

## **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

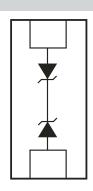
# CD0402-TxxLC - TVS Diode Array Series

#### **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 Supressor 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 (@ TA = 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

		CD0402-							
Parameter	Symbol	T3.3LC	T05LC	T08LC	T12LC	T15LC	T24LC	T36LC	Unit
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	Vwм	3.3	5.0	8.0	12.0	15.0	24.0	36.0	V
Maximum Clamping Voltage @ Ip²	VF	7.0	11.0	13.4	19.0	24	43	64	V
Maximum Clamping Voltage @ 8/20 μs V <sub>C</sub> @ Ipp²	VF	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>	ΙD	75³	10⁴	1	1	1	1	1	μΑ
Typical Capacitance @ 0 V, 1 MHz	С	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.

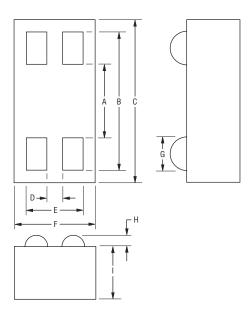
All devices are bidirectional. Electrical Characteristics apply in both directions.

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# BOURNS®

### **Product Dimensions**

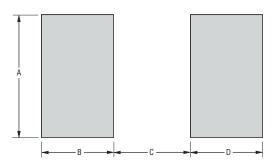
This is a 0402 package with lead free 100 % Sn plating on the bond pads. It weighs approximately 30 mg and has a flammability rating of UL 94V-0.



Dimensions			
А	0.41 - 0.51 0.016 - 0.020		
В	0.81 - 0.91 0.032 - 0.036		
С	0.96 - 1.02 0.038 - 0.040		
D	$\frac{0.10}{0.004}$ NOM.		
E	$\frac{0.35}{0.014}$ NOM.		
F	0.46 - 0.51 0.018 - 0.020		
G	0.20 0.008 NOM.		
Н	<u>0.076 - 0.127</u> <u>0.003 - 0.005</u>		
I	0.401 - 0.411 0.014 - 0.018		

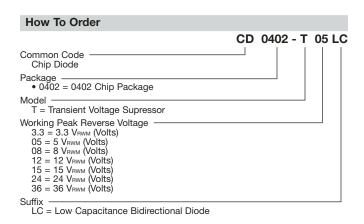
 $\mathsf{DIMENSIONS} = \frac{\mathsf{MILLIMETERS}}{(\mathsf{INCHES})}$ 

#### **Recommended Footprint**



Dimensions (Nominal)			
А	0.69 0.027		
В	0.46 0.018		
С	0.20 0.008		
D	<u>0.46</u> 0.018		

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

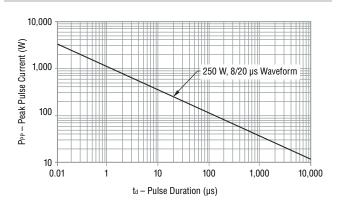


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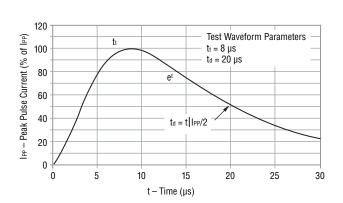
# **BOURNS®**

### **Performance Graphs**

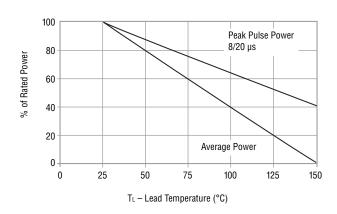
# **Peak Pulse Power vs Pulse Time**



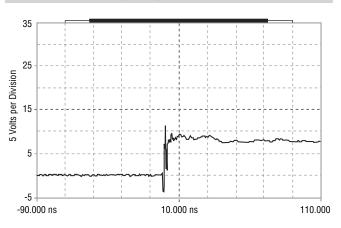
# **Pulse Wave Form**



### **Power Derating Curve**

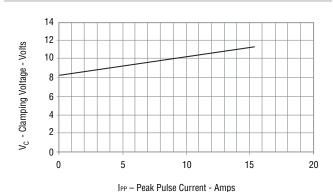


# **Overshoot & Clamping Voltage**



## ESD Test Pulse - 25 kilovolt, 1/30 ns (waveshape)

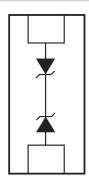
# Typical Clamping Voltage vs. Peak Pulse Current



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### **Block Diagram**

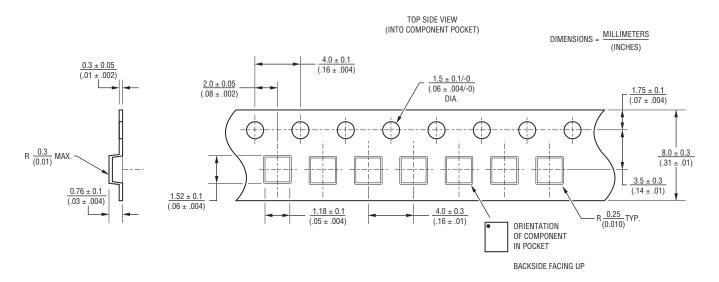


#### **Typical Part Marking**

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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