

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
- AEC-Q200 compliant
- UL Recognized

Additional Information

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2027-A-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 Model 2027-A-xx-SM Series is ideal for compact applications such as PCBs for telecommunications, commercial and industrial applications. This series is AEC-Q200 compliant.

Characteristics

Test Methods per ITU-T K.12, IEEE C62.31 and IEC 61643-311 GDT standards.

Characteristic	Model No.					
	2027-A-07-SM	2027-A-09-SM	2027-A-15-SM	2027-A-20-SM	2027-A-23-SM	2027-A-25-SM
DC Sparkover ±15 % (1) (2)	75 V	90 V	150 V	200 V	230 V	250 V
Impulse Sparkover (3)						
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-A-30-SM	2027-A-35-SM	2027-A-40-SM	2027-A-42-SM	2027-A-47-SM	2027-A-60-SM
DC Sparkover ±15 % @ 100 V/s	300 V	350 V	400 V	420 V	470 V	600 V
Impulse Sparkover (3)						
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

(1) In ionized mode
(2) ±20 % for Models 2027-07-SM & 2027-09-SM @ 100 V/s
(3) Impulse Sparkover voltage is defined as typical values of distribution

Insulation Resistance	100 V (50 V for Models 2027–A-07-SM & 2027-A-09-SM)	> 10^9 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 (4)	135 V, (52 V for Models 2027-A-07-SM & 2027-A-09-SM; 80 V for Model 2027-A-15-SM)	< 150 ms
Impulse Discharge Current	25000 A, 8/20 μs (5)	1 operation minimum
	10000 A, 8/20 μs	> 10 operations
	2000 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		-40 to +125 °C
Climatic Category (IEC 60068-1)		40/125/21

Notes:

- **UL recognized component, UL File E153537.**
- 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 >10^8 Ω (-25 %, +30 % for Models 2027-A-07-SM, 2027-A-09-SM and 2027-A-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.

(4) Network applied.
(5) DC Sparkover may exceed ±20 % after life, but will continue to protect without venting (per ITU-T K.12 Edition 9.0, Section 6, where applicable.

CALIFORNIA WARNING: Can expose you to lead, a carcinogen and reproductive toxicant. See www.P65Warnings.ca.gov

*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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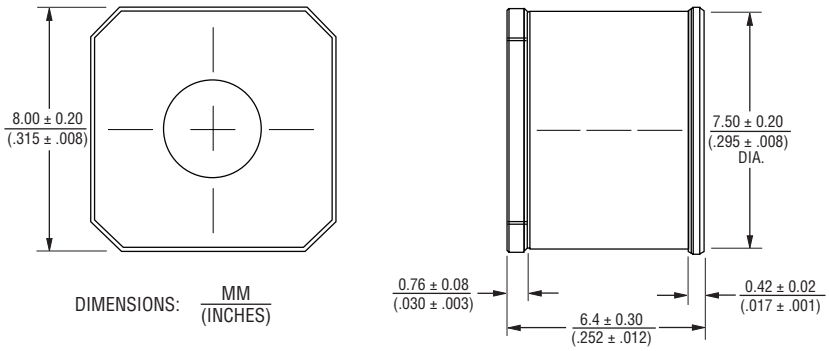
Applications

- Telecommunications
- Industrial electronics
- Commercial electronics

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

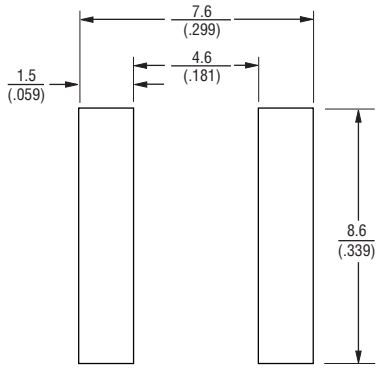
BOURNS®

Product Dimensions



DIMENSIONS: MM / (INCHES)

Recommended Pad Layout



How to Order

2027 - A - xx - SM - RP LF

Model Number Designator

AEC-Compliancy Designator
A = AEC-Q200 Compliant

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)

RoHS Compliant Option
Blank = Standard Product
LF = RoHS Compliant Product

Packaging Specifications

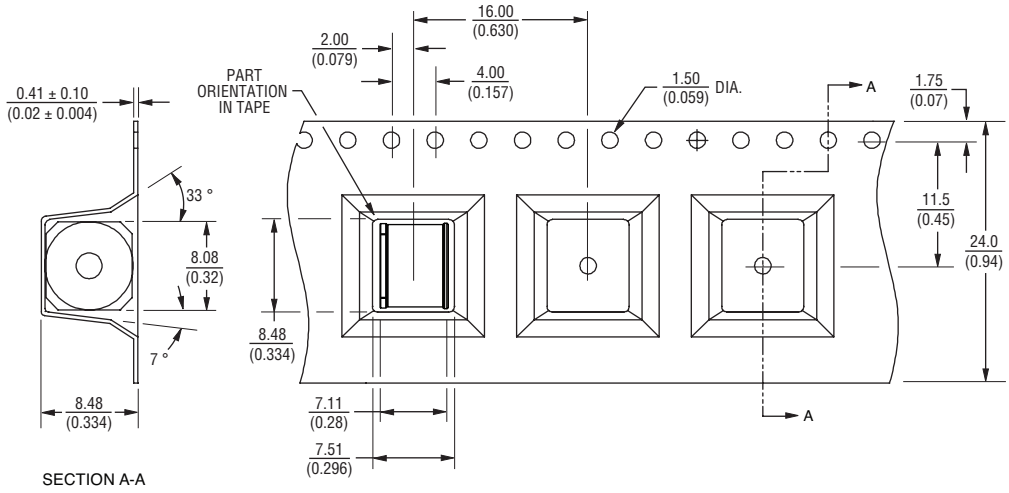
Model	Standard Packaging Quantity			
	Bulk (Bag)	Tray	Box	Reel
2027-A-xx-SM	250		1000	
2027-A-xx-SM-RP				500

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Packaging Specifications (Continued)

The optional reelpack (-RP) is 33 cm in diameter and 3 cm wide.

-RP



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

DIMENSIONS: MM / (INCHES)

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Environmental Characteristics

Characteristic	Test Condition
High Temperature Exposure	Dry heat (+150 °C ± 3 °C) Exposure time 1000 hrs. STP: MIL-STD-202 Method 108
Low Temperature Exposure	Cold (-40°C ± 3 °C) Exposure time 100 hrs. STP: IEC 60068-2-1
Temperature Cycling	1000 cycles (-40 °C to +125 °C) unpowered STP: JESD22 Method JA-104
Humidity Bias	1000 hours 85 °C ± 3 °C / RH 85 % ± 3 % Rated 1 kVrms @ 1 mA STP: MIL-STD-202 Method 103
High Temperature Operating Life	1000 hours (T_A = 125 °C) Rated 1 kVrms @ 1 mA STP: MIL-STD-202 Method 108
Terminal Strength	Test leaded device lead integrity only Conditions: A (2.27 kg), C (227 g) STP: MIL-STD-202 Method 211
Resistance to Solvents	Also, aqueous wash chemical - OKEM Clean or equivalent STP: MIL-STD-202 Method 215
Mechanical Shock	Figure 1 of Method 213 LEADED: Condition C STP: MIL-STD-202 Method 213
Vibration	5 g's for 20 minutes, 12 cycles each of 3 orientations, test from 10-2000 Hz STP: MIL-STD-202 Method 204
Resistance to soldering Heat	LEADED Condition B No Pre-Heat of samples STP: MIL-STD-202 Method 210
ESD	AEC-Q200-002 or ISO/DIS10605
Solderability	LEADED Method A @ 235 °C, Category 3 STP: J-STD-002
Flammability	V-0 STP: UL-94

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