



### Features

- Size: 8 mm diameter, 10 mm length
- Balanced and symmetrical TRIGARD® design
- High surge current rating
- Stable breakdown throughout life
- Long life
- Fail-Short available
- RoHS compliant\*



This series is obsolete and not recommended for new designs.

### Applications

- Telecommunications electronics
- Industrial electronics
- Consumer electronics

## 2028 Series Long Life Heavy-Duty 3-Electrode Gas Discharge Tube

### Characteristics

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

Characteristic	Model No.			
	2028-23	2028-25	2028-35	2028-42
DC Sparkover $\pm 20\%$ @ 100 V/s	230 V	250 V	350 V	420 V
Impulse Sparkover <sup>(1)</sup>				
100 V/ $\mu$ s (Typical/99 %)	< 450 V/550 V	< 450 V/550 V	< 700 V/800 V	< 850 V/950 V
1000 V/ $\mu$ s (Typical/99 %)	< 650 V/750 V	< 650 V/750 V	< 850 V/950 V	< 1050 V/1150 V

<sup>(1)</sup> Impulse Sparkover voltage is defined as typical values of distribution.

Impulse Transverse Delay .....	1000 V/ $\mu$ s .....	< 75 ns
Insulation Resistance (IR) .....	100 V .....	> 1 G $\Omega$
Capacitance .....	1 MHz .....	< 2 pF
Glow Voltage .....	10 mA .....	~ 70 V
Arc Voltage .....	1 A .....	~ 10 V
DC Holdover Voltage <sup>(2)</sup> .....	135 V .....	< 150 ms
Impulse Discharge Current <sup>(3)</sup> .....	30,000 A, 8/20 $\mu$ s .....	1 operation
	20,000 A, 8/20 $\mu$ s .....	10 operations
	5,000 A, 10/350 $\mu$ s .....	1 operation
	200 A, 10/1000 $\mu$ s .....	300 operations
	20 A, 10/1000 $\mu$ s .....	1500 operations
Alternating Discharge Current .....	20 Arms, 1 second .....	10 operations
Operating Temperature .....		-55 to +85 °C
Climatic Category (IEC 60068-1) .....		40 / 90 / 21
Moisture Sensitivity Level .....		1
ESD Classification (HBM) .....		6

An optional Switch-Grade Fail-Short device is available. The optional Fail-Short assembly will activate at a temperature of 215 °C – 217 °C to provide a high conductive path to ground in case of a thermal overload. GDTs equipped with the optional Fail-Short device should be soldered either manually at a temperature that is below the activation temperature of the Fail-Short mechanism, or using a selective soldering process that does not exceed 210 °C.

### Notes:

<sup>(2)</sup> Network applied.

<sup>(3)</sup> The Rated Impulse Discharge Current for TRIGARD® GDTs is the total current equally divided between each line to ground.

- At delivery AQL 0.65 Level II, DIN ISO 2859.

### How to Order

	2028 - nn - x n F LF
Model Number	
Designator	
Voltage (Divided by 10)	
23 = 230 V    35 = 350 V	
25 = 250 V    42 = 420 V	
Leads	
A = No Leads / Cassette Applications	
C = 1.0 mm	
Lead Shape	
(See Product Dimension Drawings)	
Fail-Short Option	
Blank = Standard Product	
F = With Fail-Short Mechanism	
RoHS Compliancy	
LF = RoHS Compliant Product	

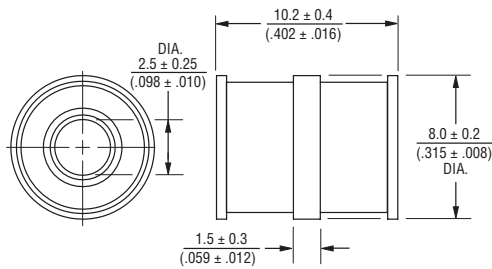
\*RoHS Directive 2002/95/EC Jan. 27, 2003 including annex and RoHS Recast 2011/65/EU June 8, 2011. Specifications are subject to change without notice. Users should verify actual device performance in their specific applications. The products described herein and this document are subject to specific legal disclaimers as set forth on the last page of this document, and at [www.bourns.com/docs/legal/disclaimer.pdf](http://www.bourns.com/docs/legal/disclaimer.pdf).

# 2028 Series Long Life Heavy-Duty 3-Electrode Gas Discharge Tube

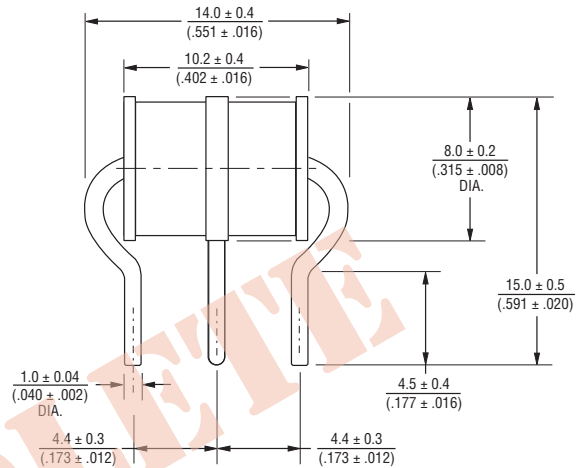
**BOURNS®**

## Product Dimensions

**2028-xx-A**

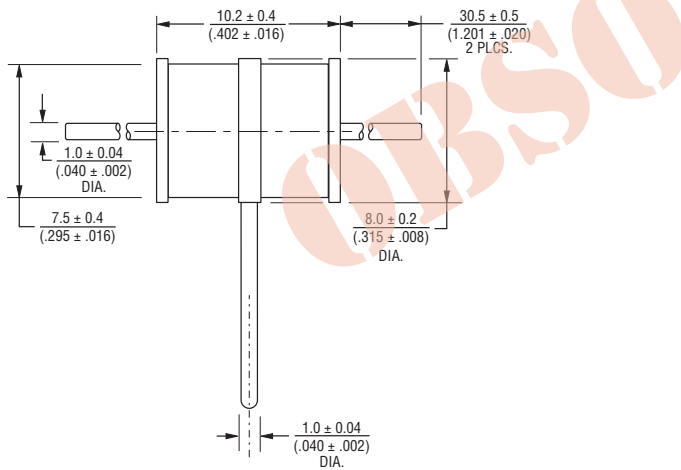


**2028-xx-C2**

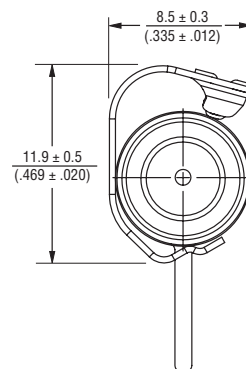


**2028-xx-C**

1.0 mm dia. lead wire



**2028-xx-C2F**  
WITH FAIL-SHORT OPTION



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

## Packaging Specifications

Model	Standard Packaging Quantity		
	Bulk (Bag)	Tray	Box
2028-XX-A	250		1000
2028-XX-C	50		300
2028-XX-C2		100	1000
2028-XX-C2F		100	1000

REV. G 06/18

Specifications are subject to change without notice.  
Users should verify actual device performance in their specific applications.

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