



## Features

- Balanced Mini-TRIGARD™
- 5 mm diameter, 7.5 mm long
- UL Recognized ®
- RoHS compliant\* versions available

## Applications

- Telecommunications
- Industrial electronics
- Commercial electronics
- Consumer electronics
- Automotive, aircraft, military electronics

# 2036 Series - Miniature 3-Pole Gas Discharge Tube

## Characteristics

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

| Characteristic                    | Model No.      |         |         |         |         |         |
|-----------------------------------|----------------|---------|---------|---------|---------|---------|
|                                   | 2036-07        | 2036-09 | 2036-15 | 2036-20 | 2036-23 | 2036-25 |
| DC Sparkover $\pm 20\%$ @ 100 V/s | 75 V           | 90 V    | 150 V   | 200 V   | 230 V   | 250V    |
| Impulse Sparkover <sup>(1)</sup>  |                |         |         |         |         |         |
|                                   | 100 V/ $\mu$ s | 250 V   | 250 V   | 350 V   | 425 V   | 450 V   |
| 1000 V/ $\mu$ s                   | 525 V          | 550 V   | 500 V   | 575 V   | 600 V   | 625 V   |

| Characteristic                    | Model No.      |         |         |         |         |         |
|-----------------------------------|----------------|---------|---------|---------|---------|---------|
|                                   | 2036-30        | 2036-35 | 2036-40 | 2036-42 | 2036-47 | 2036-60 |
| DC Sparkover $\pm 20\%$ @ 100 V/s | 300 V          | 350 V   | 400 V   | 420 V   | 470 V   | 600 V   |
| Impulse Sparkover <sup>(1)</sup>  |                |         |         |         |         |         |
|                                   | 100 V/ $\mu$ s | 500 V   | 600 V   | 650 V   | 675 V   | 750 V   |
| 1000 V/ $\mu$ s                   | 650 V          | 750 V   | 825 V   | 850 V   | 950 V   | 1100 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 .....              | 100 V (50 V for Model 2036-07 & 2036-09).....   | >10 <sup>10</sup> $\Omega$ |
| Glow Voltage .....                       | 10 mA .....                                     | ~70 V                      |
| Arc Voltage .....                        | 1 A .....                                       | ~10 V                      |
| Glow-Arc Transition Current .....        |   | <0.5 A                     |
| Capacitance.....                         | 1 MHz .....                                     | <2 pF                      |
| DC Holdover Voltage <sup>(2)</sup> ..... | 135 V, (52 V for Model 2036-07 & 2036-09, ..... | <150 ms                    |
|  | 80 V for Model 2036-15)                         |                            |
| Impulse Discharge Current.....           | 20000 A, 8/20 $\mu$ s <sup>(3)</sup> .....      | 1 operation minimum        |
|  | 10000 A, 8/20 $\mu$ s .....                     | >10 operations             |
|  | 2000 A, 10/350 $\mu$ s .....                    | 1 operation                |
|  | 200 A, 10/1000 $\mu$ s .....                    | >300 operations            |
|  | 200 A, 10/700 $\mu$ s .....                     | >500 operations            |
| Alternating Discharge Current .....      | 20 Arms, 1 s <sup>(3)</sup> .....               | 1 operation minimum        |
|  | 10 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) .....           |   | 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:

- **UL recognized component, UL File E153537.**
- No model number marking on tube; date code and voltage only: month year digits, xxxV (e.g. 0209 400V).
- The rated discharge current for Mini-TRIGARD™ Gas Discharge Tubes is the total current equally divided between each line to ground.
- Sparkover limits after life  $\pm 25\%$ , IR >10<sup>9</sup> $\Omega$  (-25 %, +30 % for Model 2036-07, 2036-09 and 2036-60).
- Operating characteristics per RUS PE-80 and Telcordia GR 1361 available, contact factory.
- Line to Line voltage is approximately 1.8 to 2 times the stated Line to Ground breakdown voltage.
- At delivery AQL 0.65 Level II, DIN ISO 2859.

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

<sup>(3)</sup> DC Sparkover may exceed  $\pm 25\%$  after discharge, but will continue to protect without venting.

\*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.

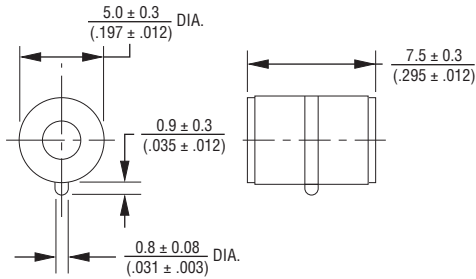
Users should verify actual device performance in their specific applications.

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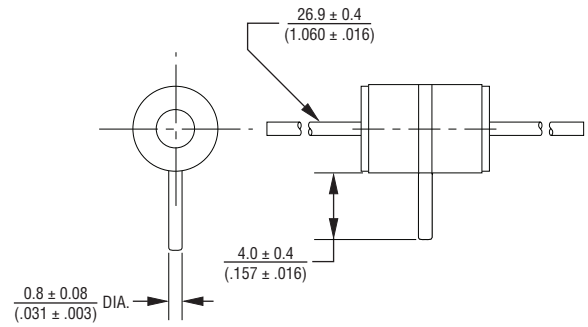
**BOURNS®**

## Product Dimensions

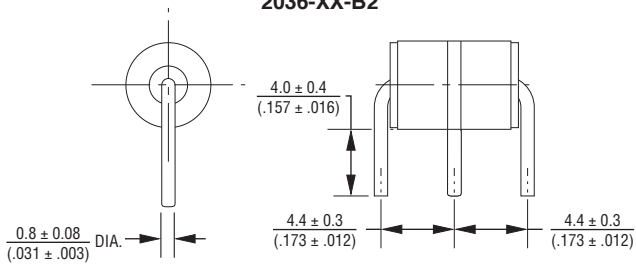
**2036-XX-A**



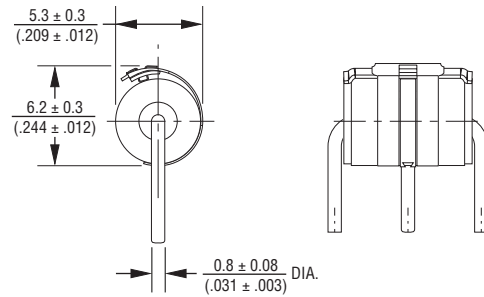
**2036-XX-B**



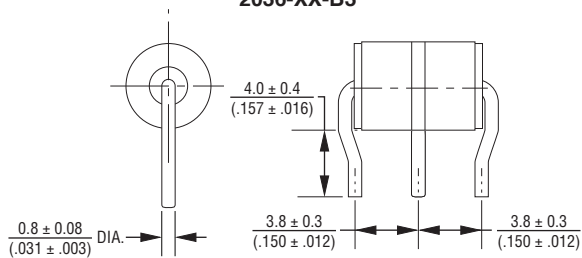
**2036-XX-B2**



**FAIL-SHORT CONFIGURATION  
2036-XX-B2F SHOWN**



**2036-XX-B3**



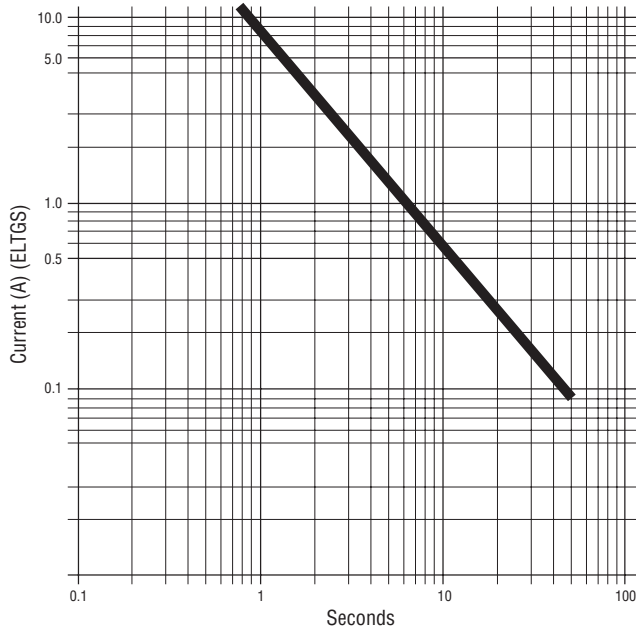
DIMENSIONS:  $\frac{\text{MM}}{\text{(INCHES)}}$

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## Switch-Grade Fail-Short Device Shorting Curve 2036-XX-XF



ELTGS = Each Line to Ground Simultaneously

NOTE: When using a GDT failsafe device, it is imperative that all components associated and connected to the GDT with failsafe be tested in their respective completely integrated environment (finished product) to assure proper operation.

## Packaging Specifications

| Model       | Standard Packaging Quantity |      |      |
|-------------|-----------------------------|------|------|
|             | Bulk (Bag)                  | Tray | Box  |
| 2036-XX-A   | 250                         |      | 1000 |
| 2036-XX-B   | 100                         |      | 700  |
| 2036-XX-B2  |                             | 100  | 1000 |
| 2036-XX-B3  |                             | 100  | 1000 |
| 2036-XX-B2F |                             | 100  | 1000 |

## How to Order

Model Number Designator **2036 - xx - x (n) F LF**

Voltage (Divided by 10)

|            |            |
|------------|------------|
| 07 = 75 V  | 30 = 300 V |
| 09 = 90 V  | 35 = 350 V |
| 15 = 150 V | 40 = 400 V |
| 20 = 200 V | 42 = 420 V |
| 23 = 230 V | 47 = 470 V |
| 25 = 250 V | 60 = 600 V |

Leads

- A = None
- B = 0.8 mm

Lead Shape (See Product Dimension Drawings)

Fail-Short Option

- Blank = Standard Product
- F = With Fail-Short Mechanism

RoHS Compliant Option

- Blank = Standard Product
- LF = RoHS Compliant Product

REV. 03/18

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