



Features

- RoHS compliant*
- ESD protection >40k V
- Protects 6 lines
- Low capacitance - 3 pF

Applications

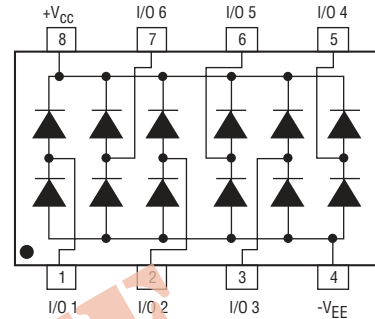
- Ethernet ports
- Portable electronics
- Wireless LANs
- xDSL equipment

CDNBS08-SR721 – Steering Diode Arrays

General Information

The CDNBS08-SR721 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_A = 25 °C Unless Otherwise Noted)

| Parameter | Symbol | Value | Unit |
|--------------------------------|------------------|-------------|------|
| Power Dissipation - Continuous | P _{PD} | 145 | mW |
| Storage Temperature | T _{STG} | -55 to +150 | °C |
| Operating Temperature | T _{OPR} | -55 to +150 | °C |

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

| Parameter | Symbol | Value | Unit |
|--|------------------|-------|------|
| Typical Forward Voltage @ 8/20 μs 1 A | V _F | 2 | V |
| Repetitive Peak Reverse Voltage ^(Note 1) | V _{RRM} | 50 | V |
| Maximum Peak Pulse Current @ 8/20 μs | I _{FM} | 12 | A |
| Maximum Leakage Current @ 20 V | I _R | 20 | nA |
| Maximum Quiescent Supply Current @ 20 V | I _Q | 200 | nA |
| Typical Junction Capacitance @ 0 V 1 MHz ^(Note 2) | C _J | 3 | pF |
| ESD Protection: Per IEC 61000-4-2 Standard | | | |
| Minimum Contact Discharge | | ±8 | kV |
| Minimum Air Discharge | | ±15 | kV |
| EFT Protection: Per IEC61000-4-4 @ 5/50 ns | | 40 | A |
| Surge Protection per IEC 61000-4-5 @ 8/20 μs | | | |
| Level 1 (Line-Gnd) | | 12 | A |
| Level 2 (Line-Line) | | 12 | A |

Notes:

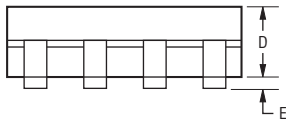
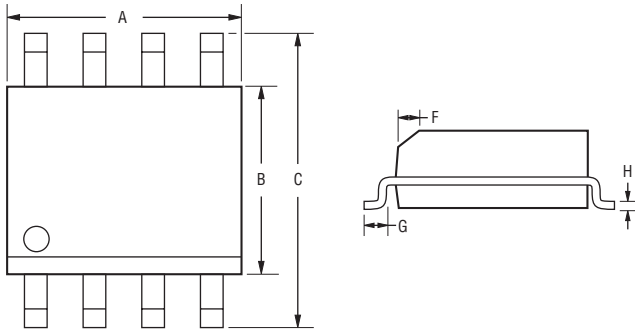
1. V_{RRM} is +V_{CC} for Pin 8 and -V_{EE} for Pin 4.
2. Measure capacitance C_J between any I/O pins to ground and divide by 2.

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Product Dimensions

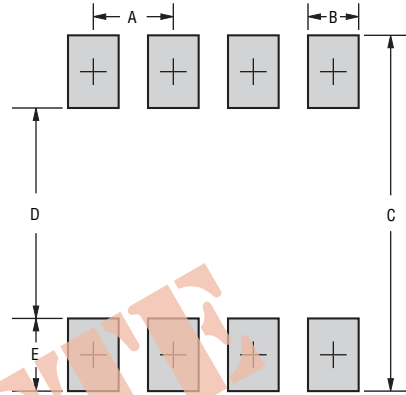
This is a molded JEDEC SO-8 package with lead free 100 % Sn plating on the terminations. It weighs approximately 70 mg and has a flammability rating of UL 94V-0.



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 721

Common Code _____
 CD = Chip Diode

Package _____
 • NBS08 = Narrow Body SOIC8 Package

Model _____
 SR = Steering Diode

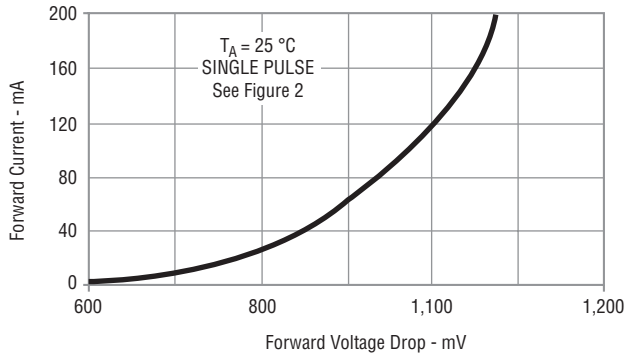
Code _____
 721 = Special Code

Typical Part Marking

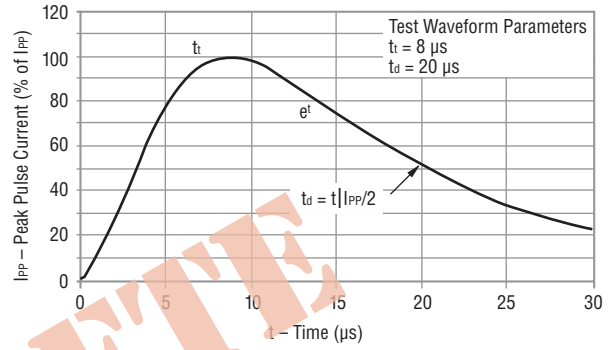
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Performance Graphs

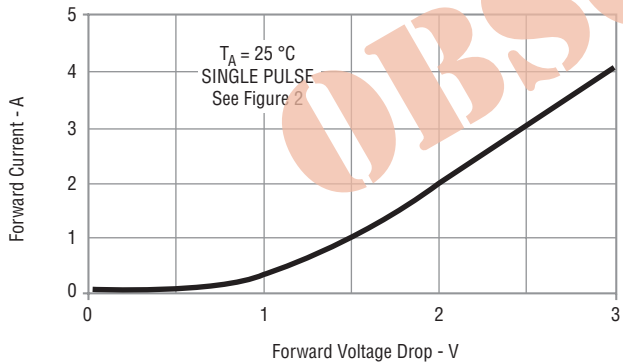
Peak Pulse Power vs Pulse Time



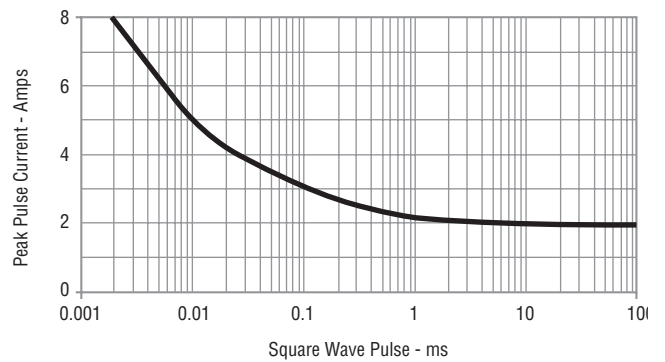
Pulse Waveform



CDNBS08-T05L ESD Pulse Response



Power Derating Curve

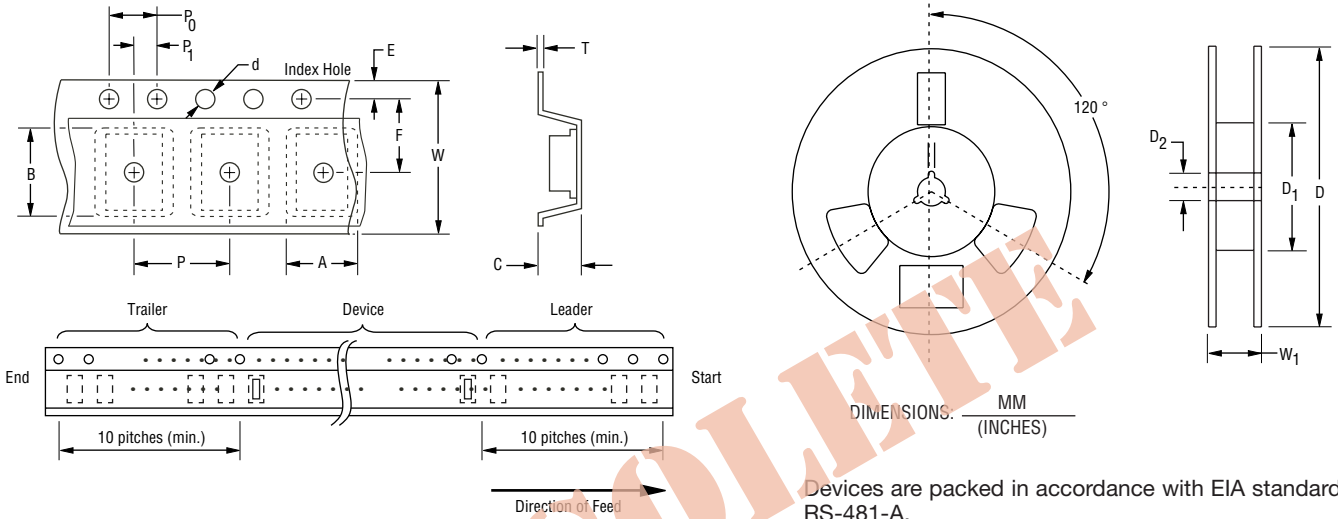


CDNBS08-SR721 – Steering Diode Arrays

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 |



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REV. 09/09

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