

# ANTREX Electronics

Electronic Components Sourcing Information

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## Product Reference Information

**Part Number:** 2027-23-SM-RP

**Manufacturer:** Bourns Inc.

**Package:** Tape & Reel (TR)

**Availability:** Please confirm with sales

### Product Page:

<https://antrexco.com/product/details/bourns-inc/2027-23-sm-rp.html>

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## Contact Information

Email: [info@antrexco.com](mailto:info@antrexco.com)

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### Note:

This PDF includes an ANTREX product reference cover page.

The original manufacturer datasheet follows from the next page.

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## 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 

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## 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 K.12, IEEE C62.31 and IEC 61643-311 GDT standards.

| Characteristic                                                                        | Model No.  |            |            |            |            |            |
|---------------------------------------------------------------------------------------|------------|------------|------------|------------|------------|------------|
|                                                                                       | 2027-07-SM | 2027-09-SM | 2027-15-SM | 2027-20-SM | 2027-23-SM | 2027-25-SM |
| DC Sparkover $\pm 15\%$<br>( $\pm 20\%$ 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 <sup>(1)</sup>                                                      |            |            |            |            |            |            |
| 100 V/ $\mu$ s                                                                        | 300 V      | 300 V      | 350 V      | 400 V      | 450 V      | 475 V      |
| 1000 V/ $\mu$ s                                                                       | 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 $\pm 15\%$ @ 100 V/s | 300 V      | 350 V      | 400 V      | 420 V      | 470 V      | 600 V      |
| Impulse Sparkover <sup>(1)</sup>  |            |            |            |            |            |            |
| 100 V/ $\mu$ s                    | 550 V      | 600 V      | 650 V      | 675 V      | 725 V      | 850 V      |
| 1000 V/ $\mu$ s                   | 800 V      | 875 V      | 925 V      | 950 V      | 1000 V     | 1100 V     |

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

|                                          |                                                                                 |                     |
|------------------------------------------|---------------------------------------------------------------------------------|---------------------|
| Insulation Resistance .....              | 100 V (50 V for Models 2027-07-SM & 2027-09-SM) .....                           | $> 10^{10} \Omega$  |
| Glow Voltage .....                       | 10 mA .....                                                                     | $\sim 70$ V         |
| 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, (52 V for Models 2027-07-SM & 2027-09-SM; 80 V for Model 2027-15-SM) ... | $< 150$ ms          |
| Impulse Discharge Current .....          | 25000 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 .....                                                    | 2 operations        |
|                                          | 500 A, 10/1000 $\mu$ s .....                                                    | $> 400$ operations  |
|                                          | 100 A, 10/1000 $\mu$ s or 10/700 $\mu$ s .....                                  | $> 1000$ operations |
| Alternating Discharge Current .....      | 65 Arms, 11 cycles*** .....                                                     | 1 operation minimum |
|                                          | 10 Arms, 1 s .....                                                              | $> 10$ operations   |
| Operating Temperature .....              | .....                                                                           | -55 to +125 °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  $\pm 20\%$  after life, IR  $> 10^8 \Omega$  ( $-25\%$ ,  $+30\%$  for Models 2027-07-SM, 2027-09-SM and 2027-60-SM).
- At delivery AQL 0.65 Level II, DIN ISO 2859.
- Bourns recommends reflowing surface mount devices per IPC/JEDEC J-STD-020 rev D.

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

<sup>(3)</sup> DC Sparkover may exceed  $\pm 20\%$  after discharge, but will continue to protect without venting.

\*RoHS Directive 2015/863, Mar 31, 2015 and Annex.

Specifications are subject to change without notice.

Users should verify actual device performance in their specific applications.

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**Cancer and Reproductive Harm**  
[www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov)

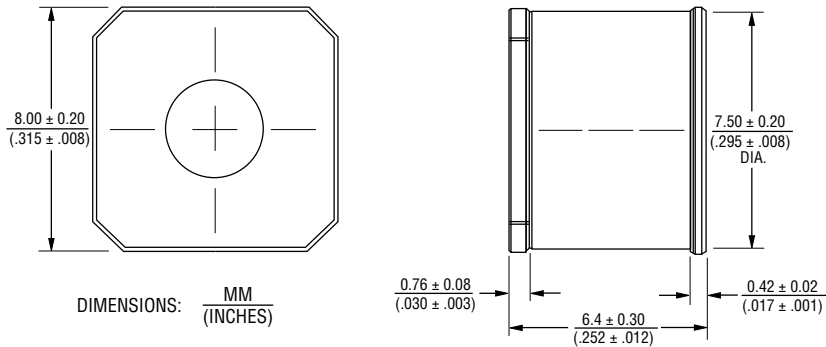
## Applications

- Telecommunications
- Industrial electronics
- Commercial electronics

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

**BOURNS®**

### Product Dimensions



### Recommended Pad Layout



### How to Order

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

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

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

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

RoHS Compliant Option \_\_\_\_\_

2027 - xx - SM - RP LF

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

Blank = Bulk Packaging (Standard)  
RP = 24 mm Reelpack (Optional)  
RP2 = 16 mm Reelpack (Optional)  
RP3 = 16 mm Reelpack / Vertical part alignment in tape (Optional)

Blank = Standard Product  
LF = RoHS Compliant Product

### Packaging Specifications

| Model          | Standard Packaging Quantity |      |      |      |
|----------------|-----------------------------|------|------|------|
|                | Bulk (Bag)                  | Tray | Box  | Reel |
| 2027-xx-SM     | 250                         |      | 1000 |      |
| 2027-xx-SM-RP  |                             |      |      | 500  |
| 2027-xx-SM-RP2 |                             |      |      | 500  |

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The optional reelpacks (-RP, -RP2, -RP3) are 33 cm in diameter and 3 cm wide.

SECTION A-A

PART ORIENTATION IN TAPE

0.41 ± 0.10  
(0.02 ± 0.004)

8.08  
(0.32)

33°

7°

8.48  
(0.334)

16.00  
(0.630)

2.00  
(0.079)

4.00  
(0.157)

1.50  
(0.059) DIA.

1.75  
(0.07)

11.5  
(0.45)

24.0  
(0.94)

7.11  
(0.28)

7.51  
(0.296)

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

Technical drawing of a tape with dimensions in inches and millimeters. The drawing shows a side view and a top view. The side view dimensions are: .36 (.014), 4.00 (.157), 0.76 (.030) R, 5.19 (.204), 6.85 (.270), 8.41 (.331), 9.51 (.374), 7.95 (.374), 0.95 (.037) R, 3.20 (.126), 16.00 (.630), and 6.85 (.270). The top view dimensions are: 5.19 (.204), 6.85 (.270), 8.41 (.331), 9.51 (.374), 7.95 (.374), 0.95 (.037) R, 3.20 (.126), 16.00 (.630), and 6.85 (.270). The drawing also includes a label 'PART ORIENTATION IN TAPE' and a note '0.76 (.030) R'.

[illegible]

Unless otherwise specified, tolerances in decimals  
are .X ± 0.3, .XX ± 0.15 for lengths in millimeters and ±1 ° for degrees.

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