

Features

- Lead free as standard
- RoHS compliant*
- Protects 2 I/O ports
- ESD protection > 40 KV
- Low capacitance: 15 pF

Applications

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

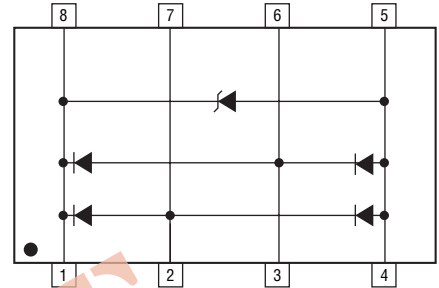
CDNBS08-USBxB Series - Steering Diode/TVS Array Combo

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 8 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_A = 25 °C Unless Otherwise Noted)

Parameter	Symbol	CDNBS08-		Unit
		USB3B	USB6B	
Breakdown Voltage @ 1 mA	V _{BR}	4.0	6.0	V
Working Peak Voltage	V _{WM}	3.3	5.25	V
Maximum Clamping Voltage V _C @ I _p ¹	V _F	6.0	7.0	V
Maximum Clamping Voltage @ 8/20 μs V _C @ I _{pp} ¹	V _F	12.9 V @ 37 A	13.2 V @ 35 A	V
Maximum Leakage Current @ V _{WM}	I _D	125	10	μA
Maximum Cap Bidirectional @ 0 V, 1 MHz	C _{J(SD)}	15		pF
Peak Pulse Power (t _p = 8/20 μs) ²	P _{PP}	500		W

Notes:

1. See Pulse Wave Form.
2. See Peak Pulse Power vs. Pulse Time.
3. Electrical specifications refer to Pins 1 to 4 or Pin 5 to Pin 8.

Thermal Characteristics (@ T_A = 25 °C Unless Otherwise Noted)

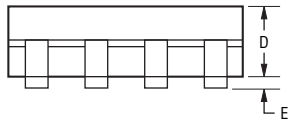
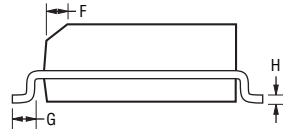
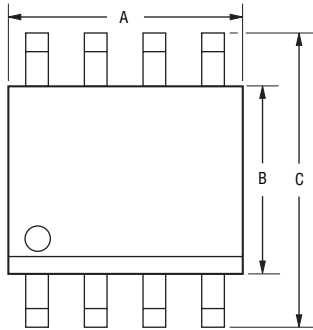
Parameter	Symbol	Max.	Unit
Operating Temperature	T _J	-55 to +150	°C
Storage Temperature	T _{STG}	-55 to +150	°C

CDNBS08-USBxB Series - Steering Diode/TVS Array Combo

BOURNS®

Product Dimensions

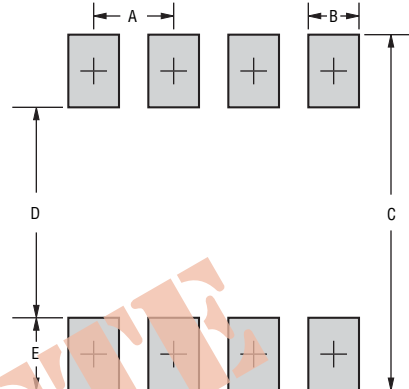
This is a molded JEDEC narrow body SO-8 package with lead free 100 % Sn plating on the lead frame. It weighs approximately 15 mg and has a flammability rating of UL 94V-0.



DIMENSIONS = MILLIMETERS
(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	$\frac{1.016 - 1.27}{(0.040 - 0.050)}$

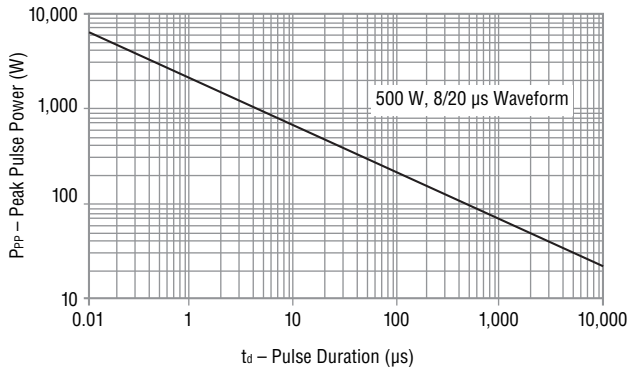
How To Order

CD NBS08 - USB 3 B

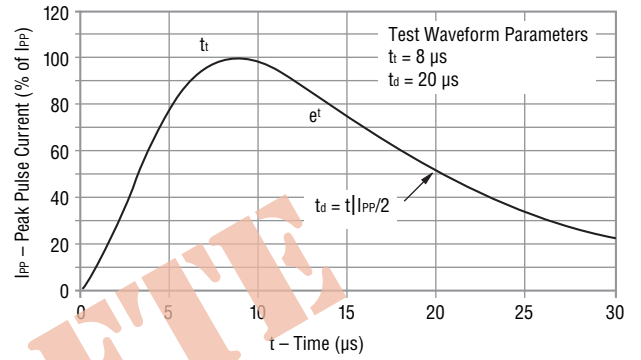
Common Code _____
 Chip Diode _____
 Package _____
 • NBS08 = Narrow Body SOIC8 Package
 Model _____
 USB = Specific USB Port Device
 Minimum Breakdown Voltage _____
 3 = 3.0 V_{BR} (Volts)
 Configuration _____
 B = 2 Steering Diodes + 1 TVS Diode

Performance Graphs

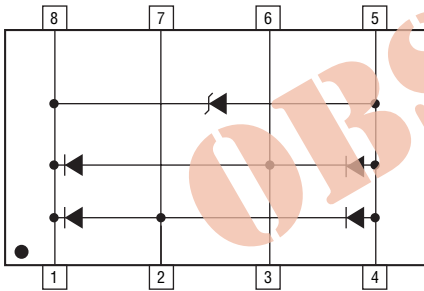
Peak Pulse Power vs Pulse Time



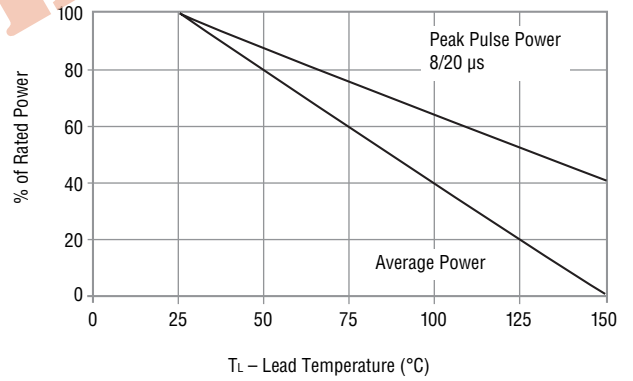
Pulse Wave Form



Block Diagram



Power Derating Curve



Device Pinout

Pin	Function
1	V_{CC}
2	I/O 1
3	I/O 2
4	GND
5	GND
6	I/O 2
7	I/O 1
8	V_{CC}

Typical Part Marking

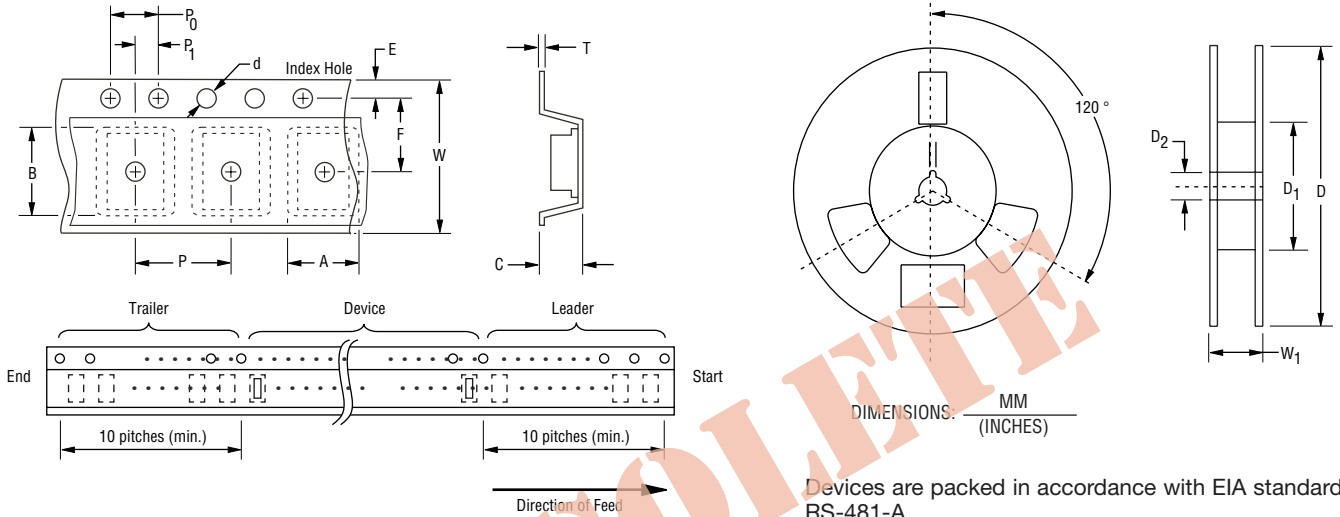
CDNBS08-USB3BPRQ
 CDNBS08-USB6BPRR

CDNBS08-USBxB Series - Steering Diode/TVS Array Combo

BOURNS®

Packaging Specifications

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



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 ₁	$\frac{80.0}{(3.1500)}$ MIN.
Feed Hole Diameter	D ₂	$\frac{13.0 \pm 0.20}{(0.512 \pm 0.008)}$
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 ₀	$\frac{4.00 \pm 0.10}{(0.157 \pm 0.004)}$
Embossment Center	P ₁	$\frac{2.00 \pm 0.05}{(0.079 \pm 0.002)}$
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 ₁	$\frac{18.4}{(0.724)}$ MAX.
Quantity per Reel	-	2500

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

REV. 09/09

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