

## Features

- RoHS compliant\*
- Protects up to four I/O ports
- Surge protection
- ESD protection
- Low capacitance: 6 pF

## Applications

- Ethernet - 10/100 Base T
- Personal digital assistants
- LAN devices
- Instrumentation

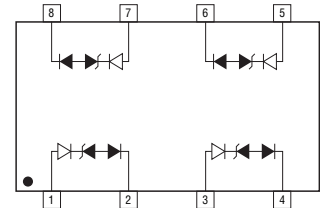
# CDNBS08-SLVU2.8-4 - Low Capacitance TVS Array

## 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 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                                | Min.      | Nom. | Max.       | Unit |
|--|---------------------------------------|-----------|------|------------|------|
| Peak Pulse Current (t <sub>p</sub> = 8/20 μs)                          | I <sub>PP</sub>                       |           |      | 30         | A    |
| Peak Pulse Power (t <sub>p</sub> = 8/20 μs) <sup>1</sup>               | P <sub>PP</sub>                       |           |      | 600        | W    |
| Working Voltage  | V <sub>WM</sub>                       |           |      | 2.8        | V    |
| Breakdown Voltage @ 1 mA   | V <sub>BR</sub>                       | 3.0       |      |            | V    |
| Leakage Current @ V <sub>WM</sub>                                      | I <sub>D</sub>                        |           | 0.1  | 1.0        | μA   |
| Capacitance @ 0 V, 1 MHz   | C                                     |           | 6    |            | pF   |
| Snapback Voltage @ 50 mA   |                                       | 2.8       |      |            | V    |
| ESD Protection per IEC 61000-4-2<br>Contact Discharge<br>Air Discharge | ESD                                   | ±8<br>±15 |      | ±30<br>±30 | kV   |
| EFT Protection per IEC 61000-4-4 @ 5/50 ns                             | EFT                                   |           |      | 60         | A    |
| Surge Protection per IEC 61000-4-5<br>Clamping Voltage @ 8/20 μs       | @ I <sub>p</sub> = 5 A <sup>2</sup>   |           |      | 10         | V    |
|  | @ I <sub>p</sub> = 24 A <sup>2</sup>  |           | 13   | 15         | V    |
|  | @ I <sub>PP</sub> = 30 A <sup>2</sup> |           | 15   | 21         | V    |

Notes:

1. See Peak Pulse Power vs. Pulse Time.
2. Each differential line pair.

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

| Parameter                  | Symbol           | Min. | Nom. | Max. | Unit |
|----------------------------|------------------|------|------|------|------|
| Junction Temperature Range | T <sub>J</sub>   | -55  | +25  | +125 | °C   |
| Storage Temperature Range  | T <sub>STG</sub> | -55  | +25  | +150 | °C   |



**WARNING Cancer and Reproductive Harm - [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov)**

\*RoHS Directive 2015/863, Mar 31, 2015 and Annex.

Specifications are subject to change without notice.

Users should verify actual device performance in their specific applications.

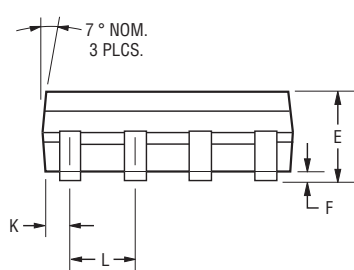
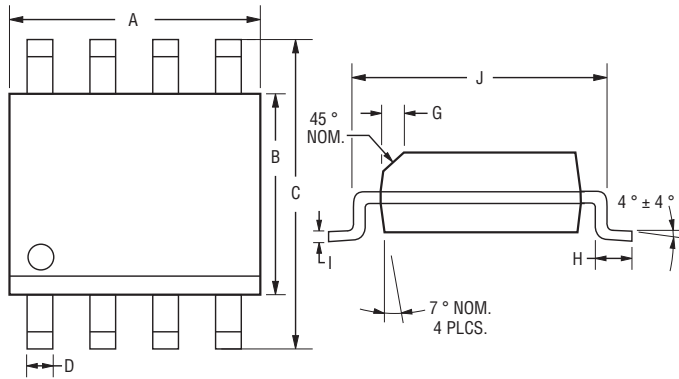
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## Product Dimensions

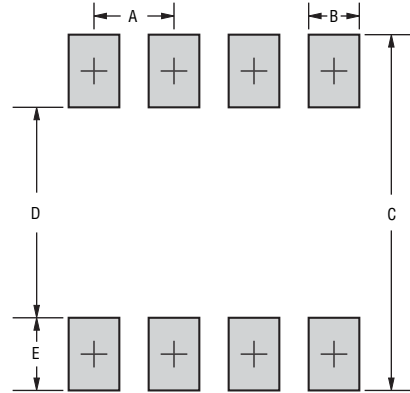
This is an RoHS compliant molded JEDEC narrow body SO-8 package with 100 % Sn plating on the lead frame. It weighs approximately 15 mg and has a flammability rating of UL 94V-0.



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

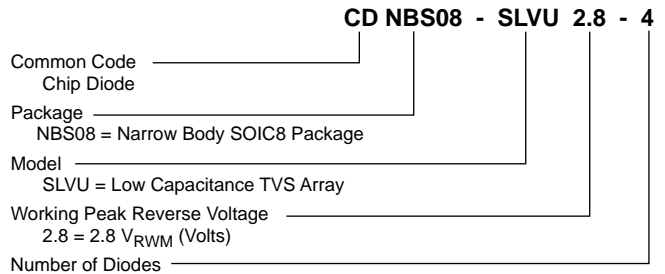


| Dimensions |   |
|------------|---|
| A          | $\frac{1.143 - 1.397}{(0.045 - 0.065)}$ |
| B          | $\frac{0.635 - 0.889}{(0.025 - 0.035)}$ |
| C          | $\frac{6.223}{(0.245)}$ Min.            |
| D          | $\frac{3.937 - 4.191}{(0.155 - 0.165)}$ |
| E          | $\frac{1.016 - 1.27}{(0.040 - 0.050)}$  |

## Typical Part Marking

CDNBS08-SLVU2.8-4 ..... **B** SL4

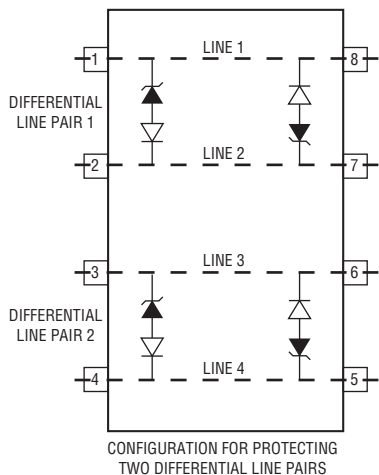
## How to Order



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# CDNBS08-SLVU2.8-4 - Low Capacitance TVS Array

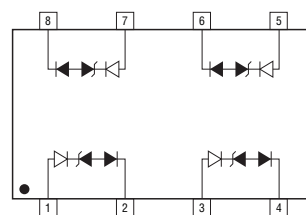
## Application Diagram



## Device Pinout

| Pin | Unidirectional Common Mode | Bidirectional Common Mode | Bidirectional Differential Mode |
|-----|----------------------------|---------------------------|---------------------------------|
| 1   | Line 1                     | Line 1                    | Line Pair 1                     |
| 2   | GND                        | GND                       | Line Pair 1                     |
| 3   | Line 3                     | GND                       | Line Pair 2                     |
| 4   | GND                        | Line 2                    | Line Pair 2                     |
| 5   | Line 4                     | Line 2                    | Line Pair 2                     |
| 6   | GND                        | GND                       | Line Pair 2                     |
| 7   | Line 2                     | GND                       | Line Pair 1                     |
| 8   | GND                        | Line 1                    | Line Pair 1                     |

## Block Diagram



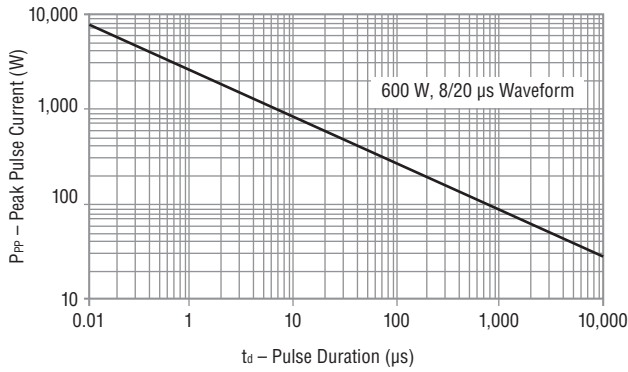
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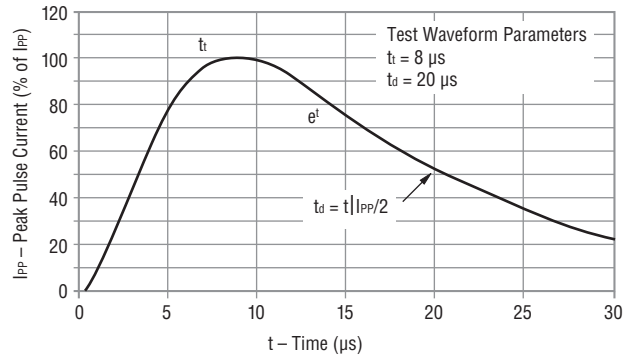
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Performance Graphs

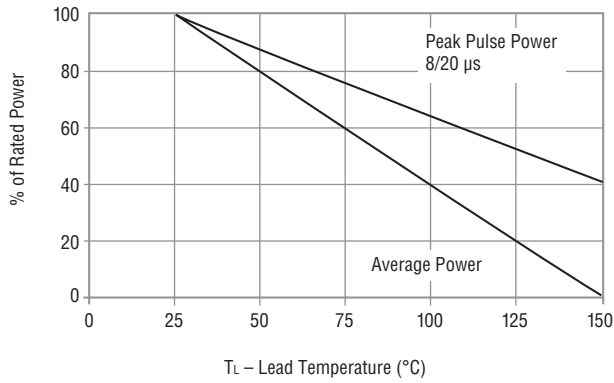
Peak Pulse Power vs Pulse Time



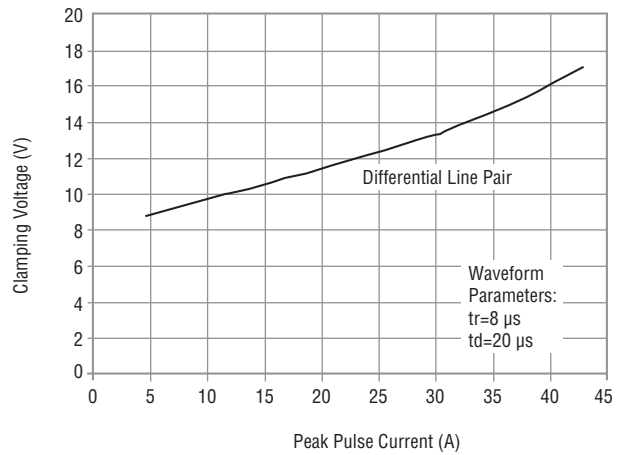
Pulse Waveform



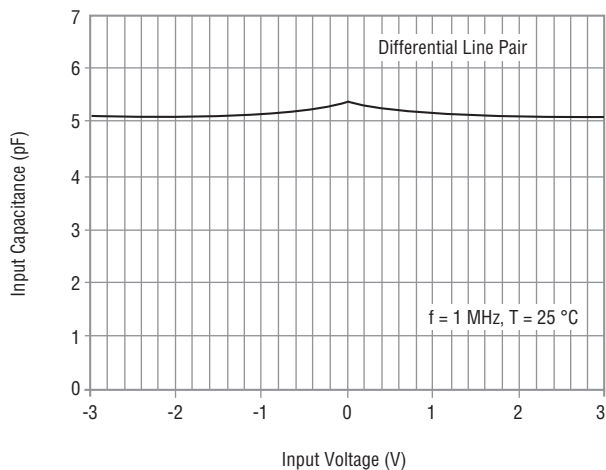
Power Derating Curve



Clamping Voltage vs. Peak Pulse Current



Variation of  $C_{in}$  vs.  $V_{in}$



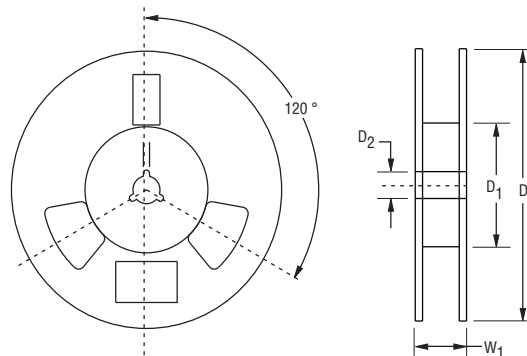
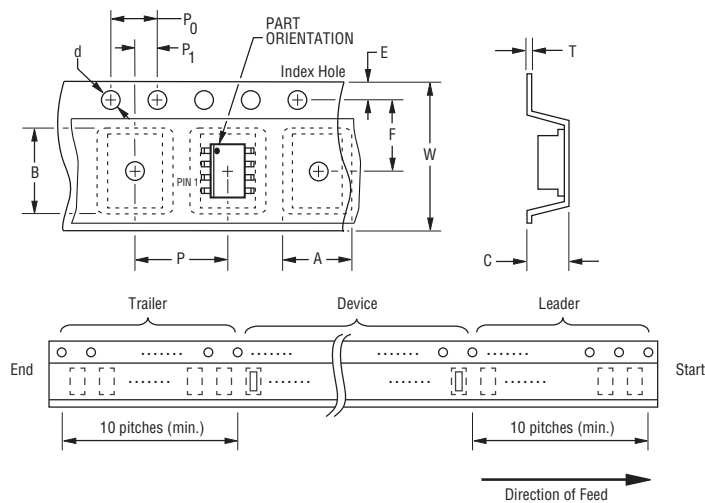
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**BOURNS®**

## 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                                       |

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