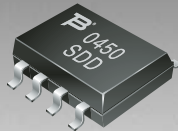


\*RoHS COMPLIANT



**BOURNS®**

## Features

- Lead free as standard
- RoHS compliant\*
- Protects 4 lines
- Unidirectional & bidirectional configurations
- ESD protection > 40 KV

## Applications

- Audio/video inputs
- RS-232, RS-422 & RS-423 data lines
- Portable electronics
- Medical sensors

## CDNBS08-T03~T36C – TVS Diode Array Series

### General Information

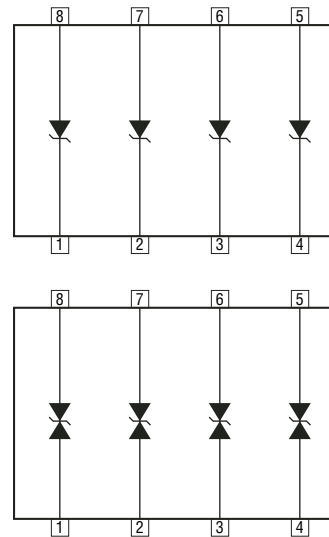
The markets of portable communications, computing and video equipment are challenging the semiconductor industry to develop increasingly smaller electronic components.

Bourns offers Transient Voltage Suppressor Array diodes for surge and ESD protection applications, in 8 lead narrow body SOIC package size format. The Transient Voltage Suppressor Array series offer a choice of voltage types ranging from 3 V to 36 V in unidirectional and bidirectional configurations. 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.

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

Parameter	Symbol	Max.	Unit
Operating Temperature	T <sub>J</sub>	-55 to +150	°C
Storage Temperature	T <sub>STG</sub>	-55 to +150	°C



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

Parameter	Symbol	CDNBS08-														Unit
		Uni-	Bi-	Uni-	Bi-	Uni-	Bi-	Uni-	Bi-	Uni-	Bi-	Uni-	Bi-	Uni-	Bi-	
		T03	T03C	T05	T05C	T08	T08C	T12	T12C	T15	T15C	T24	T24C	T36	T36C	
Breakdown Voltage @ 1 mA	V <sub>BR</sub>	3.3		6.0		8.5		13.3		16.7		26.7		40.0		V
Working Peak Voltage	V <sub>WM</sub>	3.0		5.0		8.0		12.0		15.0		24.0		36.0		V
Maximum Clamping Voltage V <sub>C</sub> @ I <sub>p</sub> <sup>1</sup>	V <sub>F</sub>	4.0		9.8		13.4		19.0		24.0		43.0		51.0		V
Maximum Clamping Voltage @ 8/20 μs V <sub>C</sub> @ I <sub>pp</sub> <sup>1</sup>	V <sub>F</sub>	10.9 V @ 43 A		13.5 V @ 42 A		16.9 V @ 34 A		25.9 V @ 27 A		30.0 V @ 17 A		49.0 V @ 12 A		76.8 V @ 9 A		V
Maximum Leakage Current @ V <sub>WM</sub>	I <sub>D</sub>	125		20		10		1		1		1		1		μA
Maximum Cap Unidirectional @ 0 V, 1 MHz	C <sub>ij(SD)</sub>	800		550		500		185		140		88		80		pF
Maximum Cap Bidirectional @ 0 V, 1 MHz	C <sub>ij(SD)</sub>	450		308		300		105		80		50		45		pF
Peak Pulse Power (tp = 8/20 μs) <sup>2</sup>	P <sub>PP</sub>	500														W
Forward Voltage @ 100 mA, 300 μs – Square Wave <sup>3</sup>	V <sub>F</sub>	1.5														V

Notes:

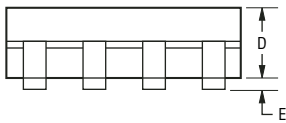
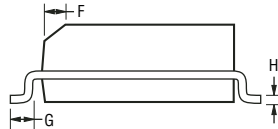
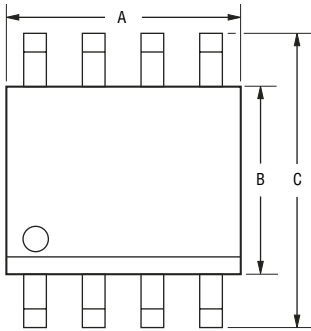
1. See Pulse Wave Form.
2. See Peak Pulse Power vs. Pulse Time.
3. Only applies to unidirectional devices.
4. Part numbers with a "C" suffix are bidirectional devices, i.e. CDNBS08-T03C.

# CDNBS08-T03~T36C – TVS Diode Array Series



## Product Dimensions

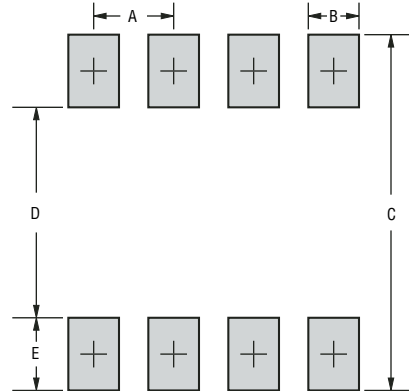
This is a molded JEDEC narrow body SO-8 package with lead free 100 % Sn plating on the lead frame. It weighs approximately 15 mg and has a flammability rating of UL 94V-0.



DIMENSIONS =  $\frac{\text{MILLIMETERS}}{25.4}$  (INCHES)

Dimensions	
A	$\frac{4.80 - 5.00}{(0.189 - 0.196)}$
B	$\frac{3.80 - 4.00}{(0.150 - 0.157)}$
C	$\frac{5.80 - 6.20}{(0.229 - 0.244)}$
D	$\frac{1.35 - 1.75}{(0.054 - 0.068)}$
E	$\frac{0.10 - 0.25}{(0.004 - 0.008)}$
F	$\frac{0.25 - 0.50}{(0.010 - 0.019)}$
G	$\frac{0.40 - 1.250}{(0.016 - 0.049)}$
H	$\frac{0.18 - 0.25}{(0.007 - 0.009)}$

## Recommended Footprint



Dimensions	
A	$\frac{1.143 - 1.397}{(0.045 - 0.055)}$
B	$\frac{0.635 - 0.889}{(0.025 - 0.035)}$
C	$\frac{6.223}{(0.245)}$ Min.
D	$\frac{3.937 - 4.191}{(0.155 - 0.165)}$
E	$\frac{1.016 - 1.27}{(0.040 - 0.050)}$

## How To Order

**CD NBS08 - T 03 C**

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

Package \_\_\_\_\_  
 • NBS08 = Narrow Body SOIC8 Package

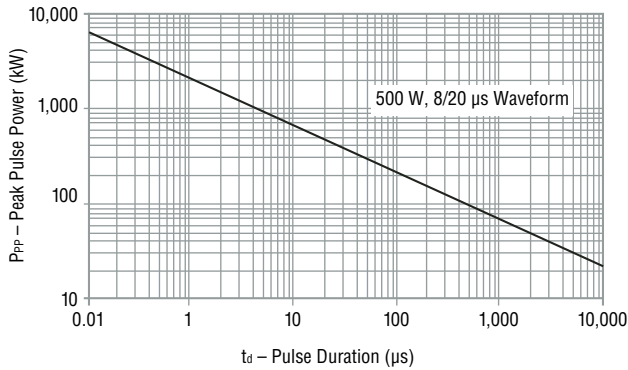
Model \_\_\_\_\_  
 T = Transient Voltage Suppressor

Working Peak Voltage \_\_\_\_\_  
 3 = 3 V<sub>RWM</sub> (Volts)

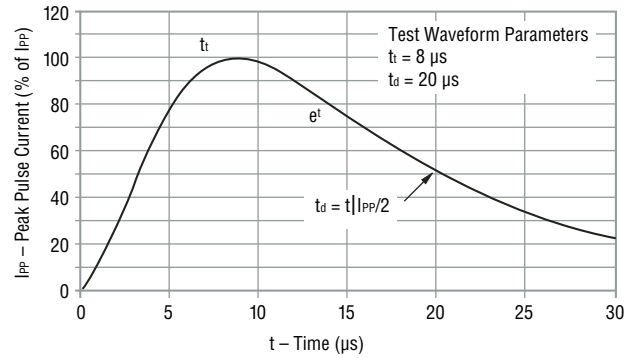
Suffix \_\_\_\_\_  
 C = Bidirectional Diode

**Performance Graphs**

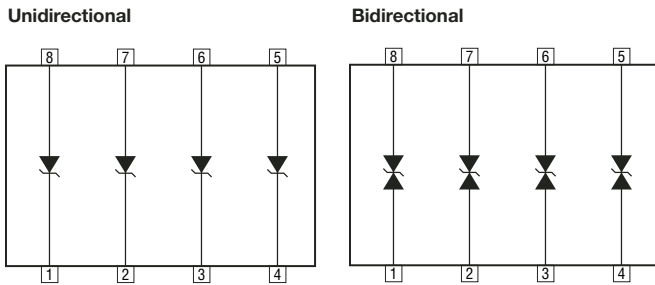
**Peak Pulse Power vs Pulse Time**



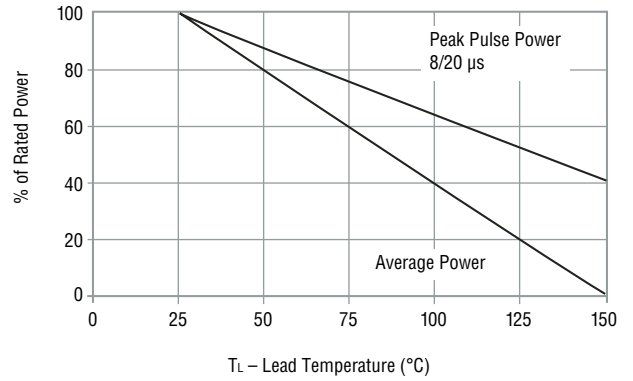
**Pulse Wave Form**



**Block Diagram**



**Power Derating Curve**



**Device Pinout**

Pin	Function
1	I/O 1
2	I/O 2
3	I/O 3
4	I/O 4
5	GND
6	GND
7	GND
8	GND

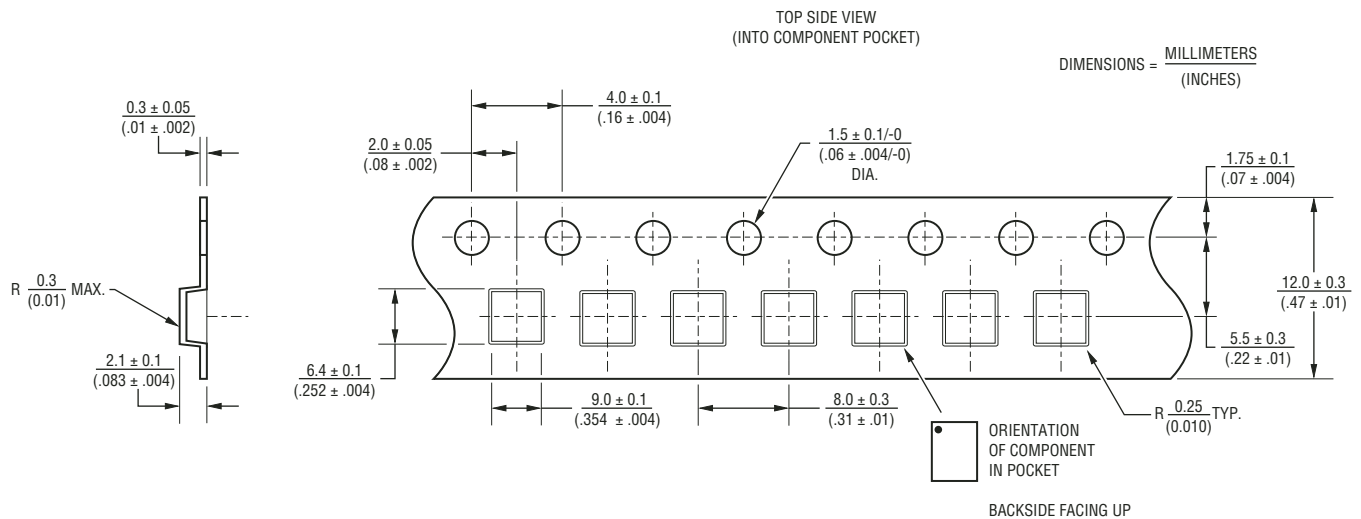
\*RoHS Directive 2002/95/EC Jan 27 2003 including Annex Specifications are subject to change without notice. Customers should verify actual device performance in their specific applications.

# CDNBS08-T03~T36C – TVS Diode Array Series

# BOURNS®

## Packaging

The surface mount product is packaged in a 12 mm x 8 mm Tape and Reel format per EIA-481 standard.



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