



## 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\*

## 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

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® Gas Discharge Tubes is the total current equally divided between each line to ground.

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

### How to Order

Model Number	2028	-	nn	-	x	n	F	LF
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								

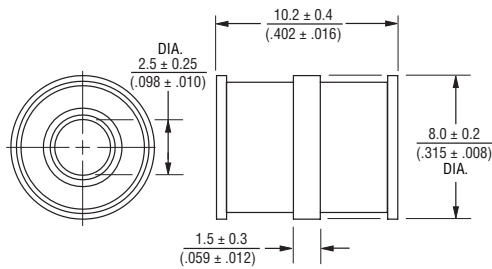
\*RoHS Directive 2002/95/EC Jan. 27, 2003 including annex and RoHS Recast 2011/65/EU June 8, 2011. Specifications are subject to change without notice. The device characteristics and parameters in this data sheet can and do vary in different applications and actual device performance may vary over time. Users should verify actual device performance in their specific applications.

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

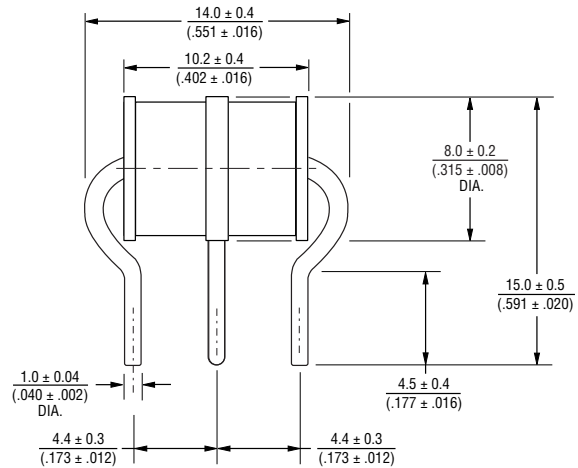
**BOURNS®**

## Product Dimensions

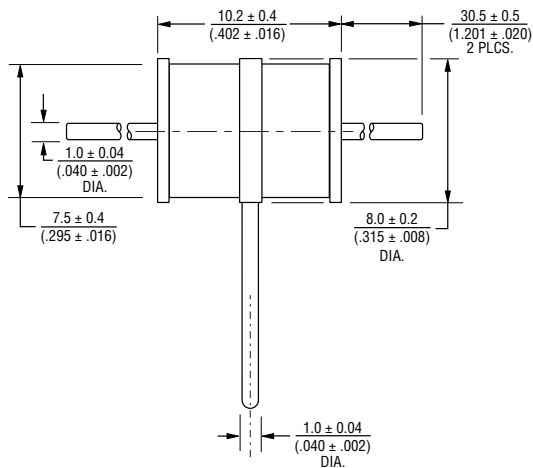
**2028-xx-A**



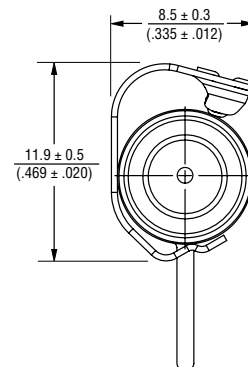
**2028-xx-C2**



**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	900
2028-XX-C2F		100	900

REV. E 11/16

Specifications are subject to change without notice.  
The device characteristics and parameters in this data sheet can and do vary in different applications and actual device performance may vary over time.  
Users should verify actual device performance in their specific applications.