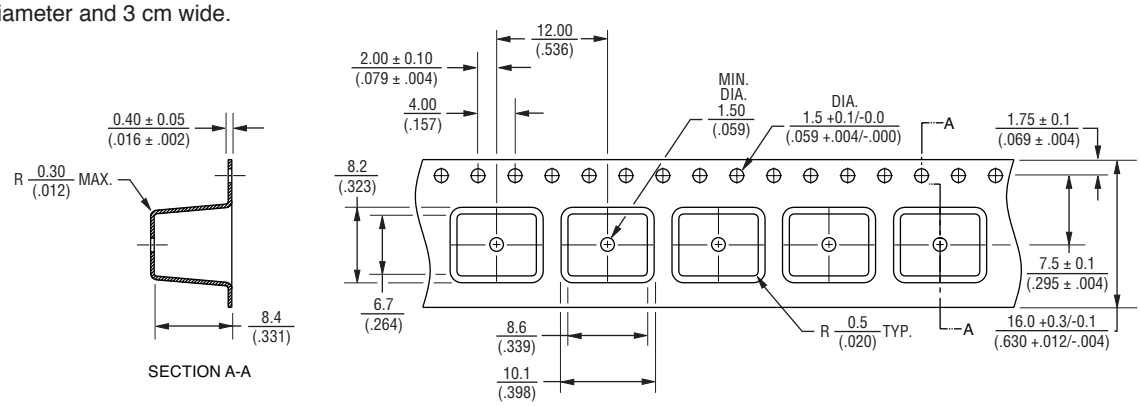
RoHS Compliancy
- LF = RoHS Compliant Product

Packaging Specifications

Model	Standard Packaging Quantity			
	Bulk (Bag)	Tray	Box	Reel
2029-xx-SMLF	250		1000	
2029-xx-SM-RPLF				500

-RP

Reel is 33 cm in diameter and 3 cm wide.



DIMENSIONS: MM (INCHES)

Unless otherwise specified, tolerances in decimals are .X ± 0.3, .XX ± 0.15 for lengths in millimeters and ±1 ° for degrees.

BOURNS®

Asia-Pacific: Tel: +886-2 2562-4117 • Email: asiacus@bourns.com
EMEA: Tel: +36 88 520 390 • Email: eurocus@bourns.com
The Americas: Tel: +1-951 781-5500 • Email: americus@bourns.com
www.bourns.com

REV. A 01/19

Legal Disclaimer Notice

BOURNS®

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., ISO/TS 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