



## 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 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 ±15 % (±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/μs 1000 V/μs	300 V	300 V	350 V	400 V	450 V	475 V
	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 <sup>(1)</sup> 100 V/μs 1000 V/μs	550 V	600 V	650 V	675 V	725 V	850 V
	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 <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>(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 μs <sup>(3)</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*** .....	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 ±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.
- 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 ±20 % after discharge, but will continue to protect without venting.

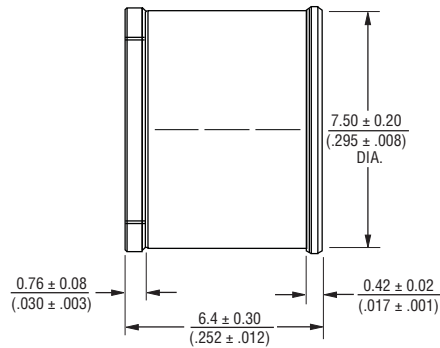
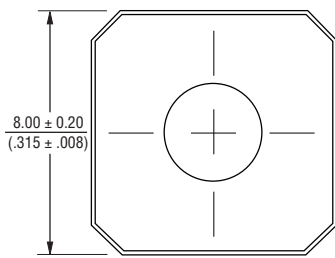
\*RoHS Directive 2002/95/EC Jan. 27, 2003 including annex and RoHS Recast 2011/65/EU June 8, 2011. Specifications are subject to change without notice.

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.

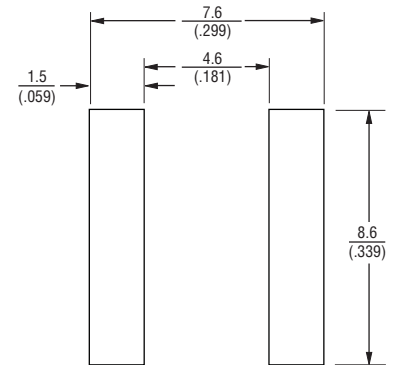
# 2027-xx-SM Precision Gas Discharge Tube Surge Protector



## Product Dimensions



## Recommended Pad Layout



## How to Order

2027 - xx - SM - RP 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

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

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

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

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

- 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

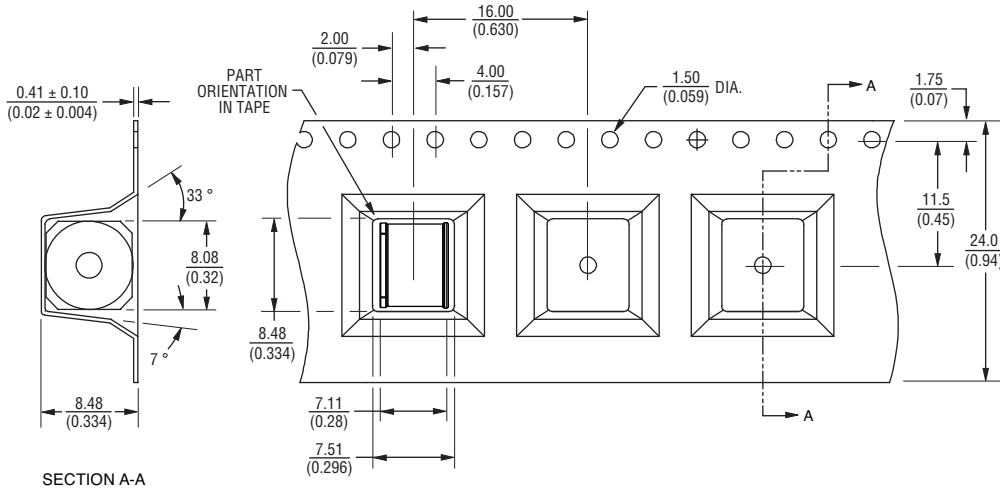
# 2027-xx-SM Precision Gas Discharge Tube Surge Protector

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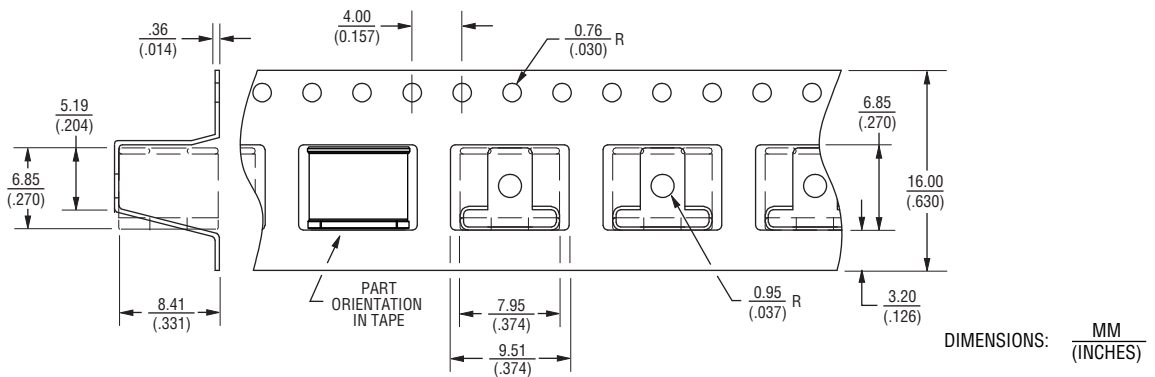
## Packaging Specifications (Continued)

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

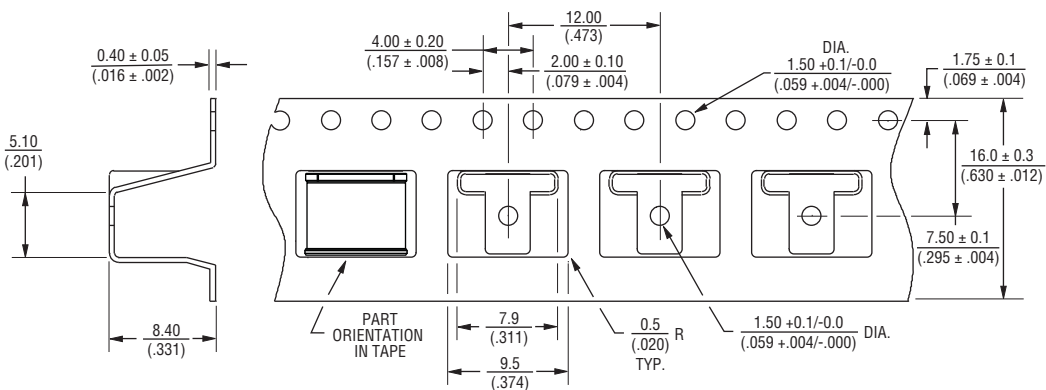
**-RP**



**-RP2**



**-RP3**



REV. 07/15

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Unless otherwise specified, tolerances in decimals are  $X \pm 0.3$ ,  $XX \pm 0.15$  for lengths in millimeters and  $\pm 1^\circ$  for degrees.