

Features

- Lead free device (RoHS compliant*)
- Telcordia GR1089 (Intra-Building)
- Protects 2 lines
- ESD protection >40 kV
- Low capacitance 8 pF

Applications

- T1/E1 line cards
- ISDN U-Interface and S/T Interface
- xDSL
- Ethernet – 10/100 Base T

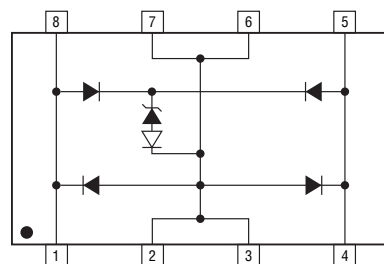
CDNBS08-PLC03-3.3 Steering Diode/TVS Array Combo

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.

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 | Min. | Nom. | Max. | Unit |
|--|--------------------|-----------|------|------|----------|
| Capacitance @ 0 V 1 MHz ¹ | C _{J(SD)} | | 20 | 25 | pF |
| Capacitance @ 0 V 1 MHz ² | C _{J(SD)} | | 8 | 12 | pF |
| Working Peak Voltage | V _{WM} | | | 3.0 | V |
| Min. Breakdown Voltage @ 1 mA | V _{BR} | 3.3 | | | V |
| Clamping Voltage @ 8/20 μs @ IPP = 100 A ^{3,4} | V _F | | | 18 | V |
| Clamping Voltage @ 8/20 μs @ IP = 50 A, Line - Ground | V _F | | | 11 | V |
| Max. Leakage Current @ V _{WM} | I _D | | | 2 | μA |
| ESD Protection: IEC 61000-4-2 Contact Discharge Air Discharge | | ±8 ±15 | | | kV kV |
| Peak Pulse Power (tp = 8/20 μs) ⁵ | P _{PP} | | | 1800 | W |
| EFT Protection: IEC61000-4-4 @ 5/50 ns | | 40 | | | A |
| Surge Protection: IEC61000-4-5 @ 8/20 μs L4 (Line-Gnd) L4 (Line-Line) , L1 (Power) | | 94 48 | | | A A |
| Surge Protection: Telcordia GR1089 (Intra-Building) @ 2/10 μs | | 100 | | | A |

Notes:

1. Measured between I/O pins and ground (pin 1 or 2).
2. Measured between I/O pins (pins 1 to 4).
3. See Pulse Wave Form. For an 8/20 μs waveform, apply positive pulse to pin 1 to 8 to pin 2 or 3 (ground).
4. Measured between pin 1 or 8 to pin 2 or 3; pin 1 or 8 to pin 4 or 5.
5. See Peak Pulse Power vs. Pulse Time.

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

| Parameter | Symbol | Min. | Nom. | Max. | Unit |
|----------------------------|------------------|------|------|------|------|
| Junction Temperature Range | T _J | -55 | +25 | +150 | °C |
| Storage Temperature Range | T _{STG} | -55 | +25 | +150 | °C |

*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.

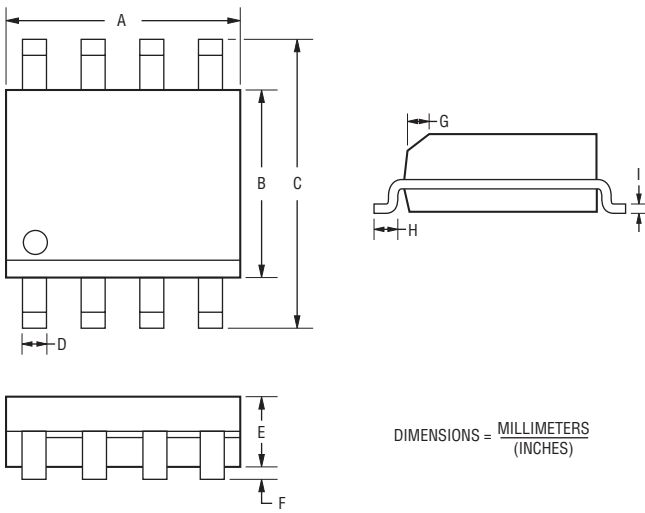
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Mechanical Characteristics

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.

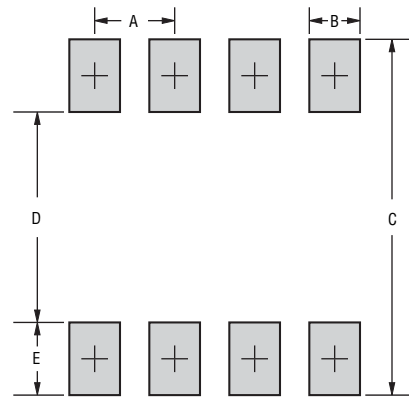
Product Dimensions



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 | $\frac{0.36 - 0.46}{(0.014 - 0.018)}$ |
| E | $\frac{1.35 - 1.75}{(0.054 - 0.068)}$ |
| F | $\frac{0.10 - 0.25}{(0.004 - 0.008)}$ |
| G | $\frac{0.25 - 0.50}{(0.010 - 0.019)}$ |
| H | $\frac{0.40 - 1.250}{(0.016 - 0.049)}$ |
| I | $\frac{0.18 - 0.25}{(0.007 - 0.009)}$ |

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 - PLC03 - 3.3

Common Code _____
 CD = Chip Diode

Package _____
 NBS08 = Narrow Body SOIC8 Package

Model _____
 PLC03 = Model Number

Minimum Breakdown Voltage _____
 3.3 = 3.3 V_{BR} (Volts)

Typical Part Marking

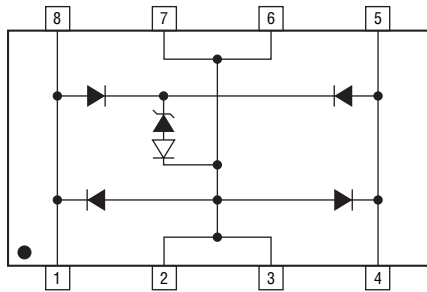
CDNBS08-PLC03-3.3 PBC

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Block Diagram

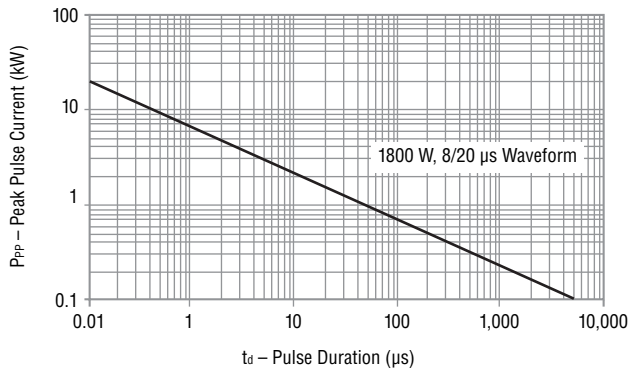


Device Pinout

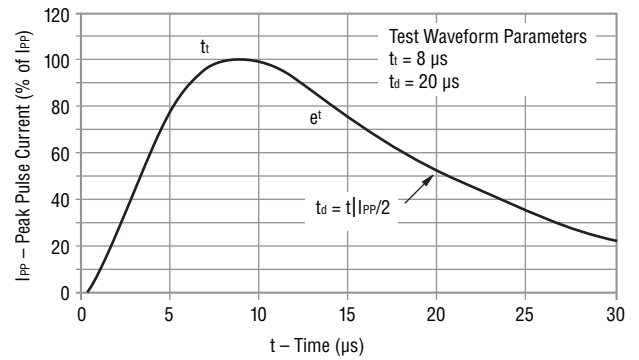
| Pin | Function |
|-----|----------|
| 1 | I/O 1 |
| 2 | GND |
| 3 | GND |
| 4 | I/O 2 |
| 5 | I/O 2 |
| 6 | GND |
| 7 | GND |
| 8 | I/O 1 |

Performance Graphs

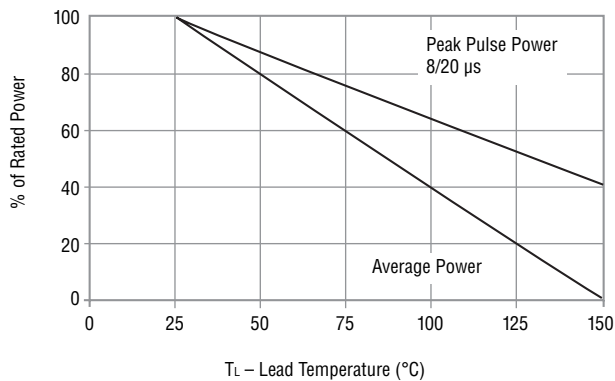
Peak Pulse Power vs Pulse Time



Pulse Wave Form



Power Derating Curve



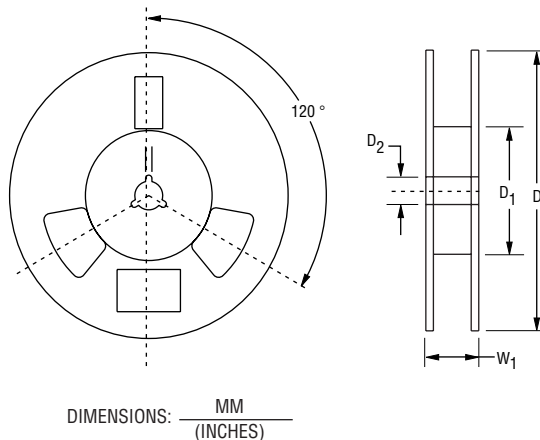
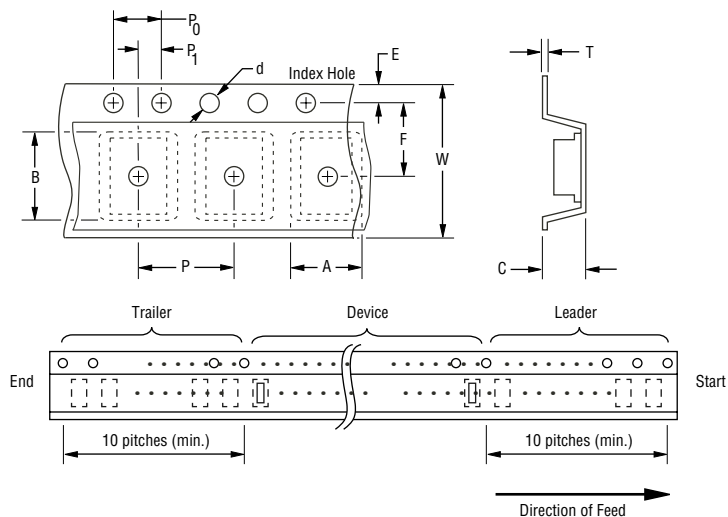
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Packaging Specifications

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 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 |

REV. 10/10

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