



**BOURNS®**

## Features

- Surface mount for economical assembly
- High surge current rating
- Low capacitance and insertion loss
- Stable breakdown throughout life
- 8 mm diameter, 6 mm long
- UL Recognized

## Applications

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

# 2027-xx-SM Precision Gas Discharge Tube Surge Protector

Bourns offers an 8 x 6 mm Surface Mount (SM) 2-electrode GDT surge protection device. The industry-leading quality and features of Bourns® 2027 Series GDT continue in this new SM version. Compatible with “pick and place” assembly systems, the 2027-SM is ideal for compact applications such as PCBs for telecommunications, commercial and industrial applications.

### Characteristics

Test Methods per ITU-T (CCITT) K.12, IEEE C62.31, RUS PE-80, Telcordia GR 1361

| Characteristic                                                             | Model No.  |            |            |            |            |            |
|----------------------------------------------------------------------------|------------|------------|------------|------------|------------|------------|
|                                                                            | 2027-07-SM | 2027-09-SM | 2027-15-SM | 2027-20-SM | 2027-23-SM | 2027-25-SM |
| DC Sparkover ±15 %<br>(±20 % for Models 2027-07-SM & 2027-09-SM) @ 100 V/s | 75 V       | 90 V       | 150 V      | 200 V      | 230 V      | 250 V      |
| Impulse Sparkover                                                          |            |            |            |            |            |            |
| 100 V/μs                                                                   | 300 V      | 300 V      | 350 V      | 400 V      | 450 V      | 475 V      |
| 1000 V/μs                                                                  | 500 V      | 500 V      | 575 V      | 600 V      | 675 V      | 700 V      |

| Characteristic               | Model No.  |            |            |            |            |            |
|------------------------------|------------|------------|------------|------------|------------|------------|
|                              | 2027-30-SM | 2027-35-SM | 2027-40-SM | 2027-42-SM | 2027-47-SM | 2027-60-SM |
| DC Sparkover ±15 % @ 100 V/s | 300 V      | 350 V      | 400 V      | 420 V      | 470 V      | 600 V      |
| Impulse Sparkover            |            |            |            |            |            |            |
| 100 V/μs                     | 550 V      | 600 V      | 650 V      | 675 V      | 725 V      | 850 V      |
| 1000 V/μs                    | 800 V      | 875 V      | 925 V      | 950 V      | 1000 V     | 1100 V     |

|                                        |                                                                                  |                      |
|----------------------------------------|----------------------------------------------------------------------------------|----------------------|
| Insulation Resistance .....            | 100 V (50 V for Models 2027-07-SM & 2027-09-SM) .....                            | > 10 <sup>10</sup> Ω |
| Glow Voltage .....                     | 10 mA.....                                                                       | ~ 70 V               |
| Arc Voltage .....                      | > 1A .....                                                                       | ~ 10 V               |
| Glow-Arc Transition Current.....       |                                                                                  | < 0.5 A              |
| Capacitance .....                      | 1 MHz .....                                                                      | < 1 pF               |
| DC Holdover Voltage <sup>1</sup> ..... | 135 V, (52 V for Models 2027-07-SM & 2027-09-SM; 80 V for Model 2027-15-SM)..... | < 150 ms             |
| Impulse Discharge Current.....         | 20000 A, 8/20 μs <sup>2</sup> .....                                              | 1 operation minimum  |
|                                        | 10000 A, 8/20 μs.....                                                            | > 10 operations      |
|                                        | 2500 A, 10/350 μs .....                                                          | 2 operations         |
|                                        | 500 A, 10/1000 μs .....                                                          | > 400 operations     |
|                                        | 100 A, 10/1000 μs or 10/700 μs .....                                             | > 1000 operations    |
| Alternating Discharge Current.....     | 65 Arms, 11 cycles <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             |

### Notes:

- **UL recognized component, UL File E153537.**
- Model number marking on tube: 27-xxxV.
- Surface Mount (SM) parts may show a temporary increase in DCBD after the solder reflow process. Most devices will recover within 24 hours time. It should be noted that there is no quality defect nor change in protection levels during the temporary change in DCBD.
- Sparkover limits ±20 % after life, IR >10<sup>8</sup> Ω (-25 %, +30 % for Models 2027-07-SM, 2027-09-SM and 2027-60-SM).
- At delivery AQL 0.65 Level II, DIN ISO 2859.

<sup>1</sup> Network applied.

<sup>2</sup> DC Sparkover may exceed ±20 % after discharge, but will continue to protect without venting.

\*RoHS Directive 2002/95/EC Jan 27, 2003 including Annex.

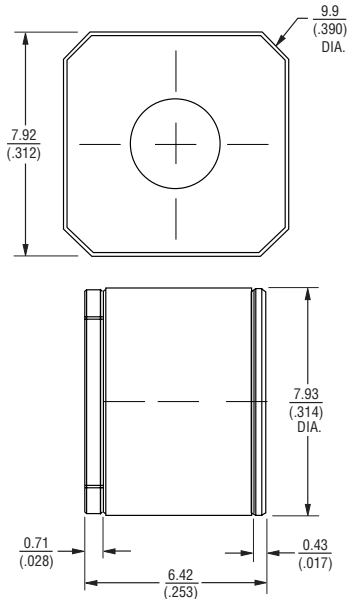
Specifications are subject to change without notice.

Customers should verify actual device performance in their specific applications.

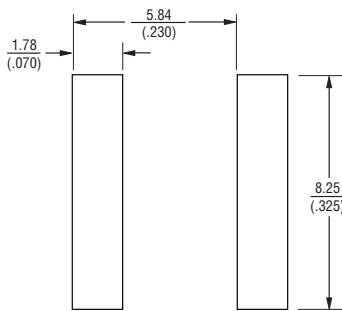
# 2027-xx-SM Precision Gas Discharge Tube Surge Protector

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## Product Dimensions



## Recommended Pad Layout

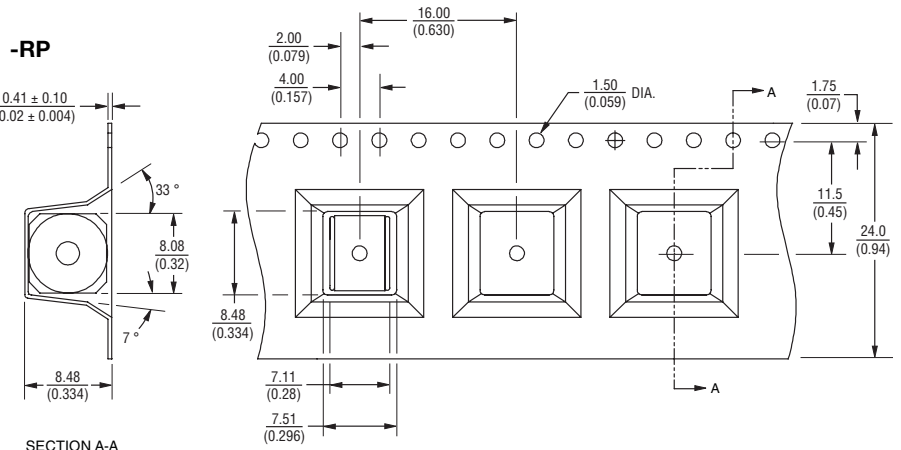


## Packaging Specifications

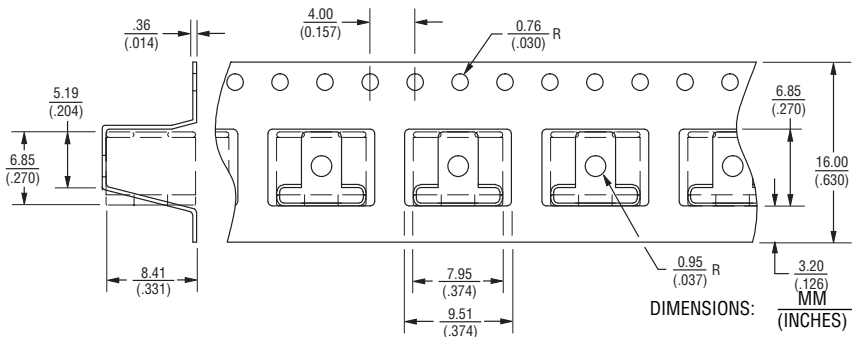
Model 2027-xx-SM ships standard bulk pack, 100 pcs./bag.

The optional reelpack (-RP) contains 500 pcs./reel. Reel is 33 cm in diameter and 3 cm wide.

The optional reelpack (-RP2) contains 500 pcs./reel. Reel is 33 cm in diameter and 3 cm wide.



## -RP2



## How to Order

**2027 - xx - SM - RP - LF**

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

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

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

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

Packaging Option \_\_\_\_\_

- Blank = Bulk Packaging (Standard)
- RP = 24 mm Reelpack (Optional)
- RP2 = 16 mm Reelpack (Optional)

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

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

REV. 01/11

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