



## Features

- Through-hole or cassette mount
- Low capacitance and insertion loss
- High surge current rating
- Fast response to transients
- Compact “mini” size
- RoHS compliant\* version available

## 2039-xxx-XX Precision, Fast Responding, High Voltage Gas Discharge Tube

Bourns now offers miniature through-hole 2-electrode GDT surge protectors with sparkover voltage up to 1100 V. At only 5 mm in diameter, the 2039 Series is ideal for board level protection of high bandwidth applications such as xDSL, cable broadband and high speed Ethernet. The 2039 Series features high energy-handling capability, long and stable life performance and low capacitance of less than 1 pF.

Bourns® GDTs are designed to prevent damage from transient disturbances within rated limits by acting as a “crowbar” to create a short-to-ground circuit during conduction. When an electrical surge exceeds the defined breakdown voltage level of the GDT, the device becomes ionized and rapid conduction takes place. When the surge passes and system voltage returns to normal levels, the GDT returns to its high-impedance (off) state.

## Characteristics

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

| Characteristic                                     | Model No. |          |
|----------------------------------------------------|-----------|----------|
|                                                    | 2039-80   | 2039-110 |
| DC Sparkover $\pm 20\%$ @ 100 V/s                  | 800 V     | 1100 V   |
| Impulse Sparkover <sup>(1)</sup> @ 1000 V/ $\mu$ s | 1250 V    | 1500 V   |

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

|                                            |                                           |                     |
|--------------------------------------------|-------------------------------------------|---------------------|
| Insulation Resistance (IR) .....           | 100 V .....                               | $> 10^9 \Omega$     |
| Arc Voltage .....                          | 1 A .....                                 | $\sim 10$ V         |
| Glow-Arc Transition Current .....          |                                           | $< 0.5$ A           |
| Capacitance.....                           | 1 MHz .....                               | $< 1$ pF            |
| DC Holdover Voltage <sup>(2)</sup> .....   | 135 V .....                               | $< 150$ ms          |
| Max. Single Discharge <sup>(3)</sup> ..... | 5 kA.....                                 | $> 1$ operation     |
| Impulse Discharge Current.....             | 2.5 kA, 8/20 $\mu$ s <sup>(3)</sup> ..... | $> 10$ operations   |
|                                            | 100 A, 10/1000 $\mu$ s.....               | $> 100$ operations  |
|                                            | 10 A, 10/1000 $\mu$ s .....               | $> 1500$ operations |
| Alternating Discharge Current .....        | 2.5 Arms, 1 s.....                        | $> 10$ operations   |
| Operating and Storage Temperature .....    |                                           | $-55$ to $+85$ °C   |
| Climatic Category (IEC 60068-1).....       |                                           | 40/90/21            |

## Notes:

- Sparkover limits after life  $+30/-25\%$ , IR  $> 10^8 \Omega$ .
- At delivery AQL 0.65 Level II, DIN ISO 2859.

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

<sup>(3)</sup> DC Sparkover may exceed  $+30/-25\%$  but will continue to protect without venting.

**BOURNS®**

**Asia-Pacific:** Tel: +886-2 2562-4117 • Fax: +886-2 2562-4116

**EMEA:** Tel: +36 88 520 390 • Fax: +36 88 520 211

**The Americas:** Tel: +1-951 781-5500 • Fax: +1-951 781-5700

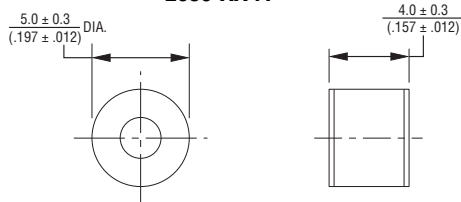
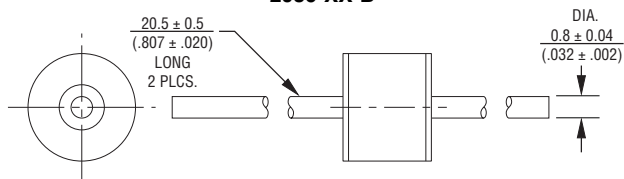
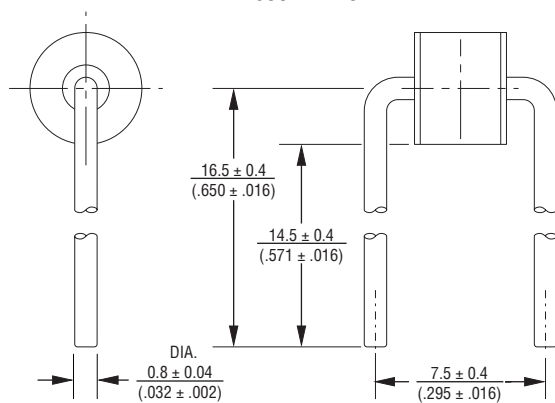
**www.bourns.com**

\*RoHS Directive 2002/95/EC Jan. 27, 2003 including annex and RoHS Recast 2011/65/EU June 8, 2011.

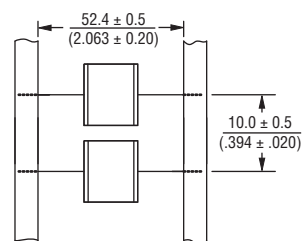
Specifications are subject to change without notice.

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.

**Product Dimensions****2039-XX-A****2039-XX-B****2039-XX-B5**

2039-xx-B5 not available in reel pack

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

| Model       | Standard Packaging Quantity |      |      |      |
|-------------|-----------------------------|------|------|------|
|             | Bulk (Bag)                  | Tray | Box  | Reel |
| 2039-XX-A   | 250                         |      | 1000 |      |
| 2039-XX-B   | 100                         |      | 700  |      |
| 2039-XX-B5  | 250                         |      | 1000 |      |
| 2039-XX-BT1 |                             |      |      | 1000 |

**How to Order**

Model Number Designator **2039 - xx - x - nn - T1 LF**  
 Voltage (Divided by 10) \_\_\_\_\_  
 80 = 800 V  
 110 = 1100 V  
 Leads \_\_\_\_\_  
 A = None    B = 0.8 mm  
 Lead Shape \_\_\_\_\_  
 (See Product Dimension Drawings)  
 Packaging \_\_\_\_\_  
 Blank = Bulk Packaging (Standard)  
 T1 = Reelpack (Optional)  
 RoHS Compliant Option \_\_\_\_\_  
 Blank = Standard Product  
 LF = RoHS Compliant Product