




## Features

- Bourns® FLAT® GDT technology
- Flexible mounting options
- Volume- and space-saving design
- Improved impulse performance
- 5 kA 8/20  $\mu$ s rated
-  UL Recognized
- RoHS compliant\*



This series is obsolete and not recommended for new designs. The 2017 Series is the suggested alternative.

## 2015 Series Gas Discharge Tube Surge Arrestor with FLAT® Technology

### Description

Bourns sets a new industry standard by offering this 2-electrode Gas Discharge Tube (GDT) in an innovative flat package design. The Model 2015 Series with FLAT® Technology provides a volume and space-saving solution for high density and space-restricted PCB applications. The series is offered in a leadless version for cartridge or clamp fit applications. Surface mount versions are available in vertical and horizontal mounting configurations.

### Characteristics

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

Characteristic	Model No.			
	2015-09	2015-15	2015-23	2015-35
DC Sparkover $\pm 20\%$ @ 100 V/s (1)	90 V	150 V	230 V	350 V
DC Sparkover End-of-Life Values (2)				
Maximum (99 % of values)	<120 V	<195 V	<300 V	<455 V
Minimum (99 % of values)	> 65 V	>110 V	>170 V	>260 V
Impulse Sparkover Voltage (3)				
100 V/ $\mu$ s Typical	400 V	400 V	450 V	600 V
1 kV/ $\mu$ s Typical	700 V	650 V	650 V	800 V

Characteristic	Model No.		
	2015-42	2015-50	2015-60
DC Sparkover $\pm 20\%$ @ 100 V/s (1)	420 V	500 V	600 V
DC Sparkover End-of-Life Values (2)			
Maximum (99 % of values)	<550 V	<650 V	<780 V
Minimum (99 % of values)	>360 V	>400 V	>450 V
Impulse Sparkover Voltage (3)			
100 V/ $\mu$ s Typical	650 V	700 V	750 V
1 kV/ $\mu$ s Typical	850 V	900 V	950 V

Insulation Resistance (IR) .....	100 V (50 V for Model 2015-09) .....	> 1 G $\Omega$
Glow Voltage .....	10 mA .....	~ 70 V
Arc Voltage .....	>1 A .....	~ 10 V
Capacitance.....	1 MHz .....	< 1.9 pF
Impulse Discharge Current.....	10000 A, 8/20 $\mu$ s .....	1 operation
	5000 A, 8/20 $\mu$ s .....	> 10 operations
	1000 A, 10/350 $\mu$ s .....	1 operation
	100 A, 10/1000 $\mu$ s .....	> 300 operations
	10 A, 10/1000 $\mu$ s .....	> 1500 operations
Glow-Arc Transition Current .....		< 0.5 A
Alternating Discharge Current .....	5 Arms, 1 s .....	> 10 operations
Operating Temperature.....		-55 to +85 °C
Storage Temperature .....		-55 to +105 °C
Climatic Category (IEC 60068-1).....		40/90/21
Pushover Strength (4) .....		5 kg

#### Notes:

#### UL Recognized component, UL File E153537

- (1) In ionized mode.
- (2) IR after life  $> 10^6 \Omega$ .
- (3) At delivery AQL 0.65 Level II, DIN ISO 2859. Impulse Sparkover voltage is defined as typical values of distribution.
- (4) Pushover Strength test performed on a board-mounted Model 2015-xx-SMC (Vertical Mount).

- Bourns recommends reflowing surface mount devices per IPC/JEDEC J-STD-020 rev D.

\*RoHS Directive 2002/95/EC Jan. 27, 2003 including annex and RoHS Recast 2011/65/EU June 8, 2011.

"FLAT" is a registered trademark of Bourns, Inc. in the U.S. and other countries.

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.

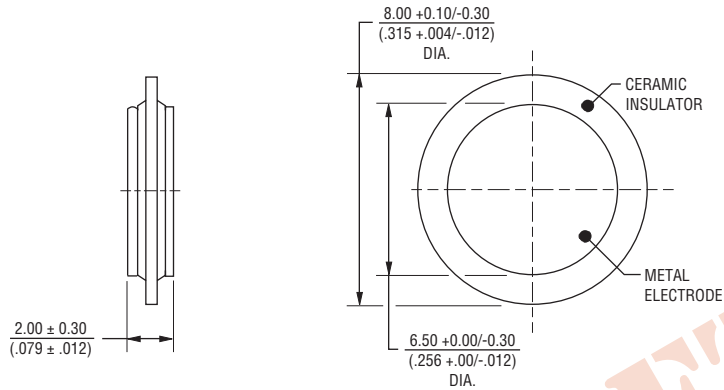
# Applications

- Telecom CPE
- Industrial Communications
- Surge Protective Devices
- High density PCB assemblies

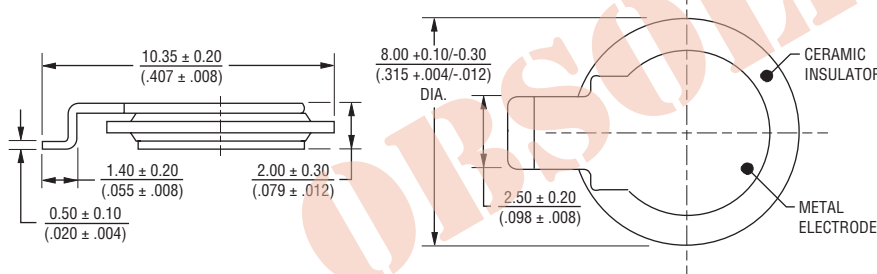
## 2015 Series Gas Discharge Tube Surge Arrestor with FLAT® Technology BOURNS®

### Product Dimensions

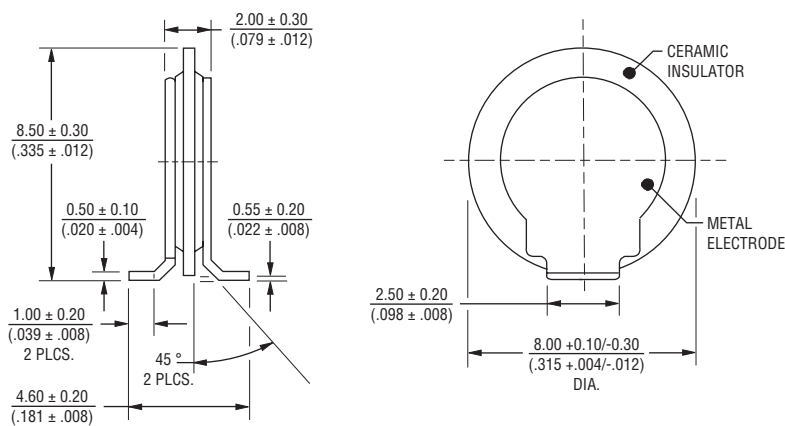
**2015-xx-A-RPLF**



**2015-xx--SMH-RPLF**



**2015-xx-SMC-RPLF**

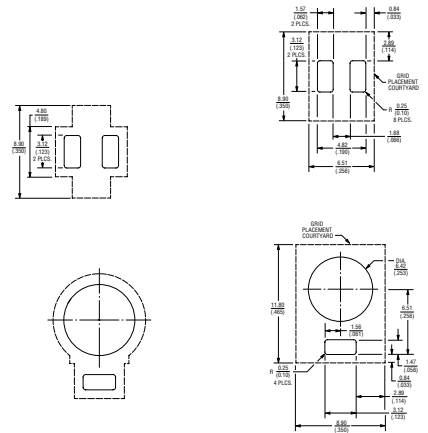


DIMENSIONS:  $\frac{\text{MM}}{\text{(INCHES)}}$

### Pad Layouts

**2015-xx--SMH-RPLF**

**2015-xx-SMC-RPLF**



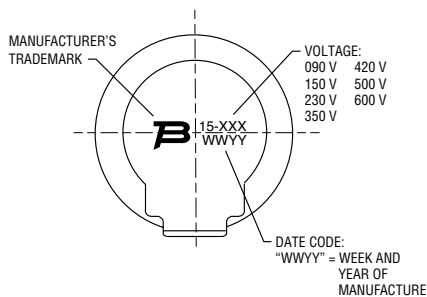
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**How to Order**

**2015 - xx - xxx - RP LF**

Series \_\_\_\_\_  
 Designator \_\_\_\_\_  
 2015 = 2-electrode GDT with FLAT® Technology, 5 kA 8/20  $\mu$ s rated  
 Voltage (Divided by 10) \_\_\_\_\_  
 09 = 90 V      42 = 420 V  
 15 = 150 V      50 = 500 V  
 23 = 230 V      60 = 600 V  
 35 = 350 V  
 Configuration \_\_\_\_\_  
 A = No Leads, (Clamp-Cartridge)  
 SMH = Horizontal Mount SMD  
 SMC = Vertical Mount SMD  
 Packaging \_\_\_\_\_  
 RP = Reelpack (Standard)  
 RoHS Compliancy \_\_\_\_\_  
 LF = RoHS Compliant Product

**Typical Part Marking**



OBSOLETE

# 2015 Series Gas Discharge Tube Surge Arrestor with FLAT® Technology

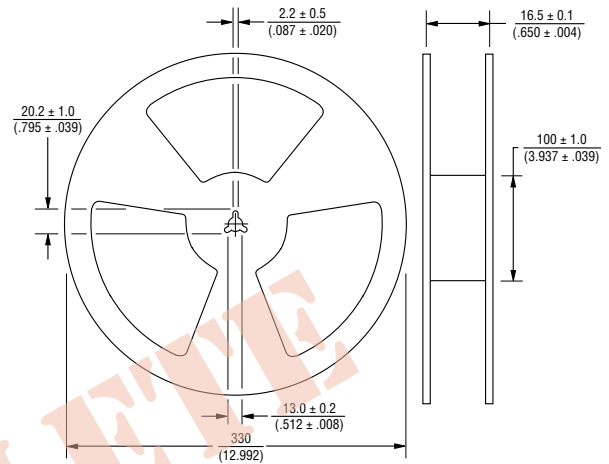
**BOURNS®**

## Packaging Specifications

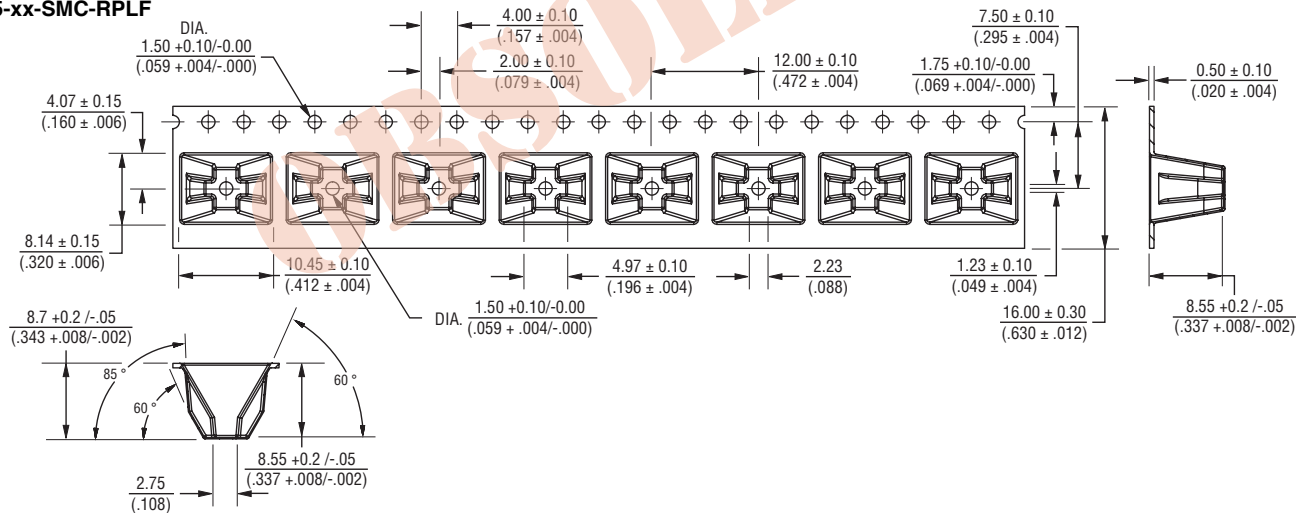
Model 2015-xx-SMC-RPLF: The standard tape and reel packaging contains 500 pieces per 13-inch reel.

Model 2015-xx-SMH-RPLF and 2015-xx-A-RPLF: The standard tape and reel packaging contains 2,000 pieces per 13-inch reel.

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

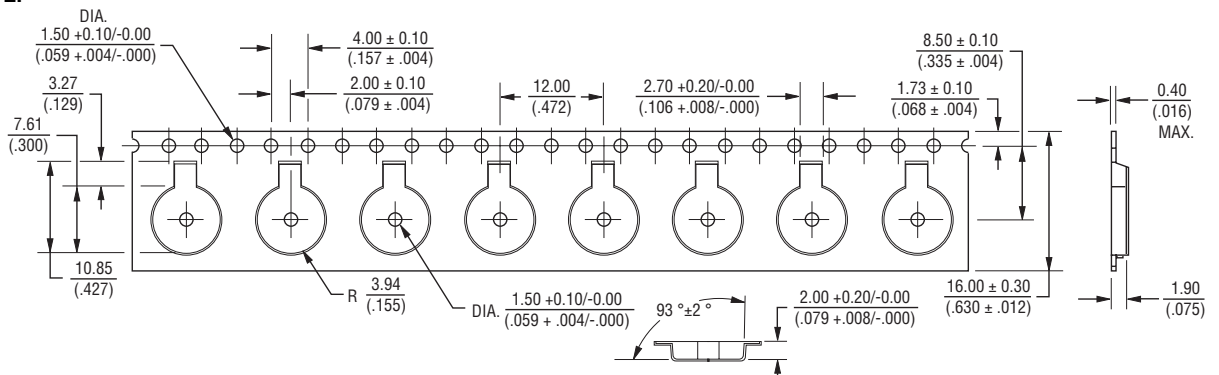


### 2015-xx-SMC-RPLF



### 2015-xx-SMH-RPLF

### 2015-xx-A-RPLF



REV. 05/16

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