

## Features

- Lead free device (RoHS compliant\*)
- ESD protection >40 kV
- Protects 6 lines
- Low capacitance ~5 pF

## Applications

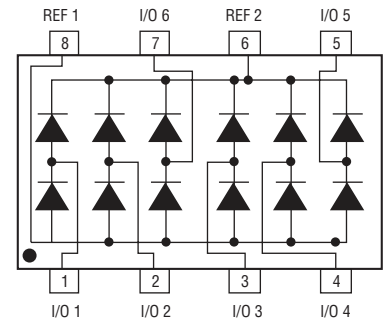
- Ethernet ports
- Portable electronics
- Wireless LANs
- USB interface

# CDNBS08-SR112 - Steering Diode Array

### General Information

The CDNBS08-SR112 device provides ESD, EFT and Surge protection for external ports meeting IEC 61000-4-2 (ESD), IEC 61000-4-4 (EFT) and IEC 61000-4-5 (Surge) requirements.

The steering diode array provides up to 6 lines of protection using the “rail to rail” clamping technique with low leakage current and low capacitance per line. The device is available in a JEDEC SO-8 package and is intended to be mounted directly onto an FR4 printed circuit board.



### Absolute Maximum Ratings (@ T<sub>A</sub> = 25 °C Unless Otherwise Noted)

Parameter	Symbol	Value	Unit
Power Dissipation - Continuous	P <sub>PD</sub>	145	mW
Storage Temperature	T <sub>STG</sub>	-55 to 150	°C
Operating Temperature	T <sub>OPR</sub>	-55 to 150	°C

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

Parameter	Symbol	Value	Unit	
Typical Forward Voltage @ 50 mA	V <sub>F</sub>	1.3	V	
Repetitive Peak Reverse Voltage (NOTE 1)	V <sub>RRM</sub>	20	V	
Maximum Peak Pulse Current @ 8/20 μS	I <sub>FM</sub>	12	A	
Maximum Leakage Current @ 18 V	I <sub>R</sub>	20	nA	
Maximum Quiescent Supply Current @ 20 V	V <sub>M</sub>	200	nA	
Typical Junction Capacitance @ 0 V 1 MHz (NOTE 2)	I <sub>Q</sub>	5	pF	
ESD Protection per IEC 61000-4-2	C <sub>J</sub>	Minimum Contact Discharge	±8	kV
		Minimum Air Discharge	±15	kV
EFT Protection per IEC 61000-4-4 @ 5/50 ns		40	A	
Surge Protection per IEC 61000-4-5 @ 8/20 μs		L1 (Line – Ground)	12	A
		L2 (Line – Line)	12	A

#### Notes:

1. V<sub>RRM</sub> is +V<sub>CC</sub> for Pin 8 and -V<sub>EE</sub> for Pin 4.
2. Measure capacitance C<sub>J</sub> between any I/O pins to ground and divide by 2.



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

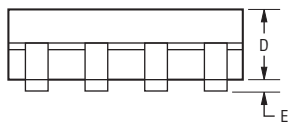
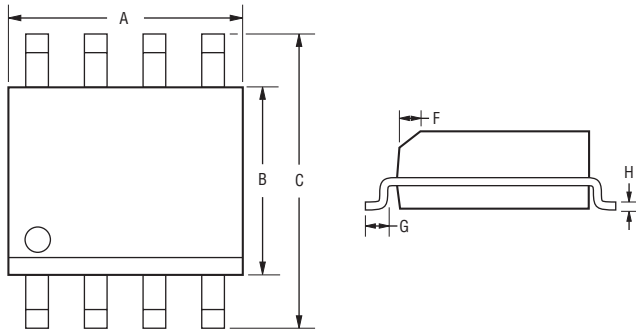
\*RoHS Directive 2002/95/EC Jan 27 2003 including Annex.  
 Specifications are subject to change without notice.  
 Customers should verify actual device performance in their specific applications

# CDNBS08-SR112 - Steering Diode Array



## Product Dimensions

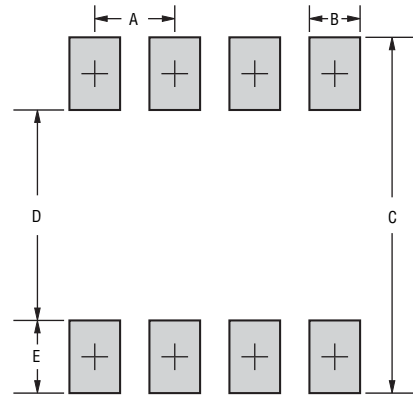
This is a molded JEDEC SO-8 package with lead free 100 % Sn plating on the terminations. It weighs approximately 70 mg and has a flammability rating of UL 94V-0.



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

Dimensions	
A	$\frac{4.80 - 5.00}{(0.189 - 0.196)}$
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 - SR 112**

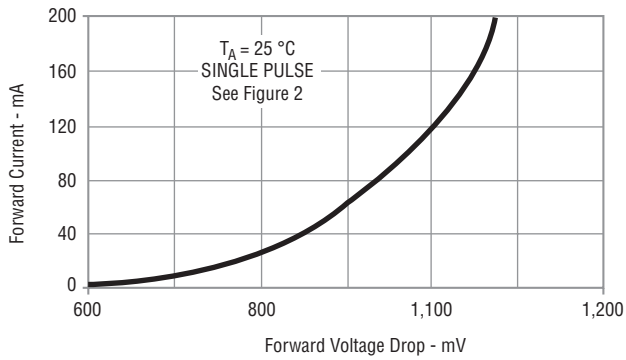
Common Code \_\_\_\_\_  
 Chip Diode \_\_\_\_\_  
 Package \_\_\_\_\_  
 • NBS08 = SO-8 Package  
 Model \_\_\_\_\_  
 SR = Steering Diode  
 Code \_\_\_\_\_  
 112 = Special Code

## Typical Part Marking

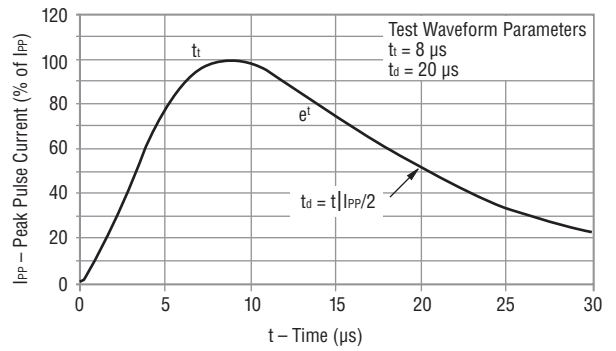
CDNBS08-SR112..... 112

## Performance Graphs

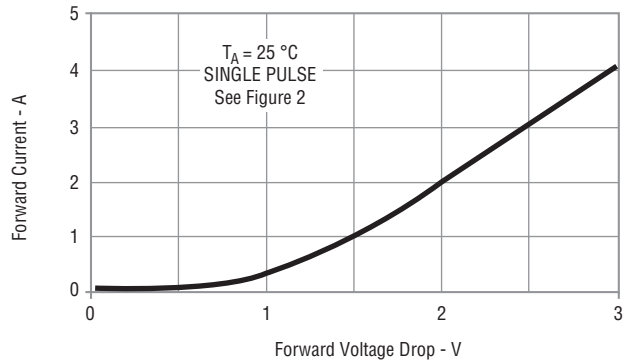
### Typical Low Current Forward Voltage Drop



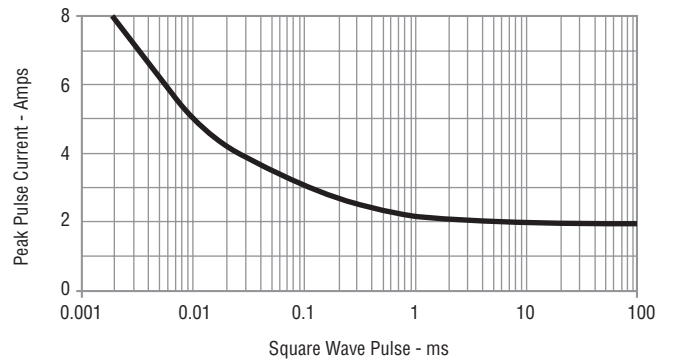
### Pulse Waveform



### Typical High Current Forward Voltage Drop



### Non-Repetitive Peak Pulse Current

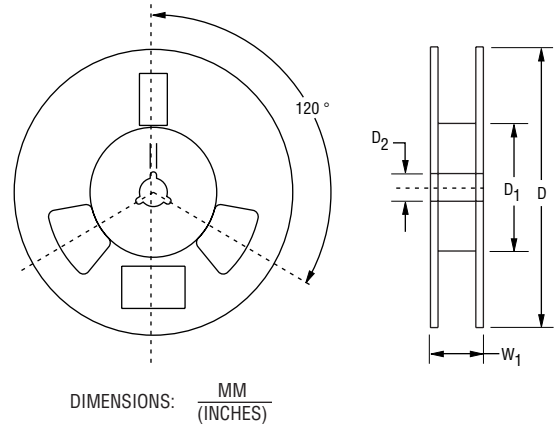
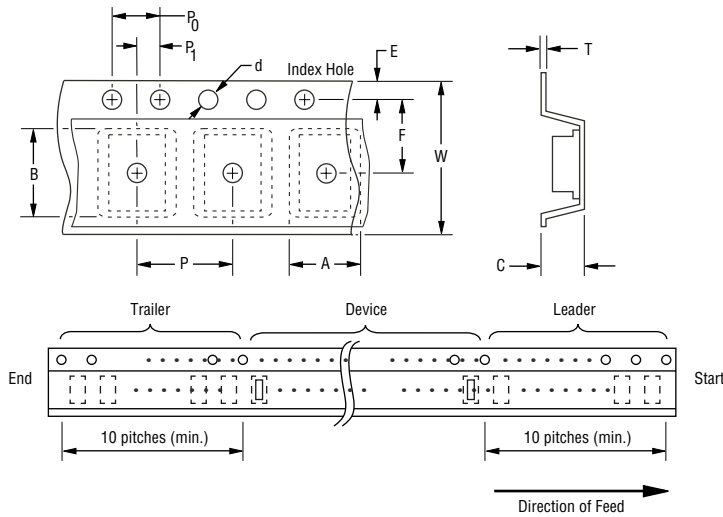


# CDNBS08-SR112 - Steering Diode Array

**BOURNS®**

## Packaging Specifications

The product will be dispensed in Tape and Reel format (see diagram below).



Devices are packed in accordance with EIA standard RS-481-A.

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

REV. 09/09

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