



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

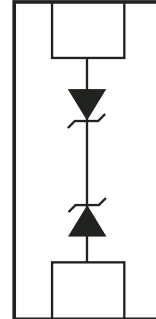
CD0402-TxxC – TVS Diode Array Series

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 (@ $T_A = 25^\circ\text{C}$ Unless Otherwise Noted)

Parameter	Symbol	Value	Unit
Peak Pulse Power ($t_p = 8/20 \mu\text{s}$) ¹	P_{PP}	250	W
Operating Temperature	T_J	-55 °C to 150 °C	°C
Storage Temperature	T_{STG}	-55 °C to 150 °C	°C

Parameter	Symbol	CD0402-							Unit
		T3.3C	T05C	T08C	T12C	T15C	T24C	T36C	
Min. Breakdown Voltage @ 1 mA	V_{BR}	4.0	6.0	8.5	13.3	16.7	26.7	40.0	V
Working Peak Voltage	V_{WM}	3.3	5.0	8.0	12.0	15.0	24.0	36.0	V
Maximum Clamping Voltage @ I_P^2	V_F	7.0	11.0	13.4	19.0	24	43	64	V
Maximum Clamping Voltage @ 8/20 μs V_C @ I_{PP}^2	V_F	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_{WM}	I_D	75^3	10^4	10^5	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.

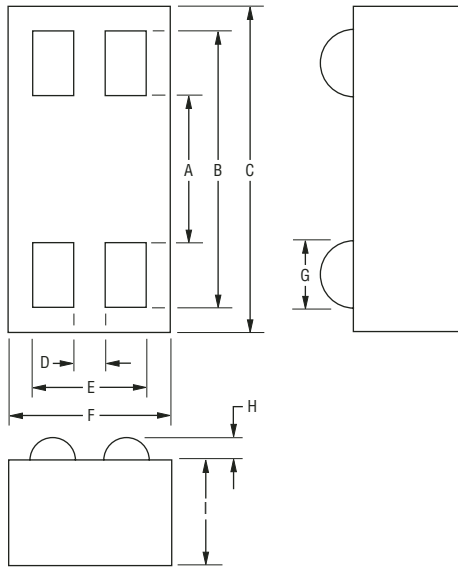
All devices are bidirectional. Electrical Characteristics apply in both directions.

CD0402-TxxC – TVS Diode Array Series

BOURNS®

Product Dimensions

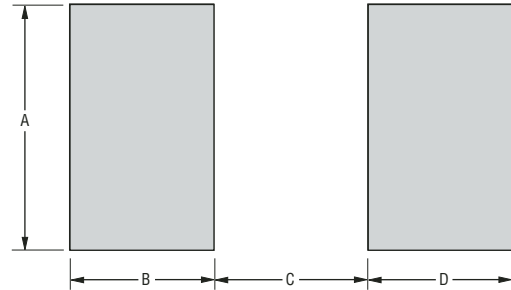
This is a 0402 package with lead free 100 % Sn plating on the bond pads. It weighs approximately 30 mg and has a flammability rating of UL 94V-0.



Dimensions	
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

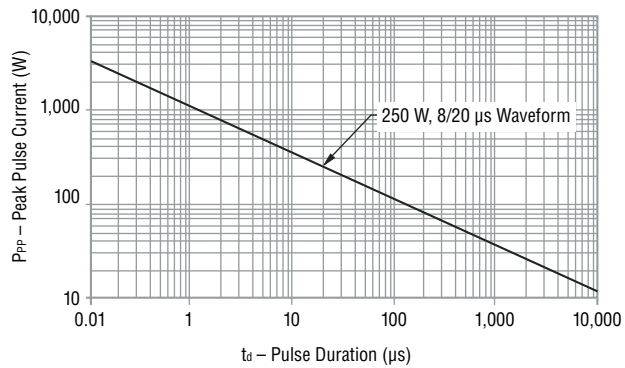
Common Code CD 0402 - T 05 C
 Chip Diode
 Package • 0402 = 0402 Chip Package
 Model T = Transient Voltage Suppressor
 Working Peak Reverse Voltage 3.3 = 3.3 V_{RWM} (Volts)
05 = 5 V_{RWM} (Volts)
08 = 8 V_{RWM} (Volts)
12 = 12 V_{RWM} (Volts)
15 = 15 V_{RWM} (Volts)
24 = 24 V_{RWM} (Volts)
36 = 36 V_{RWM} (Volts)
 Suffix C = Bidirectional Diode

CD0402-TxxC – TVS Diode Array Series

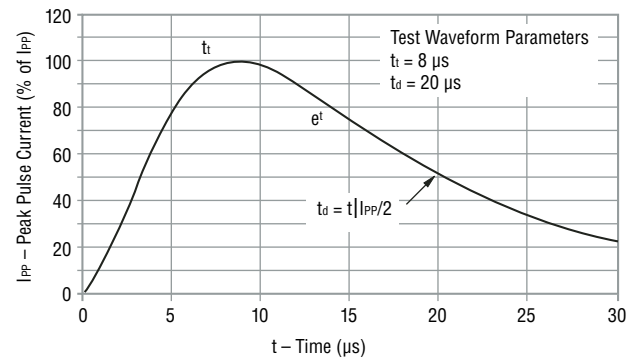
BOURNS®

Performance Graphs

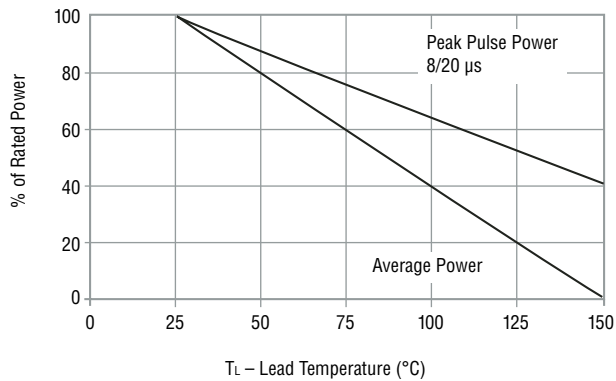
Peak Pulse Power vs Pulse Time



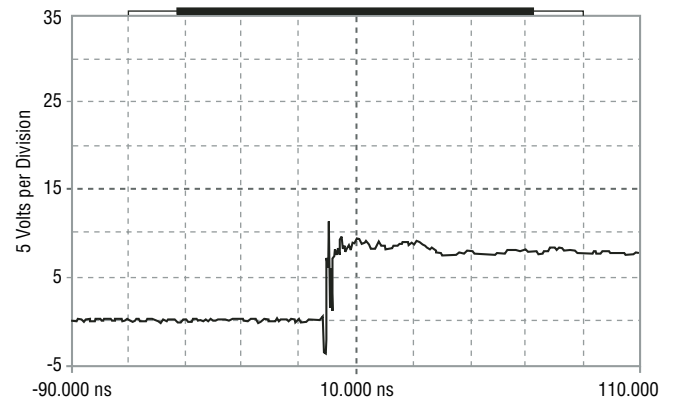
Pulse Wave Form



Power Derating Curve

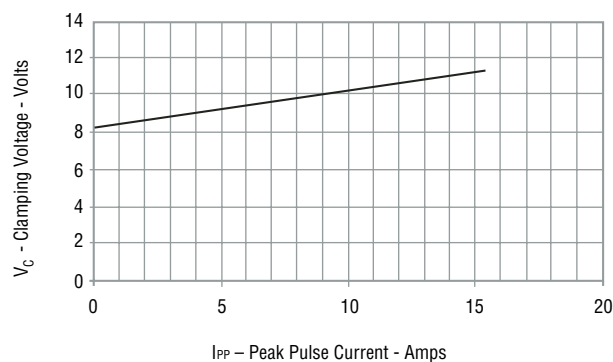


Overshoot & Clamping Voltage



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

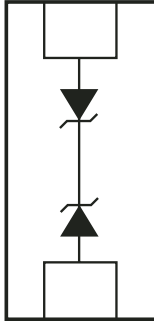
Typical Clamping Voltage vs. Peak Pulse Current



CD0402-TxxC – TVS Diode Array Series

BOURNS®

Block Diagram

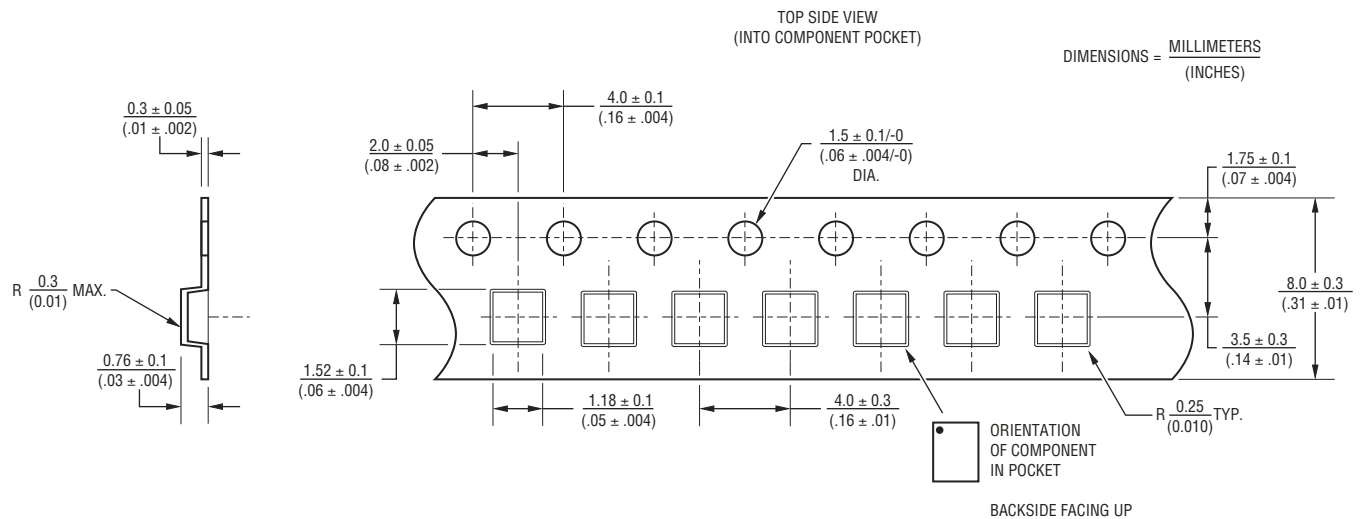


Typical Part Marking

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.



Reliable Electronic Solutions

Asia-Pacific:

Tel: +886-2 2562-4117 • Fax: +886-2 2562-4116

Europe:

Tel: +41-41 768 5555 • Fax: +41-41 768 5510

The Americas:

Tel: +1-951 781-5500 • Fax: +1-951 781-5700

www.bourns.com

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

COPYRIGHT© 2005, BOURNS, INC. LITHO IN U.S.A., IPA0524 10/05