



## Features

- Size: 6.2 mm diameter, 4.2 mm length
- Surface mount device
- High voltage range
- Compact size
- High insulation resistance
- RoHS compliant\*
-  UL Recognized

## Applications

- Telecommunications equipment
- Industrial equipment/electronics
- Consumer electronics

# 2093 Series High Voltage 2-Electrode Gas Discharge Tube

## Characteristics

Test Methods per ITU-T K.12 and IEC 61643-311.

| Characteristic                    | Model No. |          |          |          |          |
|-----------------------------------|-----------|----------|----------|----------|----------|
|                                   | 2093-100  | 2093-120 | 2093-180 | 2093-200 | 2093-250 |
| DC Sparkover $\pm 20\%$ @ 100 V/s | 1000 V    | 1200 V   | 1800 V   | 2000 V   | 2500 V   |
| Impulse Sparkover <sup>(1)</sup>  |           |          |          |          |          |
| 100V/ $\mu$ s                     | < 1500 V  | < 1700 V | < 2500 V | < 2700 V | < 3100 V |
| 1000V/ $\mu$ s                    | < 1600 V  | < 1800 V | < 2600 V | < 2800 V | < 3200 V |

| Characteristic                    | Model No. |          |
|-----------------------------------|-----------|----------|
|                                   | 2093-270  | 2093-300 |
| DC Sparkover $\pm 20\%$ @ 100 V/s | 2700 V    | 3000 V   |
| Impulse Sparkover <sup>(1)</sup>  |           |          |
| 100V/ $\mu$ s                     | < 3300 V  | < 3600 V |
| 1000V/ $\mu$ s                    | < 3400 V  | < 3700 V |

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

|                                                 |                                |                  |
|-------------------------------------------------|--------------------------------|------------------|
| Insulation Resistance (IR) <sup>(2)</sup> ..... | 500/1000 Vdc.....              | > 1 G $\Omega$   |
| Glow Voltage .....                              | 10 mA.....                     | ~ 60 V           |
| Arc Voltage .....                               | 1 A.....                       | ~ 15 V           |
| Glow-Arc Transition Current .....               |                                | < 1 A            |
| Capacitance.....                                | 1 MHz .....                    | < 0.8 pF         |
| Impulse Discharge Current.....                  | 5000 A, 8/20 $\mu$ s.....      | 1 operation      |
|                                                 | 3000 A, 8/20 $\mu$ s.....      | 10 operations    |
| Alternating Discharge Current .....             | 3 Arms, 50 Hz, 1 sec.....      | 1 operation      |
|                                                 | 10 Arms, 50 Hz, 9 cycles ..... | 1 operation      |
| Impulse Life .....                              | 100 A, 10/1000 $\mu$ s.....    | > 300 operations |
| Operating Temperature.....                      |                                | -30 to +85 °C    |
| Storage Temperature .....                       |                                | -40 to +115 °C   |
| Climatic Category (IEC 60068-1).....            |                                | 40 / 90 / 21     |

Notes:

<sup>(2)</sup> Insulation Resistance measured at 1000 V for GDTs with > 2000 V DCBD.

- UL Recognized component, UL File E313168.
- At delivery AQL 0.65 Level II, DIN ISO 2859.
- Bourns recommends reflowing surface mount devices per IPC/JEDEC J-STD-020 rev D.

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

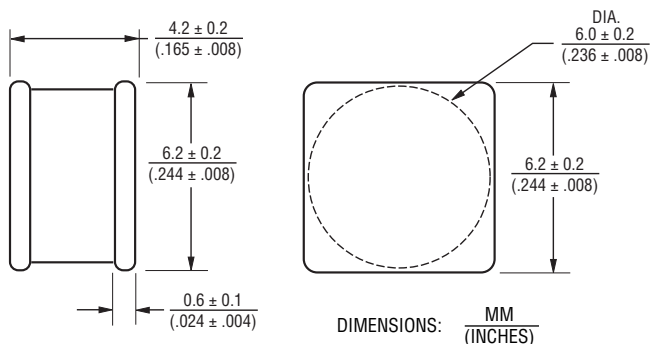
Specifications are subject to change without notice.

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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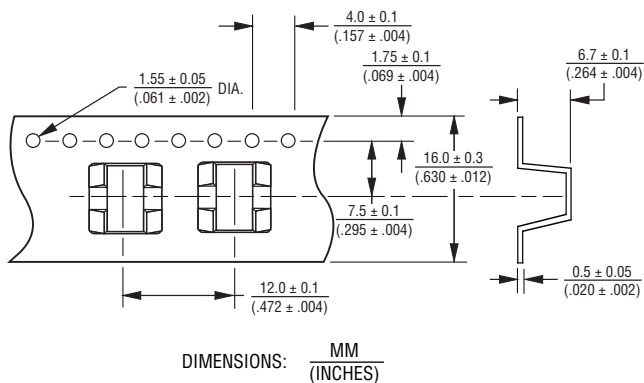
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### Product Dimensions

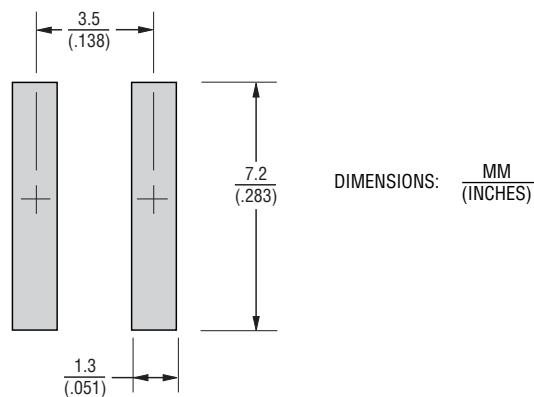


### Packaging Specifications

The Model 2093-xx-SM ships standard reelpack (-RP), 800 pieces per reel, 2,400 pieces per box. Reel is 330 mm in diameter and 16 mm wide.



### Recommended Pad Layout



### How to Order

**2093 - xxx - SM - RP LF**

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

**Voltage** (Divided by 10) \_\_\_\_\_

|              |              |
|--------------|--------------|
| 100 = 1000 V | 250 = 2500 V |
| 120 = 1200 V | 270 = 2700 V |
| 180 = 1800 V | 300 = 3000 V |
| 200 = 2000 V |              |

**Surface Mount** \_\_\_\_\_

**Packaging** \_\_\_\_\_

RP = Reelpack

**RoHS Compliance** \_\_\_\_\_

LF = RoHS Compliant Product

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