

### Features

- RoHS compliant\*
- Protects up to six lines
- Bidirectional configuration
- ESD protection: 30 kV max.
- Low capacitance: 15 pF

### Applications

- Ethernet - 10/100 Base T
- Computer I/O ports - SCSI, FireWire and USB
- Set-top box protection
- Video cards

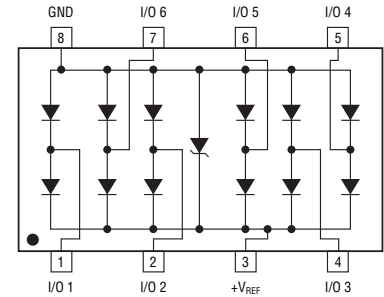
## CDNBS08-SRDAXX-6 - Steering Diode/TVS Array Combo

### General Information

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

Bourns offers Steering Diode/Transient Voltage Suppressor Array combination diodes for surge and ESD protection applications in an eight lead narrow body SOIC package size format. 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 Characteristics (@ T<sub>A</sub> = 25 °C Unless Otherwise Noted)

Parameter	Symbol	CDNBS08-		Unit
		SRDA3.3-6	SRDA05-6	
Minimum Breakdown Voltage @ 1 mA	V <sub>BR</sub>	4.0	6.0	V
Working Peak Voltage	V <sub>WM</sub>	3.3	5.0	V
Maximum Clamping Voltage V <sub>C</sub> @ I <sub>p</sub>	V <sub>C</sub>	8.0	9.8	V
Maximum Clamping Voltage @ 8/20 μs V <sub>C</sub> @ I <sub>pp</sub>	V <sub>C</sub>	10.9 V @ 43 A	13.5 V @ 42 A	V
Maximum Leakage Current @ V <sub>WM</sub>	I <sub>D</sub>	125	20	μA
Maximum Cap. Bidirectional @ 0 V, 1 MHz	C <sub>J(SD)</sub>	15		pF
ESD Protection per IEC 61000-4-2 Contact - Min. Contact - Max. Air - Min. Air - Max.	ESD	±8 ±30 ±15 ±30		kV
Peak Pulse Power (t <sub>p</sub> = 8/20 μs) <sup>1</sup>	P <sub>PP</sub>	500		W
Continuous Power Dissipation	P <sub>PC</sub>	1		W
Maximum Forward Voltage @ 10 mA	V <sub>F</sub>	1.1		V

Notes:

1. See Peak Pulse Power vs. Pulse Time.
2. Capacitance measured at V<sub>WM</sub> = V<sub>CC</sub> connected between I/O pins to pin 8 and 5 (Gnd). V<sub>R</sub> = V<sub>WM</sub> @ 1 MHz.

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

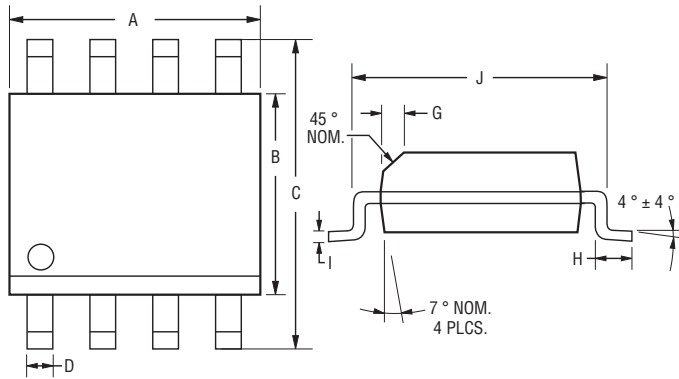
Parameter	Symbol	Max.	Unit
Operating Temperature	T <sub>J</sub>	-55 to +150	°C
Storage Temperature	T <sub>STG</sub>	-55 to +150	°C

# CDNBS08-SRDAxx-6 - Steering Diode/TVS Array Combo

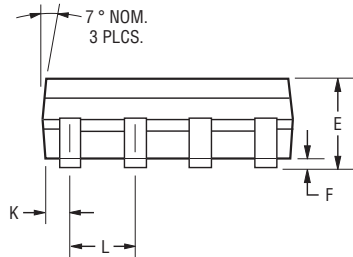


## Product Dimensions

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

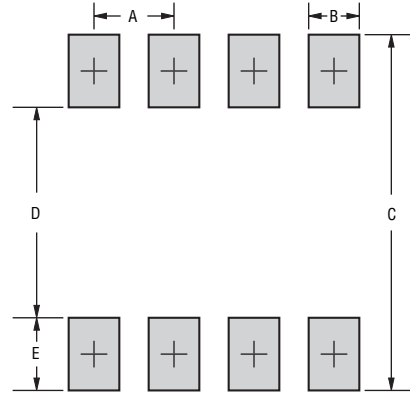


DIMENSIONS =  $\frac{\text{MILLIMETERS}}{\text{(INCHES)}}$



Dimensions	
A	$\frac{4.80 - 5.00}{(0.189 - 0.197)}$
B	$\frac{3.81 - 4.00}{(0.150 - 0.157)}$
C	$\frac{5.80 - 6.20}{(0.228 \pm 0.244)}$
D	$\frac{0.36 - 0.51}{(0.014 - 0.020)}$
E	$\frac{1.35 - 1.75}{(0.053 - 0.069)}$
F	$\frac{0.102 - 0.203}{(0.004 - 0.008)}$
G	$\frac{0.25 - 0.50}{(0.010 - 0.020)}$
H	$\frac{0.51 - 1.12}{(0.020 - 0.044)}$
I	$\frac{0.190 - 0.229}{(0.0075 - 0.0090)}$
J	$\frac{4.60 - 5.21}{(0.181 - 0.205)}$
K	$\frac{0.28 - 0.79}{(0.011 - 0.031)}$
L	$\frac{1.27}{(0.050)}$

## Recommended Footprint



Dimensions	
A	$\frac{1.143 - 1.397}{(0.045 - 0.065)}$
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	$\frac{1.016 - 1.27}{(0.040 - 0.050)}$

## Typical Part Marking

CDNBS08-SRDA3.3-6..... SGG  
 CDNBS08-SRDA05-6..... SGH

## How to Order

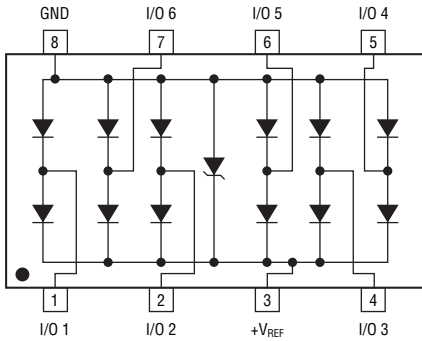
**CD NBS08 - SRDA 3.3 - 6**

Common Code \_\_\_\_\_  
 Chip Diode \_\_\_\_\_  
 Package \_\_\_\_\_  
 NBS08 = Narrow Body SOIC8 Package  
 Model \_\_\_\_\_  
 SRDA = Steering/TVS Diode Array  
 Working Peak Reverse Voltage \_\_\_\_\_  
 3.3 = 3.3 V<sub>RWM</sub> (Volts)  
 05 = 5.0 V<sub>RWM</sub> (Volts)  
 Number of Protection Lines \_\_\_\_\_  
 6 = 6 Lines

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

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## Block Diagram

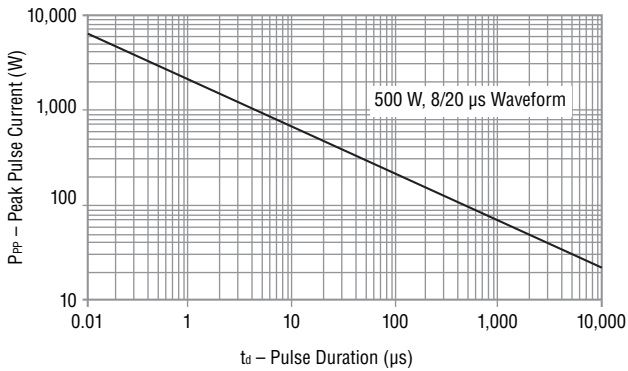


## Device Pinout

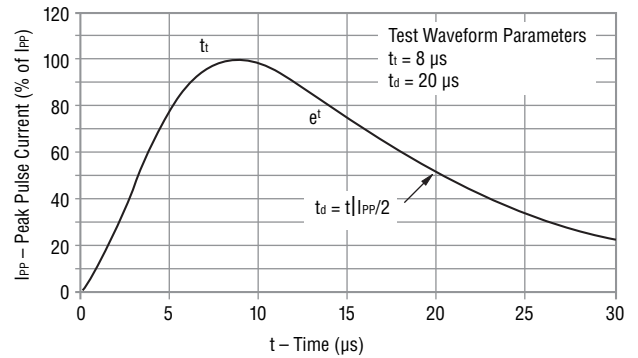
Pin	Function
1	I/O 1
2	I/O 2
3	+V <sub>REF</sub>
4	I/O 3
5	I/O 4
6	I/O 5
7	I/O 6
8	GND

## Performance Graphs

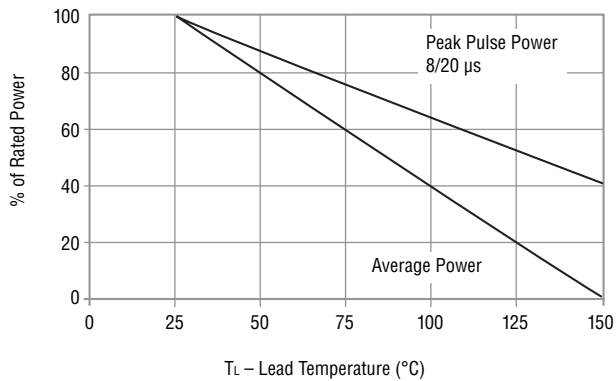
### Peak Pulse Power vs Pulse Time



### Pulse Waveform



### Power Derating Curve



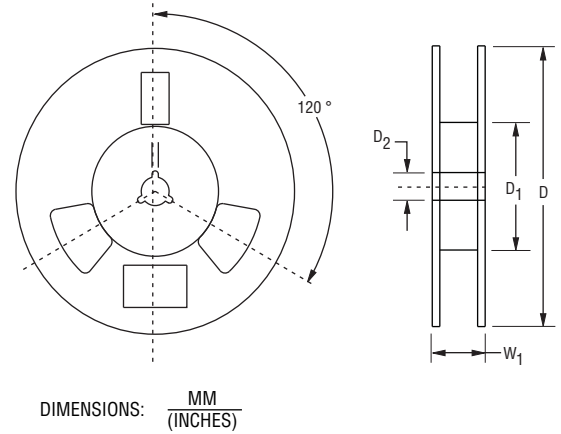
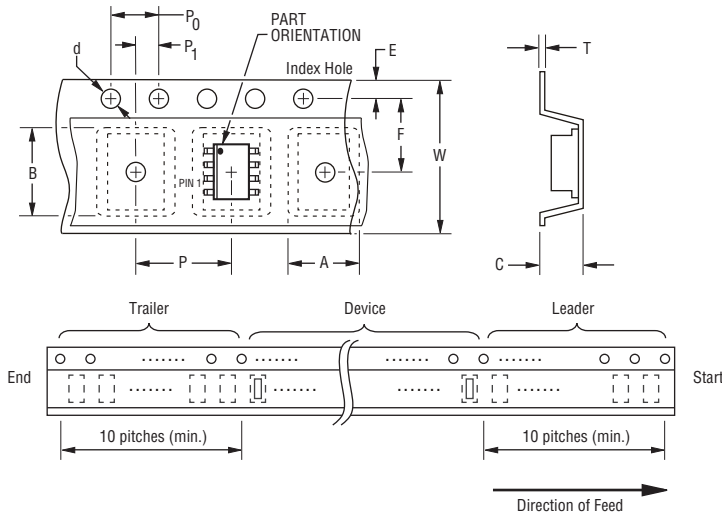
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# CDNBS08-SRDAXx-6 - Steering Diode/TVS Array Combo

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## Packaging Information

The product is packaged in tape and reel format per EIA-481 standard.



DIMENSIONS:  $\frac{\text{MM}}{\text{(INCHES)}}$

Item	Symbol	NSOIC 8L
Carrier Width	A	$\frac{6.7 \pm 0.10}{(0.264 \pm 0.004)}$
Carrier Length	B	$\frac{5.5 \pm 0.10}{(0.217 \pm 0.004)}$
Carrier Depth	C	$\frac{2.10 \pm 0.10}{(0.083 \pm 0.004)}$
Sprocket Hole	d	$\frac{1.55 \pm 0.05}{(0.061 \pm 0.002)}$
Reel Outside Diameter	D	$\frac{330}{(12.992)}$
Reel Inner Diameter	D <sub>1</sub>	$\frac{80.0}{(3.1500)}$ MIN.
Feed Hole Diameter	D <sub>2</sub>	$\frac{13.0 \pm 0.20}{(0.512 \pm 0.008)}$
Sprocket Hole Position	E	$\frac{1.75 \pm 0.10}{(0.069 \pm 0.004)}$
Punch Hole Position	F	$\frac{3.50 \pm 0.05}{(0.138 \pm 0.002)}$
Punch Hole Pitch	P	$\frac{8.00 \pm 0.10}{(0.315 \pm 0.004)}$
Sprocket Hole Pitch	P <sub>0</sub>	$\frac{4.00 \pm 0.10}{(0.157 \pm 0.004)}$
Embossment Center	P <sub>1</sub>	$\frac{2.00 \pm 0.05}{(0.079 \pm 0.002)}$
Overall Tape Thickness	T	$\frac{0.20 \pm 0.10}{(0.008 \pm 0.004)}$
Tape Width	W	$\frac{12.00 \pm 0.20}{(0.472 \pm 0.008)}$
Reel Width	W <sub>1</sub>	$\frac{18.4}{(0.724)}$ MAX.
Quantity per Reel	--	2500

**BOURNS®**

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REV. 12/12

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