



## 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 (CCITT) K.12, IEEE C62.31

| 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                 | 250 V     | 250 V   | 350 V   | 425 V   | 450 V   | 475 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                 | 500 V     | 600 V   | 650 V   | 675 V   | 750 V   | 850 V   |
|                                   |           |         |         |         |         |         |
| 1000 V/ $\mu$ s                   | 650 V     | 750 V   | 825 V   | 850 V   | 950 V   | 1100 V  |

|                                                                                       |                              |                  |
|---------------------------------------------------------------------------------------|------------------------------|------------------|
| Impulse Transverse Delay.....100 V/ $\mu$ s .....                                     | < 75 ns                      |                  |
| Insulation Resistance .....100 V (50 V for Model 2036-07 & 2036-09) .....             | > $10^{10} \Omega$           |                  |
| 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>1</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>2</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>2</sup> .....                    | 1 operation minimum          |                  |
|                                                                                       | 10 Arms, 1 s .....           | > 10 operations  |
| Operating Temperature.....                                                            | -55 to +85 °C                |                  |
| Climatic Category (IEC 60068-1).....                                                  | 40/90/21                     |                  |

Optional Switch-Grade Fail-Short device available.

### 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  $> 10^9 \Omega$  (-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>1</sup> Network applied.

<sup>2</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.

Specifications are subject to change without notice.

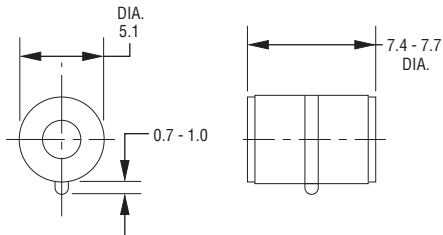
Customers should verify actual device performance in their specific applications.

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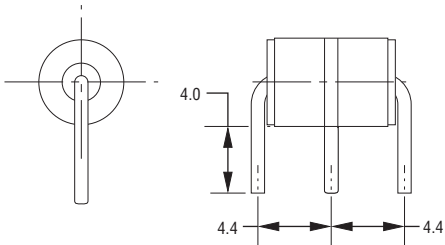
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## Product Dimensions

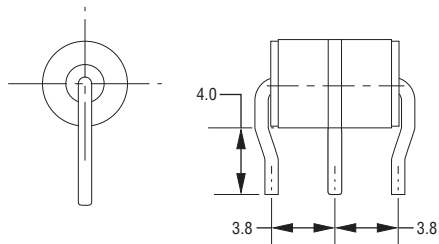
### 2036-XX-A



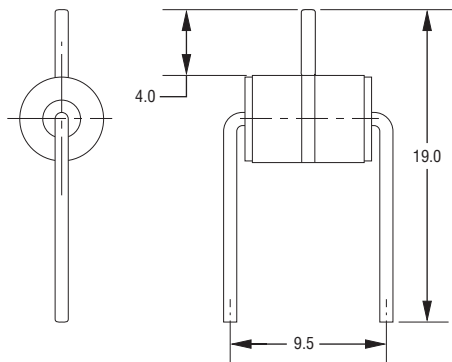
2036-XX-B2 — 0.8 mm dia. lead wire  
2036-XX-C2 — 1.0 mm dia. lead wire\*



2036-XX-B3 — 0.8 mm dia. lead wire  
2036-XX-C3 — 1.0 mm dia. lead wire\*

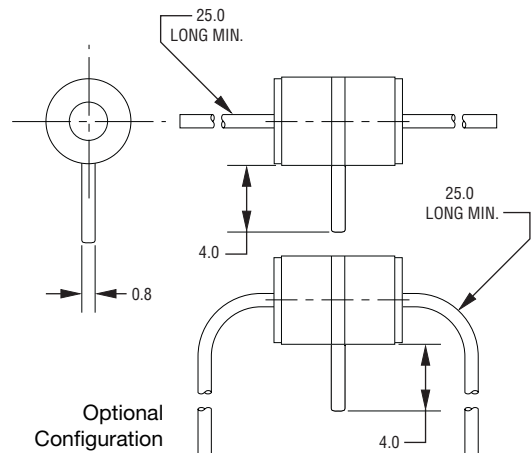


2036-XX-B9 — 0.8 mm dia. lead wire  
2036-XX-C9 — 1.0 mm dia. lead wire\*

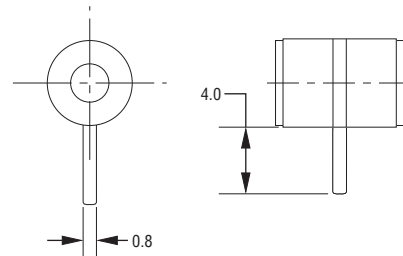


DIMENSIONS = MILLIMETERS

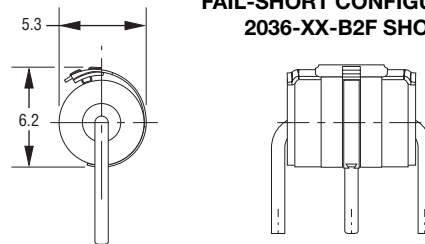
### 2036-XX-B — 0.8 mm dia. lead wire 2036-XX-C — 1.0 mm dia. lead wire\*



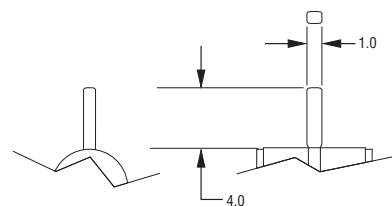
2036-XX-B8 — 0.8 mm dia. lead wire  
2036-XX-C8 — 1.0 mm dia. lead wire\*



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



### CENTER ELECTRODE LEAD: C-CONFIGURATION

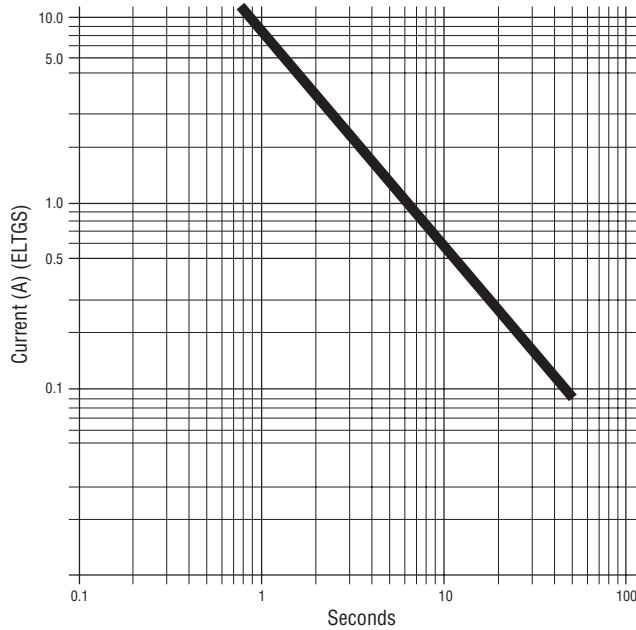


\*Center Electrode Lead: See Center Lead C-Configuration detail.  
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## Switch-Grade Fail-Short Device Shorting Curve 2036-XX-XF



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.

## How to Order

**2036 - xx - x - nn - F LF**

Model Number Designator \_\_\_\_\_

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  
C = 1 mm

Lead Shape \_\_\_\_\_  
(See Product Dimension Drawings)

Fail-Short Option \_\_\_\_\_

Blank = Standard Product  
F = With Fail-Short Mechanism

Lead Free Option \_\_\_\_\_

Blank = Standard Product  
LF = Lead Free/RoHS Compliant Product

## Packaging Specifications

Model 2036-xx-nn ships standard bulk pack, 100 pcs./tray.

REV. 01/11

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