



## Features

- Lead free as standard
- RoHS compliant\*
- Protects 1 line
- Bidirectional configuration
- ESD protection

## Applications

- Cell phones
- PDAs and notebooks
- Digital cameras
- MP3 players and GPS

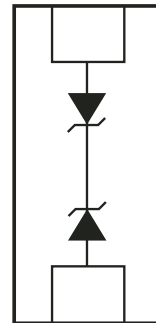
# CD0402-TxxC – TVS Diode Array Series

## General Information

The markets of portable communications, computing and video equipment are challenging the semiconductor industry to develop increasingly smaller electronic components.

Bourns offers Transient Voltage Suppressor Array diodes for surge and ESD protection applications, in 0402 chip package size format. The Transient Voltage Suppressor Array series offers a choice of voltage types ranging from 3 V to 36 V in a bidirectional configuration. Bourns® Chip Diodes conform to JEDEC standards, are easy to handle on standard pick and place equipment and their flat configuration minimizes roll away.

The Bourns® device will meet IEC 61000-4-2 (ESD), IEC 61000-4-4 (EFT) and IEC 61000-4-5 (Surge) requirements.



## Electrical & Thermal Characteristics (@ T<sub>A</sub> = 25 °C Unless Otherwise Noted)

Parameter	Symbol	Value	Unit
Peak Pulse Power (t <sub>p</sub> = 8/20 μs) <sup>1</sup>	P <sub>PP</sub>	250	W
Operating Temperature	T <sub>J</sub>	-55 °C to 150 °C	°C
Storage Temperature	T <sub>STG</sub>	-55 °C to 150 °C	°C

Parameter	Symbol	CD0402-							Unit
		T3.3C	T05C	T08C	T12C	T15C	T24C	T36C	
Min. Breakdown Voltage @ 1 mA	V <sub>BR</sub>	4.0	6.0	8.5	13.3	16.7	26.7	40.0	V
Working Peak Voltage	V <sub>WM</sub>	3.3	5.0	8.0	12.0	15.0	24.0	36.0	V
Maximum Clamping Voltage @ I <sub>p</sub> <sup>2</sup>	V <sub>F</sub>	7.0	11.0	13.4	19.0	24	43	64	V
Maximum Clamping Voltage @ 8/20 μs V <sub>C</sub> @ I <sub>PP</sub> <sup>2</sup>	V <sub>F</sub>	12.5 V @ 20 A	14.7 V @ 17 A	19.2 V @ 13 A	29.7 V @ 9 A	35.7 V @ 7 A	55 V @ 5 A	84 V @ 3 A	V
Maximum Leakage Current @ V <sub>WM</sub>	I <sub>b</sub>	75 <sup>3</sup>	10 <sup>4</sup>	10 <sup>5</sup>	1	1	1	1	μA
Typical Capacitance @ 0 V, 1 MHz	C	150	100	75	50	40	30	25	pF

### Notes:

1. See Peak Pulse Power vs. Pulse Time.
2. See Pulse Wave Form.
3. Max. Leakage Current <500 μA @ 2.8 V.
4. Max. Leakage Current <500 nA @ 3.3 V.
5. Max. Leakage Current <200 nA @ 5 V.

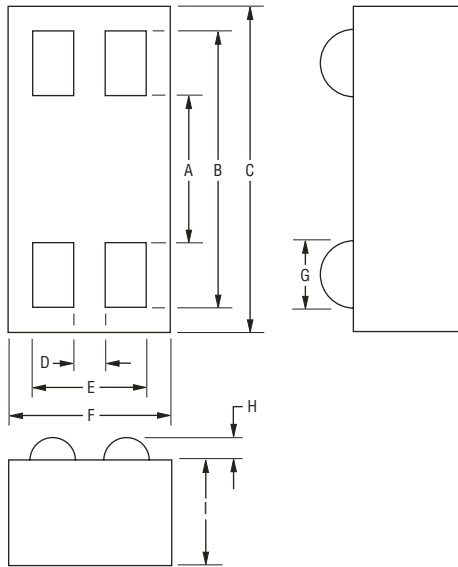
All devices are bidirectional. Electrical Characteristics apply in both directions.

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## Product Dimensions

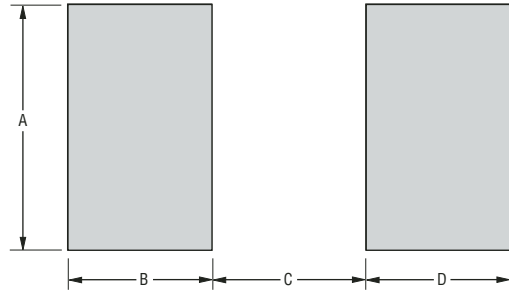
This is a 0402 package with lead free 100 % Sn plating on the bond pads. It weighs approximately 30 mg and has a flammability rating of UL 94V-0.



Dimensions	
A	$\frac{0.41 - 0.51}{0.016 - 0.020}$
B	$\frac{0.81 - 0.91}{0.032 - 0.036}$
C	$\frac{0.96 - 1.02}{0.038 - 0.040}$
D	$\frac{0.10}{0.004}$ NOM.
E	$\frac{0.35}{0.014}$ NOM.
F	$\frac{0.46 - 0.51}{0.018 - 0.020}$
G	$\frac{0.20}{0.008}$ NOM.
H	$\frac{0.076 - 0.127}{0.003 - 0.005}$
I	$\frac{0.401 - 0.411}{0.014 - 0.018}$

DIMENSIONS =  $\frac{\text{MILLIMETERS}}{\text{(INCHES)}}$

## Recommended Footprint



Dimensions (Nominal)	
A	$\frac{0.69}{0.027}$
B	$\frac{0.46}{0.018}$
C	$\frac{0.20}{0.008}$
D	$\frac{0.46}{0.018}$

DIMENSIONS =  $\frac{\text{MILLIMETERS}}{\text{(INCHES)}}$

## How To Order

**CD 0402 - T 05 C**

Common Code \_\_\_\_\_  
 Chip Diode \_\_\_\_\_

Package \_\_\_\_\_  
 • 0402 = 0402 Chip Package

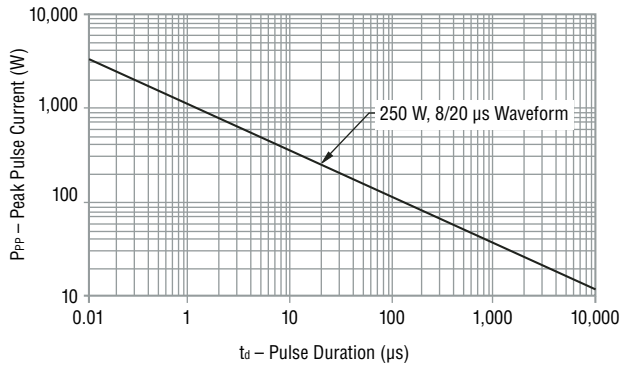
Model \_\_\_\_\_  
 T = Transient Voltage Suppressor

Working Peak Reverse Voltage \_\_\_\_\_  
 3.3 = 3.3 V<sub>RWM</sub> (Volts)  
 05 = 5 V<sub>RWM</sub> (Volts)  
 08 = 8 V<sub>RWM</sub> (Volts)  
 12 = 12 V<sub>RWM</sub> (Volts)  
 15 = 15 V<sub>RWM</sub> (Volts)  
 24 = 24 V<sub>RWM</sub> (Volts)  
 36 = 36 V<sub>RWM</sub> (Volts)

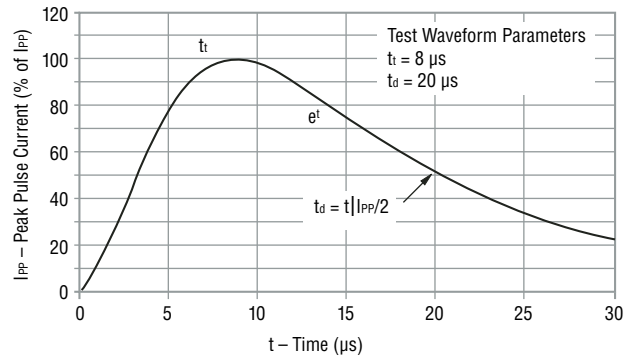
Suffix \_\_\_\_\_  
 C = Bidirectional Diode

Performance Graphs

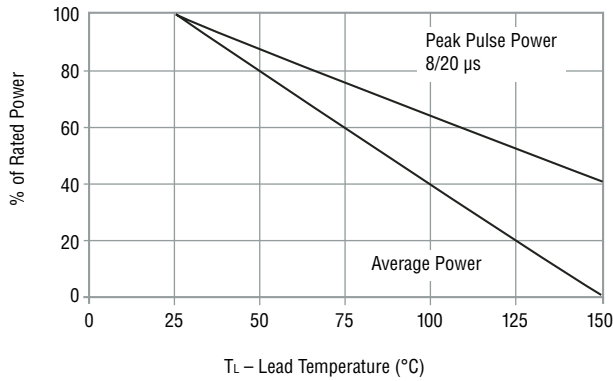
Peak Pulse Power vs Pulse Time



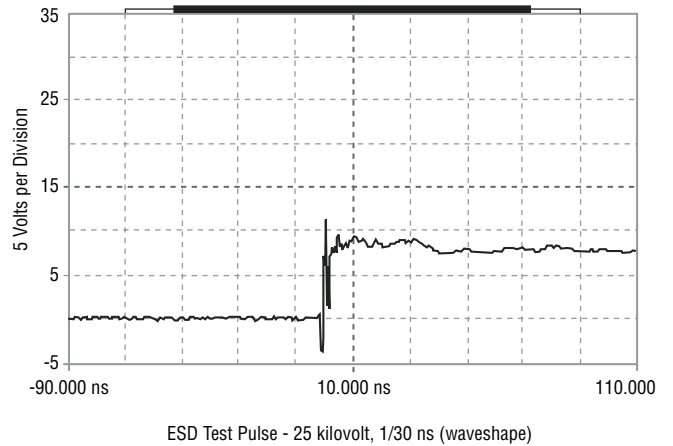
Pulse Wave Form



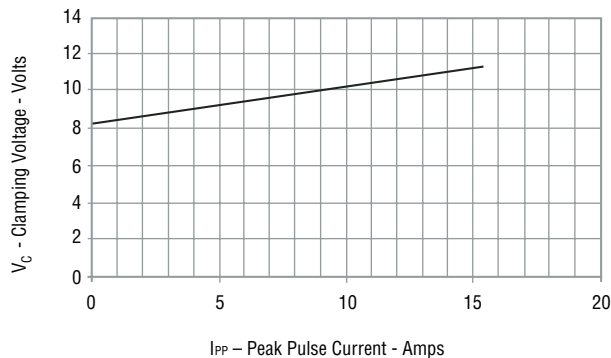
Power Derating Curve



Overshoot & Clamping Voltage



Typical Clamping Voltage vs. Peak Pulse Current

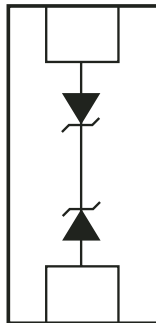


Specifications are subject to change without notice. Customers should verify actual device performance in their specific applications.

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## Block Diagram

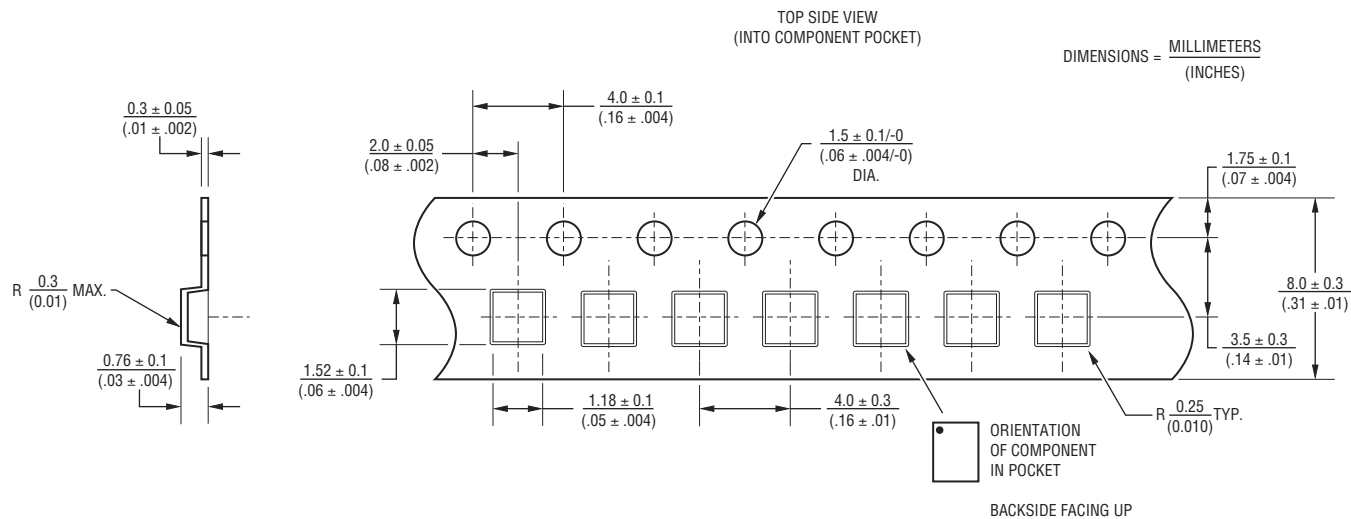


## Typical Part Marking

There is no part marking on the back side of the devices. The part number for the device is located on the Tape and Reel label.

## Packaging

The surface mount product is packaged in an 8 mm x 4 mm Tape and Reel format per EIA-481 standard.



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