BOURNS®

2036-xx-SM Series

Precision Gas Discharge Tube Surge Protector



*RoHS COMPLIANT

Features

- Balanced Mini-TRIGARD™ Series (5 mm diameter, 7.3 mm length
- Ideal for board level protection of broadband circuits
- Leadless, surface mount configuration for economical assembly
- Stable breakdown throughout life
- High surge current rating, low insertion loss
- UL Recognized per UL 4978
- RoHS compliant*

Applications

- Set top boxes
- Industrial communications
- HVAC controls
- xDSL, POTS, G.fast
- Antennas
- PoE

Sustainability

- Small size reduces material use
- Corrosion-resistant for longevity
- ISO 14001, low-impact energy
- Responsibly sourced and produced

Check out Bourns® GDT35 Series for enhanced next-generation surge protection performance

Product Overview

The Bourns® miniature 2036 TRIGARD™ Series Gas Discharge Tube (GDT) is a well-established surge protection solution with a long track record in demanding communication applications. The surface mount (SM) version extends the same proven performance and reliability of the 2036 family to automated pick-and-place manufacturing processes.

Designed for board-level protection in high-bandwidth systems such as xDSL, cable broadband, and high-speed Ethernet, the 2036-SM Series combines high surge energy handling capability with long-term performance stability. Its low capacitance of less than 2 pF helps preserve signal integrity, while the compact 5 mm diameter package supports high-density designs.

As part of the Bourns® TRIGARD™ GDT portfolio, the 2036-SM Series protects sensitive circuitry from transient overvoltage events by transitioning from a high-impedance state to a controlled low-impedance conduction path when required, and returning to its high-impedance state once normal operating conditions are restored.

Characteristics

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

Characteristic	Model No.					
Characteristic	2036-07	2036-09	2036-15	2036-20	2036-23	2036-25
DC Sparkover ±20 % @ 100 V/s	75 V	90 V	150 V	200 V	230 V	250 V
Impulse Sparkover [1]						
100 V/µs	250 V	250 V	350 V	420 V	450 V	475 V
1000 V/µs	525 V	550 V	500 V	575 V	600 V	625 V

Characteristic	Model No.					
Characteristic	2036-30	2036-35	2036-40	2036-42	2036-47	2036-60
DC Sparkover ±20 % @ 100 V/s	300 V	350 V	400 V	420 V	470 V	600 V
Impulse Sparkover [1]						
100 V/µs	500 V	600 V	650 V	675 V	750 V	850 V
1000 V/µs	650 V	750 V	825 V	850 V	950 V	1100 V

[1] Impulse Sparkover voltage is defined as typical values of distribution.

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* 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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Characteristics (Continued)

Characteristic	Value
Impulse Transverse Delay 1000 V/µs	< 75 ns
Insulation Resistance (IR) 100 V 50 V (2036-07 & 2036-09)	> 10^{10} Ω
Glow Voltage 10 mA	~ 70 V
Arc Voltage 1 A	~ 10 V
Glow-Arc Transition Current	< 0.5 A
Capacitance 1 MHz	< 2 pF
DC Holdover Voltage [2] 135 V 52 V (2036-07, 2036-09) 80 V (2036-15)	< 150 ms
Impulse Discharge Current 20,000 A, 8/20 µs [3] 10,000 A, 8/20 µs 200 A, 10/1000 µs 2,000 A, 10/350 µs 200 A, 10/700 µs	 1 operation min. 10 operations 300 operations 1 operation 500 operations
Alternating Discharge Current 20 Arms, 1 s [2] 10 Arms, 1 s	 1 operation min. 10 operations
Operating Temperature	-55 to +105 °C
Storage Temperature	-55 to +105 °C
Climatic Category (IEC 60068-1)	55/105/21
Moisture Sensitivity Level	1
ESD Classification (HBM)	N/A

Notes:

- UL Recognized per UL 497B, file E153537.
- No model number marking on tube; date code and voltage only: month year digits, xxxV (e.g. 0226 600V).
- The rated discharge current for Mini-TRIGARD™ Gas Discharge Tubes is the total current equally divided between each line to ground.
- 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 after life: ±25 % (-25 %, +30 % for Model 2036-07, 2036-09 and 2036-60), IR >10^8Ω.
- Operating characteristics per RUS PE-80 and Telcordia GR 1361 available, contact factory.
- Line to Line voltage is approximately 1.8 to 2 times the stated Line to Ground breakdown voltage.
- Bourns recommends reflowing surface mount devices per IPC/JEDEC J-STD-020 rev E 2015-02-03.
- At delivery AQL 0.65 Level II, DIN ISO 2859.

[2] Network applied.

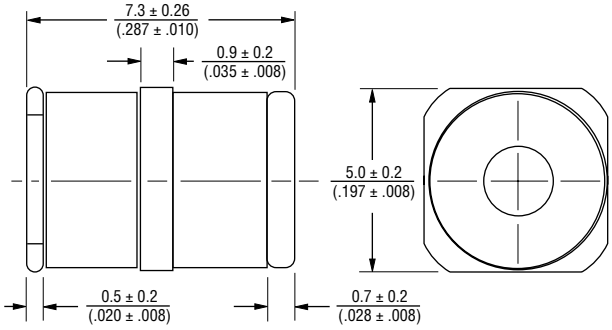
[3] DC Sparkover may exceed ±25 % but will continue to protect without venting.

How to Order

2036 - xx - SM - RP LF

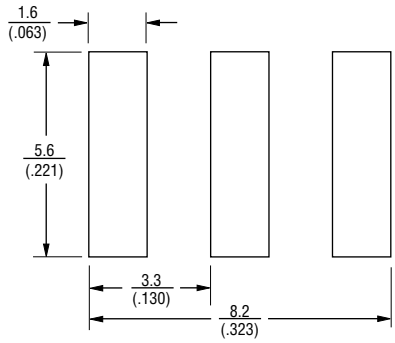
- Model Number Designator
- Voltage (Divided by 10)
- Surface Mount
- Packaging Options
  - Blank = Bulk Packaging (Standard)
  - RP = Reelpack (Optional)
  - RP2 = Reelpack (Optional)
- RoHS Compliancy

Product Dimensions



DIMENSIONS: MM / (INCHES)

Recommended Pad Layout



DIMENSIONS: MM / (INCHES)

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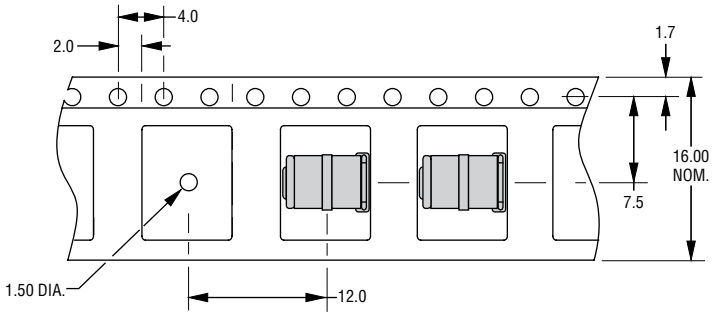
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Packaging Specifications

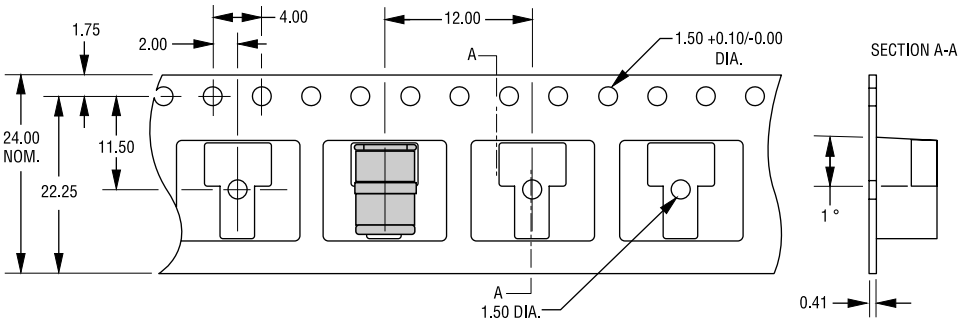
Model	Standard Packaging Quantity			
	Bulk (Bag)	Tray	Box	Reel
2036-xx-SM	250 pcs.		1000 pcs.	
2036-xx-SM-RP				1000 pcs.
2036-xx-SM-RP2				1000 pcs.

The optional -RP & -RP2 reels are 330 mm in diameter and 23 mm wide.

-RP



-RP2



TOLERANCES: ±0.13 UNLESS OTHERWISE SPECIFIED

DIMENSIONS: MILLIMETERS

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