

Features

- High insulation resistance
- Quick response, long service life
- Wide operating temperature range
- AEC-Q200 compliant
- RoHS compliant*

Applications


- Street lighting
- Medical devices (low/medium risk)**
- Air conditioning
- Power supplies
- Projectors
- Welders

SA2-A Series High Voltage Gas Discharge Tube

Description

Bourns® SA2-A Series two-electrode High Voltage Gas Discharge Tube devices are designed for high isolation applications. The AEC-Q200 compliant series offers high insulation resistance over a wide temperature range and is offered with DC breakdowns from 2.4 kV to 7.2 kV. Other customized voltages between 2 kV and 7.2 kV are available upon request.

Agency Recognition

Agency	Category	Agency File No.
 UL	UL 1449	E313168

Additional Information

Click these links for more information:



Electrical Characteristics

Part No.	Device Specifications										Life Ratings		
	DC Breakdown Voltage @ 500 V/s (1)				Impulse Breakdown	Ramp	Insulation Resistance @ 250 Vdc	Arc Voltage @ 5 A min.	Capacitance @ 1 MHz	Nominal Impulse Discharge		Nom. DC Breakdown After Life	
	Min.	Typ.	Max.	Tol.						Max.	Typ.		Max.
SA2-A-3000-Dxx-STD	2550	3000	3600	-15 % to +20 %	4500 V	@7.5 kV/μs	10 G Ohm	20 V	1 pF	10 kA, 8/20 μs	5 kA, 8/20 μs, ±10 operations in each polarity	>2.4 kV	
SA2-A-3000-Cxx-STD	2400	3000	3600	-20 % to +20 %		>2.3 kV							
SA2-A-3600-Dxx-STD	3060	3600	4320	-15 % to +20 %	5400 V	@7.5 kV/μs						>3.0 kV	
SA2-A-3600-Cxx-STD	2880	3600	4320	-20 % to +20 %		>2.8 kV							
SA2-A-4000-Dxx-STD	3400	4000	4800	-15 % to +20 %	6000 V	@7.5 kV/μs						>3.3 kV	
SA2-A-4000-Cxx-STD	3200	4000	4800	-20 % to +20 %		>3.1 kV							
SA2-A-5500-Dxx-STD	4675	5500	6600	-15 % to +20 %	8000 V	@7.5 kV/μs						>4.4 kV	
SA2-A-5500-Cxx-STD	4400	5500	6600	-20 % to +20 %		>4.2 kV							
SA2-A-5900-Dxx-STD	5015	5900	7080	-15 % to +20 %	8000 V	@7.5 kV/μs						>4.9 kV	
SA2-A-5900-Cxx-STD	4720	5900	7080	-20 % to +20 %		>4.6 kV							
SA2-A-6000-Dxx-STD	5100	6000	7200	-15 % to +20 %	8000 V	@7.5 kV/μs						>5.0 kV	
SA2-A-6000-Cxx-STD	4800	6000	7200	-20 % to +20 %		>4.7 kV							
SA2-A-6200-Dxx-STD	5270	6200	7440	-15 % to +20 %	8000 V	@7.5 kV/μs						>5.2 kV	
SA2-A-6200-Cxx-STD	4960	6200	7440	-20 % to +20 %		>4.9 kV							
SA2-A-6300-Dxx-STD	5355	6300	7560	-15 % to +20 %	9200 V	@7.5 kV/μs						>5.3 kV	
SA2-A-6300-Cxx-STD	5040	6300	7560	-20 % to +20 %		>5.0 kV							
SA2-A-7200-Dxx-STD	6120	7200	8640	-15 % to +20 %	10000 V	@1 kV/μs	>6.3 kV						
SA2-A-7200-Cxx-STD	5760	7200	8640	-20 % to +20 %		>6.0 kV							

Note: The Model SA2-A-7200 specification is based on the customer providing sufficient encapsulation/working environment for the component to avoid outside surface breakdown (e.g., non-contaminated equivalent surface in RH 40 % reaches breakdown at 10-12 kV).

(1) In ionized mode.

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

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Users should verify actual device performance in their specific applications.

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SA2-A Series High Voltage Gas Discharge Tube



Product Characteristics

Operating Temperature Range	-40 °C to +125 °C
Storage Temperature Range	-40 °C to +125 °C
Device Plating.....	Matte-Sn
Moisture Sensitivity Level.....	1
ESD Classification (HBM).....	6

How to Order

SA 2 - A - nnnn - x x x - STD

Series Designator	SA
No. of Electrodes	2
2 = 2 Electrodes	
AEC-Q200 Compliant	A
Breakdown Voltage	nnnn
3000 = 3000 V	5900 = 5900 V
3600 = 3600 V	6000 = 6000 V
4000 = 4000 V	6200 = 6200 V
4000 = 4000 V	6300 = 6300 V
5500 = 5500 V	7200 = 7200 V
Tolerance	xxx
C = -20 % to +20 %	
D = -15 % to +20 %	
Lead Shape	x
B = Bent Leads*	
C = No Leads*	
L = Straight Leads**	
Packaging	x
B = Bulk	
T = Tape & Reel	
Standard or Modified Product Indicator	STD
STD = Standard	

Typical Part Marking

..... SA2-A-xxxx

* Available in bulk packaging only.

** Bulk packaging available for straight lead devices ≤3600 V. Devices >3600 V available in tape and reel only.

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SA2-A Series High Voltage Gas Discharge Tube

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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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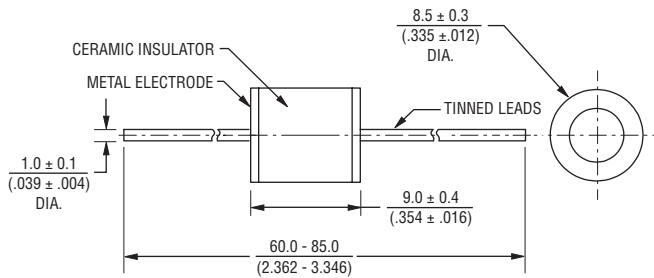
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SA2-A Series High Voltage Gas Discharge Tube

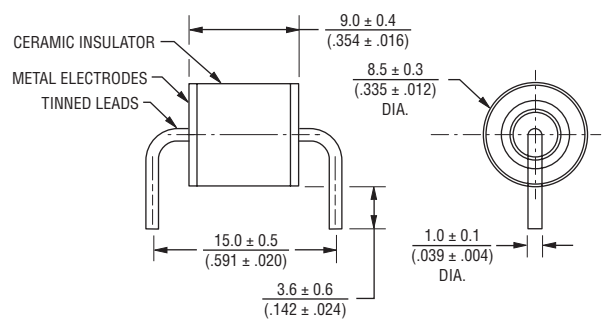
BOURNS®

Product Dimensions

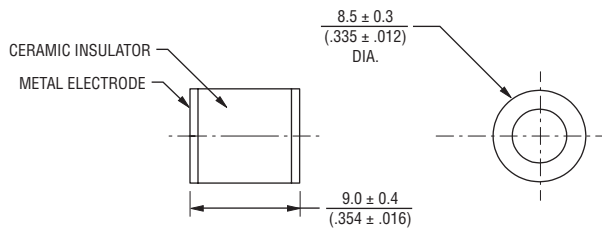
SA2-A-xxxx-xLx-STD



SA2-A-xxxx-xBx-STD



SA2-A-xxxx-xCx-STD



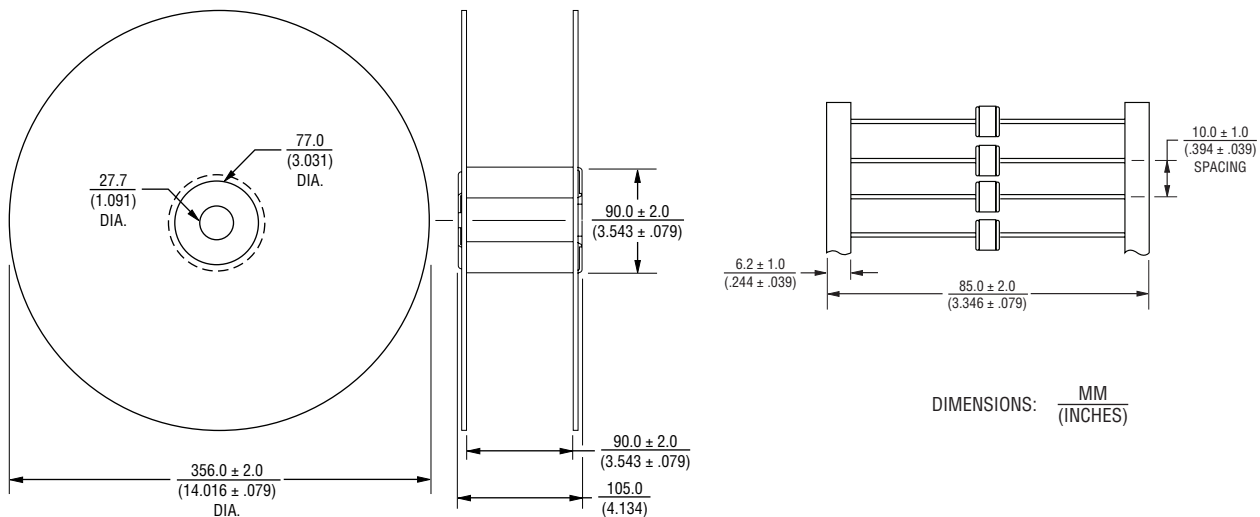
DIMENSIONS: $\frac{\text{MM}}{\text{(INCHES)}}$

Packaging Specifications

Model SA2-A-xxxx-xLB-STD ships standard bulk pack, 250 units per box / 5 bags of 50 units*.
 Model SA2-A-xxxx-xBB/xCB-STD ships standard bulk pack, 500 units per box / 5 bags of 100 units.
 The optional tape and reel packaging contains 1,000 pcs./reel for Model SA2-A-xxxx-xLT-STD.

* Straight lead versions >3600 V available in bulk or tape and reel packaging; all other models available in bulk packaging only.

SA2-A-xxxx-xLT-STD



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