



## Features

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

## Applications

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

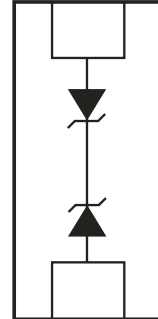
## CD0402-TxxLC – TVS Diode Array Series

### 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
		T3.3LC	T05LC	T08LC	T12LC	T15LC	T24LC	T36LC	
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 @ 16 A	13.5 V @ 15 A	18 V @ 11 A	26.9 V @ 7.4 A	34.5 V @ 5.8 A	50.6 V @ 5 A	80 V @ 2.5 A	V
Maximum Leakage Current @ V <sub>WM</sub>	I <sub>0</sub>	75 <sup>3</sup>	10 <sup>4</sup>	1	1	1	1	1	μA
Typical Capacitance @ 0 V, 1 MHz	C	70	35	32	30	25	20	18	pF

Notes:

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

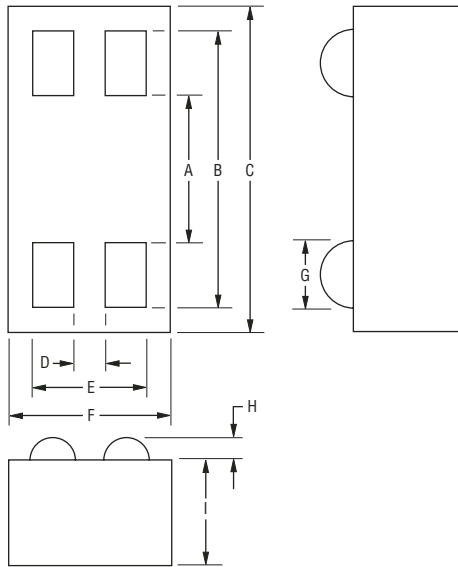
All devices are bidirectional. Electrical Characteristics apply in both directions.

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### Product Dimensions

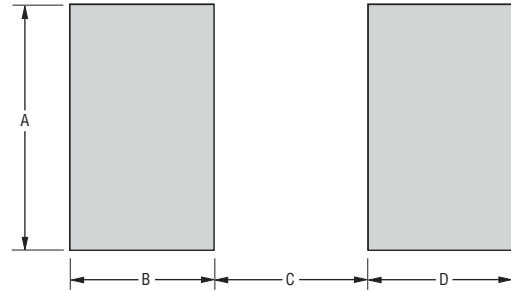
This is a 0402 package with lead free 100 % Sn plating on the bond pads. It weighs approximately 30 mg and has a flammability rating of UL 94V-0.



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

Common Code \_\_\_\_\_ **CD 0402 - T 05 LC**

Chip Diode

Package \_\_\_\_\_

- 0402 = 0402 Chip Package

Model \_\_\_\_\_

T = Transient Voltage Suppressor

Working Peak Reverse Voltage \_\_\_\_\_

- 3.3 = 3.3  $V_{RWM}$  (Volts)
- 05 = 5  $V_{RWM}$  (Volts)
- 08 = 8  $V_{RWM}$  (Volts)
- 12 = 12  $V_{RWM}$  (Volts)
- 15 = 15  $V_{RWM}$  (Volts)
- 24 = 24  $V_{RWM}$  (Volts)
- 36 = 36  $V_{RWM}$  (Volts)

Suffix \_\_\_\_\_

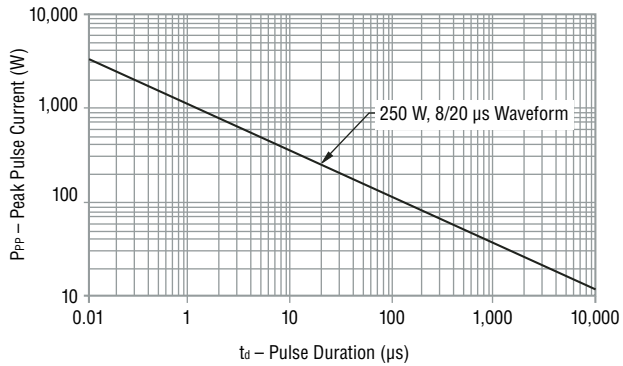
LC = Low Capacitance Bidirectional Diode

# CD0402-TxxLC – TVS Diode Array Series

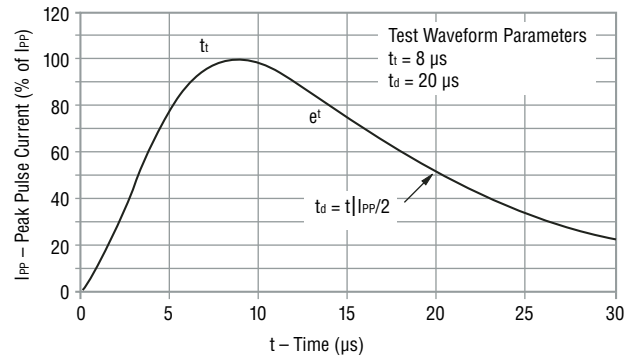
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## Performance Graphs

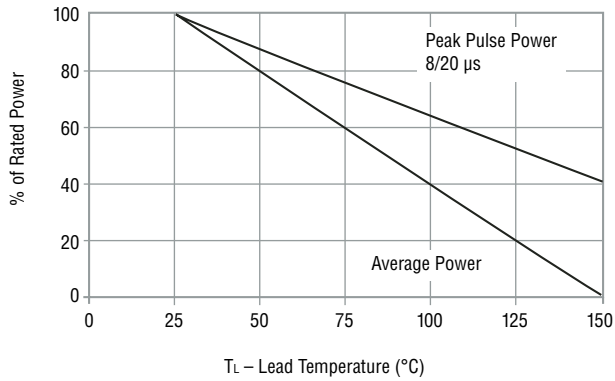
### Peak Pulse Power vs Pulse Time



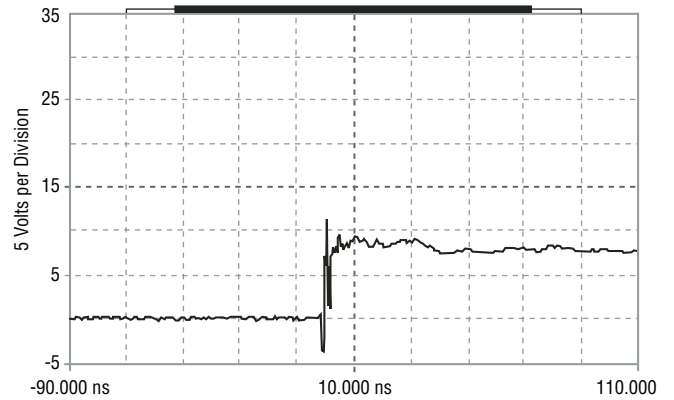
### Pulse Wave Form



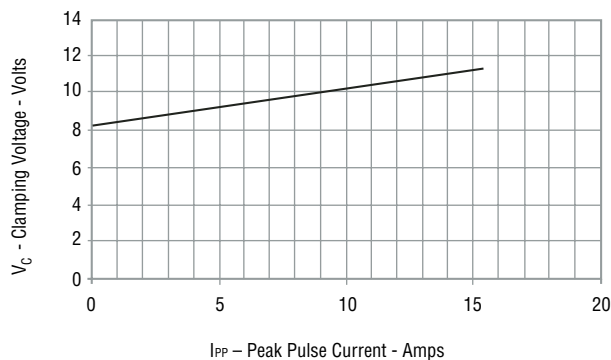
### Power Derating Curve



### Overshoot & Clamping Voltage



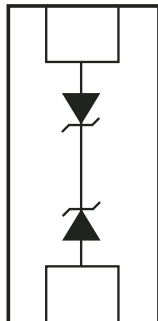
### Typical Clamping Voltage vs. Peak Pulse Current



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### Block Diagram

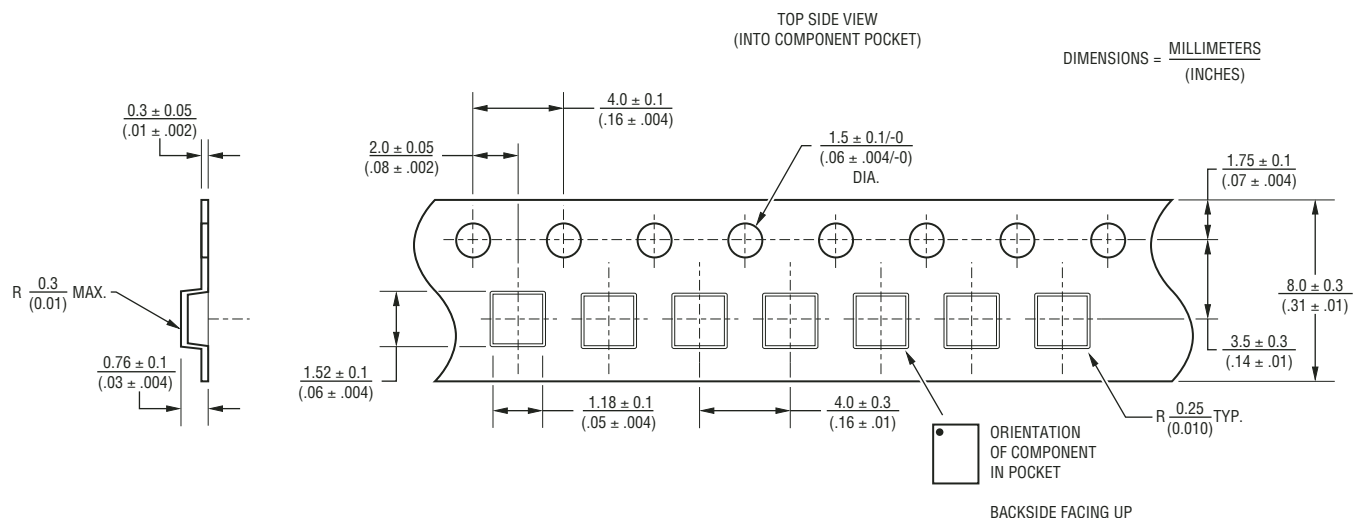


### Typical Part Marking

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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[www.bourns.com](http://www.bourns.com)

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

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