



## Features

- Formerly a JENSEN+DEVICES product
- High insulation resistance
- Quick response, long service life
- Available DC breakdown range: 2.4 kV to 7.2 kV
- Wide operating temperature range
- RoHS compliant\*

## Applications

- Street lighting
- Medical devices
- Air conditioning
- Power supplies
- Projectors
- Welders

# SA2 Series High Voltage Gas Discharge Tube

## Description

Bourns® SA2 Series two-electrode High Voltage Gas Discharge Tube devices are designed for high isolation applications. The 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 Listing

| Agency | Category | Agency File No. |
|--------|----------|-----------------|
| UL     | UL1414   | E183342         |

Note: UL Listing valid for SA2 Series GDTs rated at 3 kV and above.

## Electrical Characteristics

| Part No.         | Device Specifications          |      |      |                |                   |            |                                 |                       |                     | Life Ratings                                  |                              |
|------------------|--------------------------------|------|------|----------------|-------------------|------------|---------------------------------|-----------------------|---------------------|-----------------------------------------------|------------------------------|
|                  | DC Breakdown Voltage @ 500 V/s |      |      |                | Impulse Breakdown | Ramp       | Insulation Resistance @ 250 Vdc | Arc Voltage @ 5A min. | Capacitance @ 1 MHz | Nominal Impulse Discharge                     | Nom. DC Breakdown After Life |
|                  | Min.                           | Typ. | Max. | Tol.           | Max.              | Typ.       | Min.                            | Typ.                  | Max.                | 10 Operations                                 |                              |
| SA2-2400-Dxx-STD | 2040                           | 2400 | 2880 | -15 % to +20 % | 3800 V            | @1 kV/μs   | 10 G Ohm                        | 20 V                  | 1 pF                | 5 kA, 8/20 μs, ±5 operations in each polarity | >2.0 kV                      |
| SA2-2400-Cxx-STD | 1920                           | 2400 | 2880 | -20 % to +20 % |                   |            |                                 |                       |                     |                                               | >1.9 kV                      |
| SA2-3000-Dxx-STD | 2550                           | 3000 | 3600 | -15 % to +20 % | 4500 V            | @7.5 kV/μs |                                 |                       |                     |                                               | >2.4 kV                      |
| SA2-3000-Cxx-STD | 2400                           | 3000 | 3600 | -20 % to +20 % |                   |            |                                 |                       |                     |                                               | >2.3 kV                      |
| SA2-3600-Dxx-STD | 3060                           | 3600 | 4320 | -15 % to +20 % | 5400 V            | @7.5 kV/μs |                                 |                       |                     |                                               | >3.0 kV                      |
| SA2-3600-Cxx-STD | 2880                           | 3600 | 4320 | -20 % to +20 % |                   |            |                                 |                       |                     |                                               | >2.8 kV                      |
| SA2-5500-Dxx-STD | 4675                           | 5500 | 6600 | -15 % to +20 % | 8000 V            | @7.5 kV/μs |                                 |                       |                     |                                               | >4.4 kV                      |
| SA2-5500-Cxx-STD | 4400                           | 5500 | 6600 | -20 % to +20 % |                   |            |                                 |                       |                     |                                               | >4.2 kV                      |
| SA2-6200-Dxx-STD | 5270                           | 6200 | 7440 | -15 % to +20 % | 8000 V            | @7.5 kV/μs |                                 |                       |                     |                                               | >5.2 kV                      |
| SA2-6200-Cxx-STD | 4960                           | 6200 | 7440 | -20 % to +20 % |                   |            |                                 |                       |                     |                                               | >4.9 kV                      |
| SA2-6300-Dxx-STD | 5355                           | 6300 | 7560 | -15 % to +20 % | 9200 V            | @7.5 kV/μs |                                 |                       |                     |                                               | >5.3 kV                      |
| SA2-6300-Cxx-STD | 5040                           | 6300 | 7560 | -20 % to +20 % |                   |            |                                 |                       |                     |                                               | >5.0 kV                      |
| SA2-7200-Dxx-STD | 6120                           | 7200 | 8640 | -15 % to +20 % | 10000 V           | @1 kV/μs   |                                 |                       |                     |                                               | >6.3 kV                      |
| SA2-7200-Cxx-STD | 5760                           | 7200 | 8640 | -20 % to +20 % |                   |            |                                 |                       |                     |                                               | >6.0 kV                      |

Note: Model SA2-7200 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).

## Product Characteristics

Operating Temperature Range ..... -40 °C to +125 °C  
 Storage Temperature Range ..... -65 °C to +125 °C  
 Device Plating..... Matte-Sn

\*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.

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## Environmental Characteristics

| Section                 | Category        | Test                         | Condition                                                  |
|-------------------------|-----------------|------------------------------|------------------------------------------------------------|
| IEC 60068-2-13 test M   | Operational     | Low Air Pressure             | Temp. +55 °C, Time 0.5 Sec., Pressure 600 hPa              |
| IEC 60068-2-1, test Ab  | Non-Operational | Cold                         | +40 °C, 96 Hours                                           |
| IEC 60068-2-2, test Bb  |                 | Dry Heat                     | +100 °C, 96 Hours                                          |
| IEC 60068-2-30, test Ca |                 | Damp Heat, Steady State      | +40 °C, 93 % RH, 21 Days                                   |
| IEC 60068-2-14, test Na |                 | Rapid Change in Temperature  | Upper Temp. +100 °C, Lower Temp. -40 °C, 5 Cycles          |
| IEC 60068-2-6, test Fc  |                 | Vibration                    | 10-55 Hz, 30 Min. per Axis, Double Amplitude 0.70 Min.     |
| IEC 60068-2-27, test Ea |                 | Shock Test                   | 30 g, 11 ms, Half Sine Pulse                               |
| IEC 60068-2-20, test Ta |                 | Solderability                | Method 1, +235 °C, 2 Sec., Aging                           |
| IEC 60068-2-20, test Tb |                 | Resistance to Soldering Heat | Method 1A, +260 °C, 5 Sec.                                 |
| IEC 60068-2-21          |                 | Robustness of Terminations   | Ua1 (Tensile), Ua2 (Thrust), Ub (Bending) and Uc (Torsion) |

## How to Order

**SA 2 - nnnn - x x x - STD**

Series Designator \_\_\_\_\_

No. of Electrodes \_\_\_\_\_  
2 = 2 Electrodes

Breakdown Voltage \_\_\_\_\_  
 2400 = 2400 V      6200 = 6200 V  
 3000 = 3000 V      6300 = 6300 V  
 3600 = 3600 V      7200 = 7200 V  
 5500 = 5500 V

Tolerance \_\_\_\_\_  
 C = -20 % to +20 %  
 D = -15 % to +20 %

Lead Shape \_\_\_\_\_  
 B = Bent Leads\*  
 C = No Leads\*  
 K = Bent Leads with Kinks\*  
 K1 = Bent Leads with Kinks\*  
 L = Straight Leads\*\*

Packaging \_\_\_\_\_  
 B = Bulk  
 T = Tape & Reel

Standard or Modified Product Indicator \_\_\_\_\_  
 STD = Standard

## Typical Part Marking

Below 3 kV..... **B** SA2-xxxx  
 3 kV and Up..... **B** SA2-xxxx **RL**

\* Available in bulk packaging only.

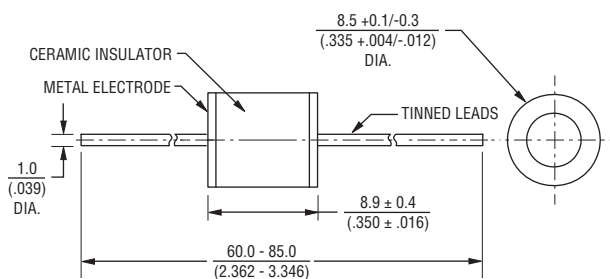
\*\* Bulk packaging available for straight lead devices ≤3600 V. Devices >3600 V available in tape and reel only.

# SA2 Series High Voltage Gas Discharge Tube

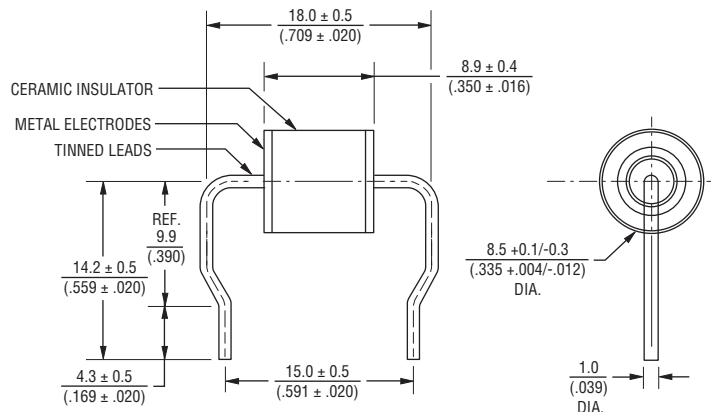
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## Product Dimensions

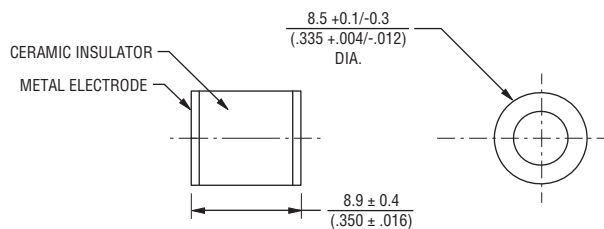
**SA2-xxxx-xLx**



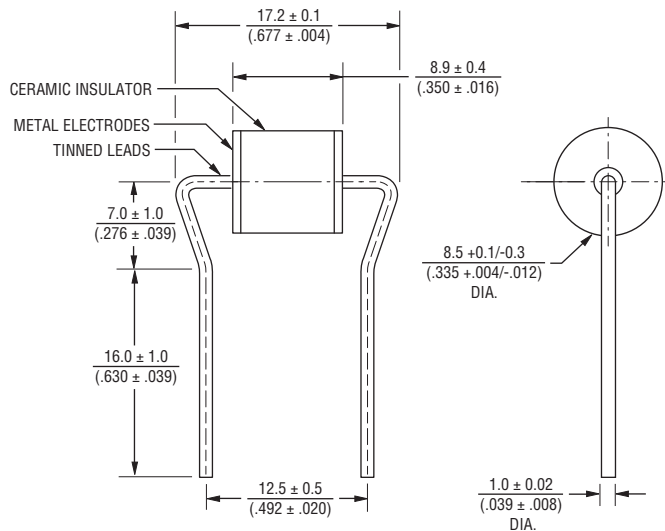
**SA2-xxxx-xKx**



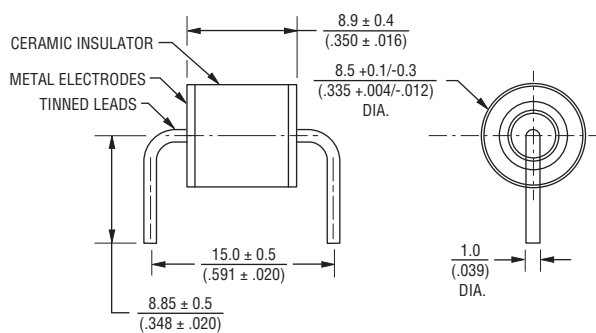
**SA2-xxxx-xCx**



**SA2-xxxx-xK1x**



**SA2-xxxx-xBx**



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

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## SA2 Series High Voltage Gas Discharge Tube

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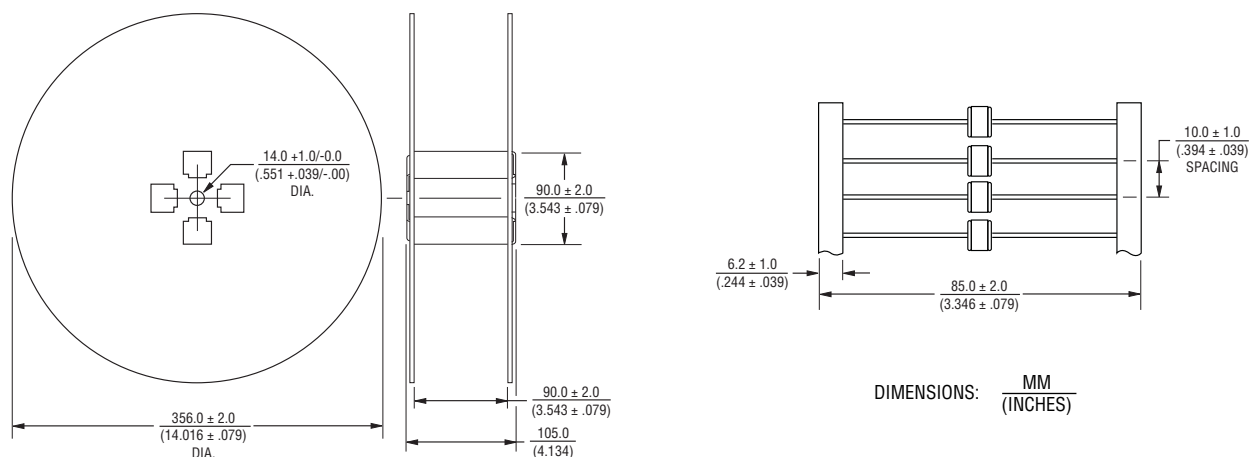
### Packaging Specifications

Model SA2-xxxx-xxB ships standard bulk pack, 1,000 pcs./bag\*.

The optional tape and reel packaging contains 1,000 pcs./reel for Model SA2-xxxx-xLT.

\* Straight leads version available in bulk or tape and reel packaging; all other models available in bulk packaging only.

#### SA2-xxxx-xLT



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