



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 $\pm 15\%$ ($\pm 20\%$ 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 100 V/ μ s 1000 V/ μ s	300 V 500 V	300 V 500 V	350 V 575 V	400 V 600 V	450 V 675 V	475 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 100 V/ μ s 1000 V/ μ s	550 V 800 V	600 V 875 V	650 V 925 V	675 V 950 V	725 V 1000 V	850 V 1100 V

Insulation Resistance	100 V (50 V for Models 2027-07-SM & 2027-09-SM)	$> 10^{10} \Omega$
Glow Voltage	10 mA	~ 70 V
Arc Voltage	> 1 A	~ 10 V
Glow-Arc Transition Current		< 0.5 A
Capacitance	1 MHz	< 1 pF
DC Holdover Voltage**	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 μ s***	1 operation minimum
	10000 A, 8/20 μ s	> 10 operations
	2500 A, 10/350 μ s	2 operations
	500 A, 10/1000 μ s	> 400 operations
	100 A, 10/1000 μ s or 10/700 μ 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.

** Network applied.

*** DC Sparkover may exceed $\pm 20\%$ 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.

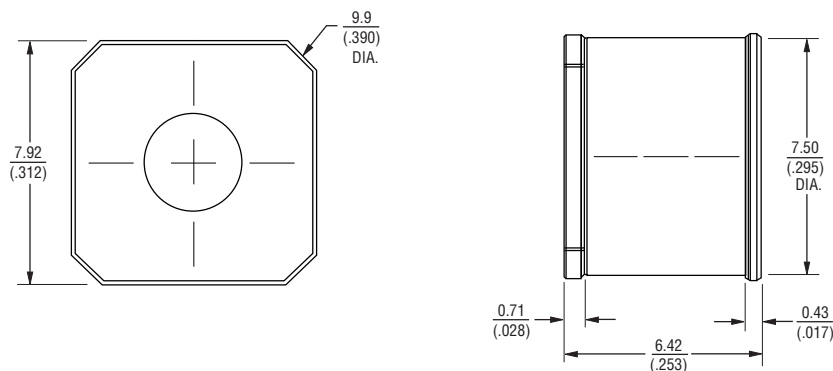
The device characteristics and parameters in this data sheet can and do vary in different applications and actual device performance may vary over time.

Users should verify actual device performance in their specific applications.

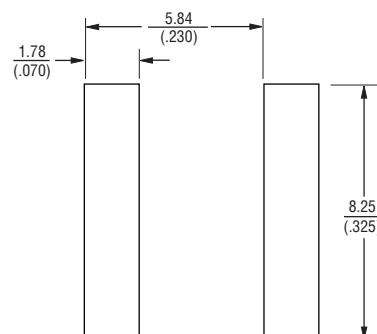
2027-xx-SM Precision Gas Discharge Tube Surge Protector

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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

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Model 2027-xx-SM ships standard bulk pack, 100 pcs./bag. The optional reelpacks (-RP, -RP2, -RP3) contain 500 pcs./reel. Reels are 33 cm in diameter and 3 cm wide.

Technical drawing of a tape assembly, showing a side view and a cross-section A-A.

Side View Dimensions:

- Top edge thickness: 0.41 ± 0.10 (0.02 $\pm$ 0.004)
- Top edge width: 8.48 (0.334)
- Top edge angle: 33°
- Top edge height: 8.08 (0.32)
- Bottom edge angle: 7°
- Bottom edge width: 8.48 (0.334)

Cross-section A-A Dimensions:

- Top edge thickness: 1.75 (0.07)
- Top edge width: 11.5 (0.45)
- Top edge height: 24.0 (0.94)
- Top edge diameter: 1.50 (0.059) DIA.
- Top edge width (inner): 16.00 (0.630)
- Top edge width (outer): 4.00 (0.157)
- Top edge width (inner): 2.00 (0.079)
- Top edge width (outer): 7.11 (0.28)
- Top edge width (inner): 7.51 (0.296)

Other Labels:

- PART ORIENTATION IN TAPE
- SECTION A-A

Technical drawing of a tape reel showing front, side, and end views with dimensions in inches and millimeters.

Front View Dimensions:

- Top edge radius: 0.76 ($.030$) R
- Right edge radius: 0.95 ($.037$) R
- Overall width: 16.0 ($.630$)
- Overall height: 6.85 ($.270$)
- Bottom edge radius: 0.36 ($.014$)
- Bottom edge thickness: 0.04 ($.0015$)
- Bottom edge width: 8.41 ($.331$)
- Bottom edge height: 5.19 ($.204$)
- Bottom edge thickness: 0.04 ($.0015$)

Side View Dimensions:

- Overall width: 7.95 ($.374$)
- Overall height: 9.51 ($.374$)

End View Dimensions:

- Overall width: 7.95 ($.374$)
- Overall height: 9.51 ($.374$)

Other Dimensions:

- Top edge radius: 0.76 ($.030$) R
- Right edge radius: 0.95 ($.037$) R
- Bottom edge radius: 0.36 ($.014$)
- Bottom edge thickness: 0.04 ($.0015$)
- Bottom edge width: 8.41 ($.331$)
- Bottom edge height: 5.19 ($.204$)
- Bottom edge thickness: 0.04 ($.0015$)

Text:

- PART ORIENTATION IN TAPE

Technical drawing of a tape reel showing dimensions in inches and millimeters.

Left View Dimensions:

- Top flange thickness: 0.40 ± 0.05 ($.016 \pm .002$)
- Total height: 5.10 (.201)
- Bottom flange width: 8.40 (.331)

Main View Dimensions:

- Overall width: 12.00 (.473)
- Distance from centerline to first hole: 4.00 ± 0.20 (.157 ± .008)
- Hole diameter: 2.00 ± 0.10 (.079 ± .004)
- Distance between holes: $1.50 + 0.1/-0.0$ (.059 + .004/- .000) DIA.
- Distance from centerline to last hole: 1.75 ± 0.1 (.069 ± .004)
- Reel body height: 16.0 ± 0.3 (.630 ± .012)
- Flange thickness: 7.50 ± 0.1 (.295 ± .004)
- Inner diameter: 7.9 (.311)
- Outer diameter: 9.5 (.374)
- Radius: 0.5 (.020) R TYP.
- Flange diameter: $1.50 + 0.1/-0.0$ (.059 + .004/- .000) DIA.

Annotations:

- PART ORIENTATION IN TAPE

MM

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

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