

Features

- Lead free device (RoHS Compliant*)
- Protects 8 lines
- Unidirectional & bidirectional configurations
- ESD protection

Applications

- Audio/video inputs
- RS-232, RS-422 & RS-423 data lines
- Portable electronics
- Medical sensors

CDNBS16-T03~T36C – TVS Diode Array Series

General Information

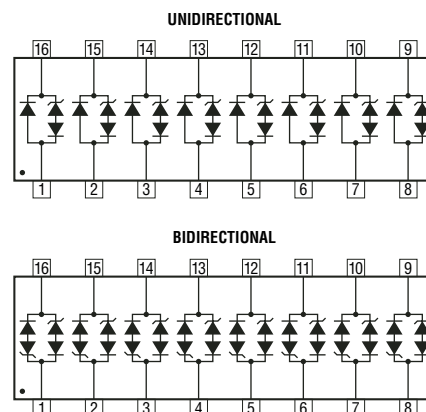
The markets of portable communications, computing and video equipment are challenging the semiconductor industry to develop increasingly smaller electronic components.

Bourns offers Transient Voltage Suppressor Array diodes for surge and ESD protection applications, in 16 Lead Narrow Body SOIC package size format. The Transient Voltage Suppressor Array series offer a choice of voltage types ranging from 3 V to 36 V in unidirectional and bidirectional configurations. 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.

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 |



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

| Parameter | Symbol | CDNBS16- | | | | | | | | | | | | | | Unit |
|--|---------------------|-------------|------|-------------|------|-------------|------|-------------|------|-------------|------|-------------|------|------------|------|-------|
| | | Uni- | Bi- | Uni- | Bi- | Uni- | Bi- | Uni- | Bi- | Uni- | Bi- | Uni- | Bi- | Uni- | Bi- | |
| | | T03 | T03C | T05 | T05C | T08 | T08C | T12 | T12C | T15 | T15C | T24 | T24C | T36 | T36C | |
| Break Down Voltage @ 1 mA | V _{BR} | 4.5 | | 6.0 | | 8.5 | | 13.3 | | 16.7 | | 26.7 | | 40.0 | | V |
| Working Peak Voltage | V _{WM} | 3.0 | | 5.0 | | 8.0 | | 12.0 | | 15.0 | | 24.0 | | 36.0 | | V |
| Maximum Clamping Voltage V _C @ I _p = 1 A ¹ | V _F | 7.0 | | 9.8 | | 13.4 | | 19.0 | | 25.5 | | 40.0 | | 53.0 | | V |
| Maximum Clamping Voltage @ 8/20 μs V _C @ I _{pp} ¹ | V _F | 23 V @ 43 A | | 24 V @ 42 A | | 26 V @ 30 A | | 33 V @ 21 A | | 39 V @ 15 A | | 57 V @ 10 A | | 72 V @ 7 A | | V |
| Maximum Leakage Current @ V _{WM} | I _D | 125 | | 20 | | 10 | | 2 | | 2 | | 2 | | 2 | | μA |
| Maximum Capacitance @ 0 V, 1 MHz | C _{ij(SD)} | 15 | | | | | | | | | | | | | | pF |
| Temperature Coefficient of V _{BR} | | -3 | | 3 | | 9 | | 16 | | 17 | | 26 | | 36 | | mV/°C |
| Peak Pulse Power (t _p = 8/20 μs) ² | P _{PP} | 500 | | | | | | | | | | | | | | W |
| Forward Voltage @ 100 mA, 300 μs – Square Wave ³ | V _F | 1.5 | | | | | | | | | | | | | | V |

Notes:

1. See Pulse Wave Form.
2. See Peak Pulse Power vs. Pulse Time.
3. Only applies to unidirectional devices.
4. Part numbers with a "C" suffix are bidirectional devices, i.e., CDNBS16-T03C.

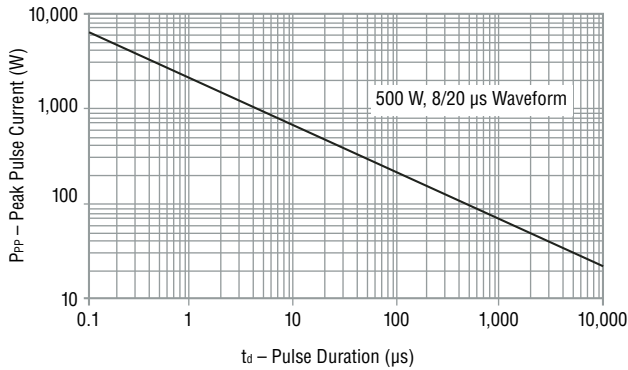
*RoHS Directive 2002/95/EC Jan 27 2003 including Annex.

Specifications are subject to change without notice.

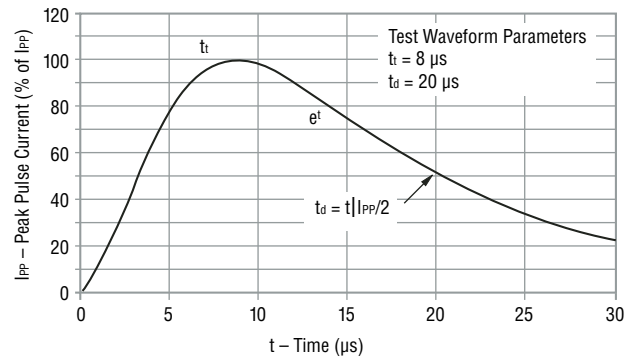
Customers should verify actual device performance in their specific applications.

Performance Graphs

Peak Pulse Power vs Pulse Time

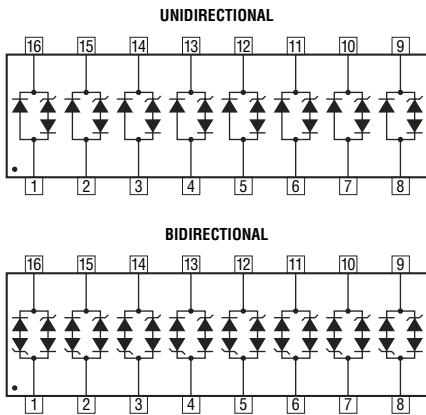


Pulse Wave Form

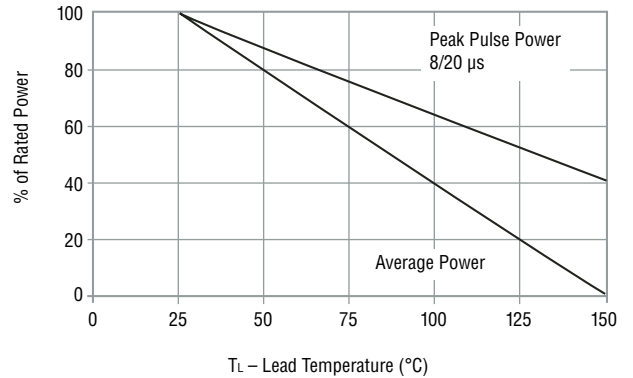


Block Diagram

The device block diagrams below include the pin names and basic electrical connections associated with each channel.



Power Derating Curve



Device Pinout

| Pin | Function | Pin | Function |
|-----|----------|-----|----------|
| 1 | GND | 9 | I/O 1 |
| 2 | GND | 10 | I/O 2 |
| 3 | GND | 11 | I/O 3 |
| 4 | GND | 12 | I/O 4 |
| 5 | GND | 13 | I/O 5 |
| 6 | GND | 14 | I/O 6 |
| 7 | GND | 15 | I/O 7 |
| 8 | GND | 16 | I/O 8 |

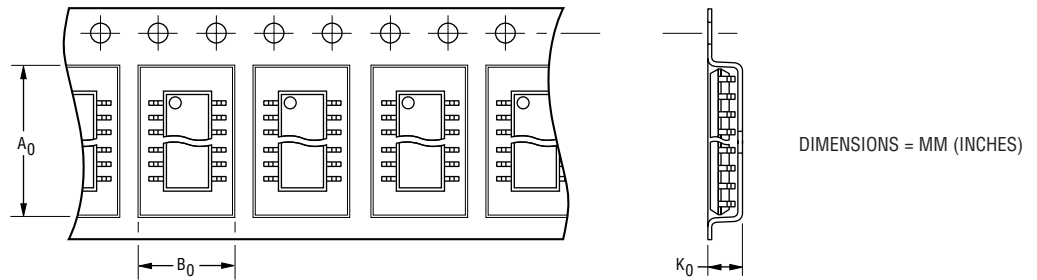
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Dispensing

For large quantities, the product will be dispensed in Tape and Reel (see diagram below).



| Package | A ₀ | B ₀ | K ₀ | Width | Pitch | No. of Pieces per 13" reel | No. of Pieces per tube |
|------------------|----------------|----------------|----------------|------------|-----------|----------------------------|------------------------|
| NBSOIC 16 Pin | 6.5 (0.256) | 9.0 (0.354) | 2.1 (0.083) | 16 (0.630) | 8 (0.315) | 3,500 | 49 |



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