




## Features

- Leadless, surface mount for economical assembly
- Compact mini-size
- High surge current rating
- Low capacitance and insertion loss
- Stable breakdown throughout life

-  UL Recognized
- RoHS compliant\* version available

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

Bourns now offers a surface mount (SM) 2-electrode GDT surge protection device. The high quality and outstanding features of the Bourns® miniature 235 Series GDT continues in this new SM version for 'pick and place' manufacturing techniques. The 235-xx-SM Series is ideal for high-density applications such as PCBs for telecommunications, commercial and industrial applications.

### Characteristics

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

Characteristic	Model No.					
	2035-09	2035-15	2035-20	2035-23	2035-25	2035-30
DC Sparkover $\pm 15\%$ ( $\pm 20\%$ for Model 2035-09) @ 100 V/s	90 V	150 V	200 V	230 V	250 V	300 V
Impulse Sparkover <sup>(1)</sup>						
100 V/ $\mu$ s	350 V	400 V	425 V	450 V	475 V	525 V
1000 V/ $\mu$ s	525 V	550 V	575 V	600 V	625 V	650 V

Characteristic	Model No.				
	2035-35	2035-40	2035-42	2035-47	2035-60
DC Sparkover $\pm 15\%$ @ 100 V/s (-12 %, +15 % for Model 2035-60) @ 100 V/s	350 V	400 V	420 V	470 V	600 V
Impulse Sparkover <sup>(1)</sup>					
100 V/ $\mu$ s	600 V	650 V	675 V	750 V	950 V
1000 V/ $\mu$ s	750 V	800 V	850 V	950 V	1100 V

<sup>(1)</sup> Impulse Sparkover voltage is defined as typical values of distribution.

Insulation Resistance (IR) .....	100 V (50 V for Model 2035-09) .....	$>10^{10} \Omega$
Glow Voltage .....	10 mA .....	$\sim 70$ V
Arc Voltage .....	$>1$ A .....	$\sim 10$ V
Glow-Arc Transition Current .....	.....	$<0.5$ A
Capacitance.....	1 MHz .....	$<1$ pF
DC Holdover Voltage <sup>(2)</sup> .....	$>135$ V, (52 V for Model 2035-09, .....	$<150$ ms
	80 V for Model 2035-15)	
Impulse Discharge Current.....	10000 A, 8/20 $\mu$ s <sup>(3)</sup> .....	1 operation minimum
	5000 A, 8/20 $\mu$ s .....	$>10$ operations
	1000 A, 10/350 $\mu$ s .....	1 operation
	100 A, 10/1000 $\mu$ s .....	$>300$ operations
	100 A, 10/700 $\mu$ s .....	$>500$ operations
Alternating Discharge Current .....	20 Arms, 11 cycles <sup>(3)</sup> .....	1 operation minimum
	5 Arms, 1 s .....	$>10$ operations
Operating Temperature.....	.....	-55 to +85 °C
Climatic Category (IEC 60068-1).....	.....	40/90/21

#### 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 after life  $\pm 20\%$  (-25 %, +30 % for Model 2035-09, 2035-60), IR  $>10^8$ .
- At delivery AQL 0.65 Level II, DIN ISO 2859.
- Bourns recommends reflowing surface mount devices per IPC/JEDEC J-STD-020 rev D.

<sup>(2)</sup> Network applied.

<sup>(3)</sup> Tube may exceed  $\pm 20\%$  but will continue to protect without venting.

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

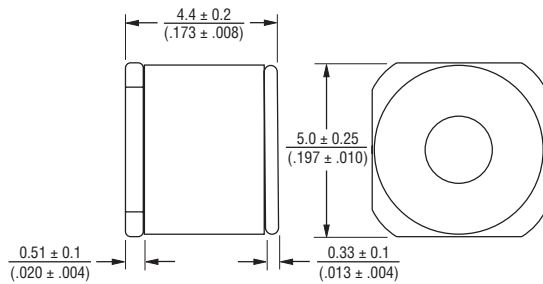
Specifications are subject to change without notice. Users should verify actual device performance in their specific applications.

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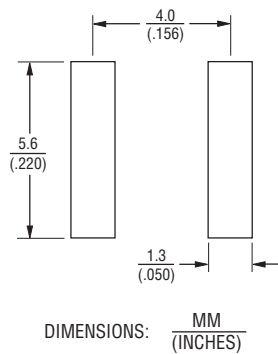
# 2035-xx-SM Precision Gas Discharge Tube Surge Protector

**BOURNS®**

## Product Dimensions



## Recommended Pad Layout



## How to Order

2035 - xx - SM - RP LF

Model Number Designator

Voltage

Surface Mount

Packaging Options

Blank = Bulk Packaging (Standard)

RP = Reelpack (Optional)

RP3 = Reelpack (Optional)

RP4 = Reelpack (Optional)

RoHS Compliant Option

Blank = Standard Product

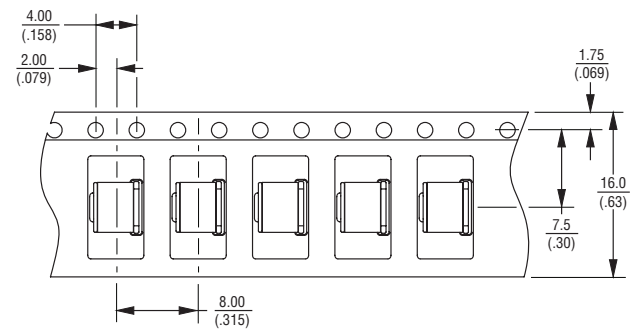
LF = RoHS Compliant Product

## Packaging Specifications

Model	Standard Packaging Quantity			
	Bulk(Bag)	Tray	Box	Reel
2035-SM	250		1000	
2035-SM-RP				1500
2035-SM-RP3				1000
2035-SM-RP4				1000

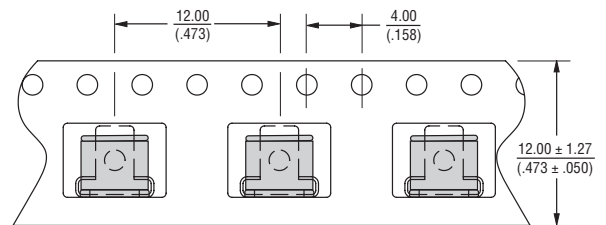
### -RP

Reel is 13 inches in diameter and 3/4 inch wide.



### -RP3

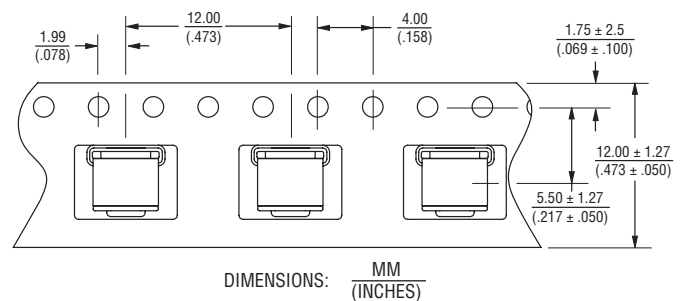
Reel is 13 inches in diameter and 11/16 inch wide.



### -RP4

Reel is 13 inches in diameter and 11/16 inch wide.

RP4 features the GDTs placed upside-down inside the carrier tape.



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

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