




## Features

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

## 2036-xx-SM Precision Gas Discharge Tube Surge Protector

Bourns now offers a surface mount (SM) 3-electrode Gas Discharge Tube (GDT) surge protection device. The industry-leading quality and features of the Bourns® miniature 2036 TRIGARD™ series GDT continues in this new SM version for “pick and place” manufacturing techniques. The 2036 SM device is ideal for board level protection of high bandwidth applications such as xDSL, cable broadband and high speed Ethernet, due to its high energy handling capability, long and stable life performance and low capacitance of less than 2 pF. Bourns subminiature family of GDTs measure only 5 mm in diameter and are the smallest high performance GDTs in the telecom industry. Bourns® GDTs are designed to prevent damage from transient disturbances by acting as a “crowbar” in creating a short-to-ground circuit during conduction. When a voltage transient surge exceeds the defined breakdown voltage level of the GDT, the device becomes ionized and conduction takes place within a fraction of a microsecond. When the surge passes and system voltage returns to normal levels, the GDT returns to its high-impedance (off) state.

### Characteristics

Test Methods per ITU-T (CCITT) K.12, IEEE C62.31

Characteristic	Model No.					
	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						
100 V/μs	250 V	250 V	350 V	425 V	450 V	475 V
1000 V/μs	525 V	550 V	500 V	575 V	600 V	625 V

Characteristic	Model No.					
	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						
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

Impulse Transverse Delay.....	100 V/μs .....	< 75 ns
Insulation Resistance (IR) .....	100 V (50 V for Model 2036-07 & 2036-09).....	> 10 <sup>10</sup> 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 <sup>1</sup> .....	>135 V, (52 V for Model 2036-07, & -09, .....	< 150 ms
	80 V for Model 2036-15)	
Impulse Discharge Current.....	20000 A, 8/20 μs <sup>2</sup> .....	1 operation minimum
	10000 A, 8/20 μs .....	> 10 operations
	200 A, 10/1000 μs .....	> 300 operations
	200 A, 10/700 μs .....	> 500 operations
Alternating Discharge Current .....	20 Arms, 1 s <sup>2</sup> .....	1 operation minimum
	10 Arms, 1 s .....	> 10 operations
Operating Temperature .....	.....	- 55 to +85 °C

### Notes:

#### UL Recognized component, UL File E153537.

The rated discharge current for Mini-TRIGARD™ GDTs is the total current equally divided between each line to ground.

Sparkover limits after life ±25 % (-25 %, +30 % for Model 2036-07, 2036-09 and 2036-60), IR >10<sup>9</sup> Ω.

Operating characteristics per RUS PE-80 and Telcordia GR 1361 available on request.

Line to Line voltage is approximately 1.8 to 2 times the stated Line to Ground breakdown voltage.

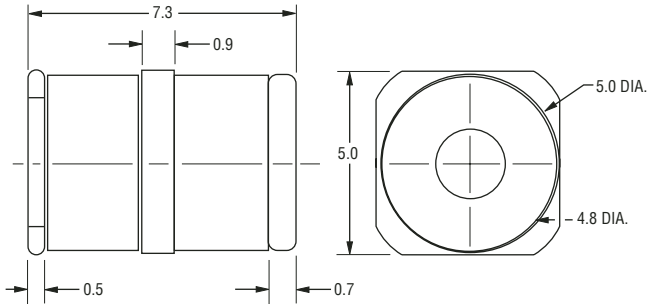
<sup>1</sup> Network applied.

<sup>2</sup> DC Sparkover may exceed ±25 % but will continue to protect without venting.

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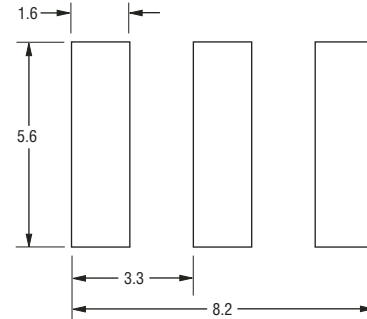


## Product Dimensions



DIMENSIONS: MILLIMETERS  
 DIMENSION TOLERANCE: .X ± 0.25

## Recommended Pad Layout



## 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 - 1000 pcs./reel (Optional)
- RP2 = Reelpack - 1000 pcs./reel (Optional)

**Lead Free Option** \_\_\_\_\_

- Blank = Standard Product
- LF = Lead Free / RoHS Compliant Product

\* The optional -RP & -RP2 reelpacks contain 1000 pcs./reel. The reels are 330 mm in diameter. The -RP reelpack is 18 mm wide. The -RP2 reelpack is 26 mm wide.

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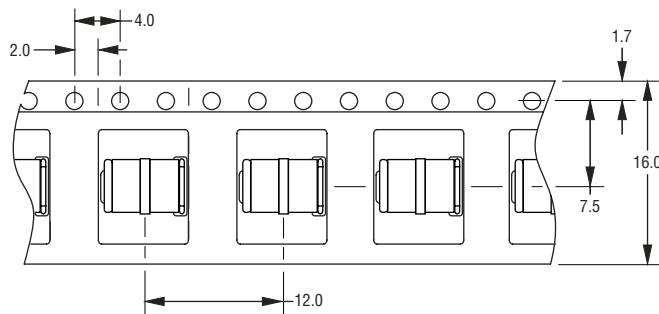
**BOURNS®**

## Packaging Specifications

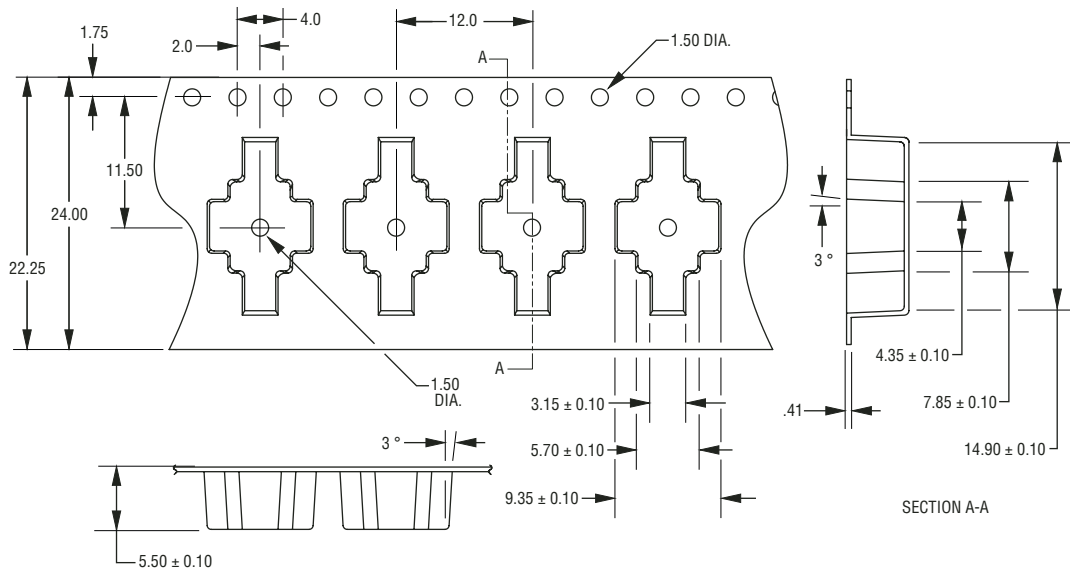
The Model 2036-xx-SM ships standard bulk pack, 100 pieces per bag.

The optional -RP & -RP2 reelpacks contain 1,000 pcs./reel. The reels are 330 mm in diameter. The -RP reelpack is 18 mm wide. The -RP2 reelpack is 26 mm wide.

-RP



-RP2



DIMENSIONS: MILLIMETERS  
DIMENSION TOLERANCE: .X ± 0.25

REV. G 04/08

Mini-TRIGARD™ is a trademark of Bourns, Inc.

Specifications are subject to change without notice.

Customers should verify actual device performance in their specific applications.