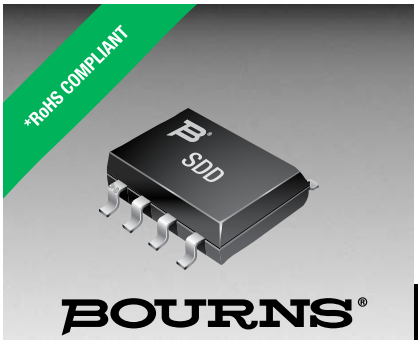


Features

- RoHS compliant*
- Protects four lines
- Unidirectional and bidirectional configurations
- ESD protection: 30 kV max.

Applications

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

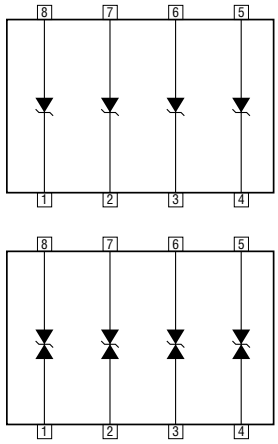
CDNBS08-T03~T36C - TVS Diode Array Series

General Information

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

Bourns offers Steering Diode/Transient Voltage Suppressor Array diodes for surge and ESD protection applications in an eight lead narrow body SOIC package size format. TheTransient 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.



Additional Information

Click these links for more information:

PRODUCT SELECTOR | TECHNICAL LIBRARY | INVENTORY | SAMPLES | CONTACT

WARNING
Cancer and Reproductive Harm
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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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

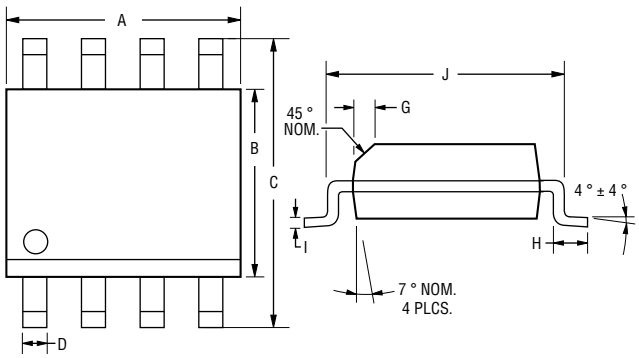
Electrical Characteristics (@ T_A = 25 °C Unless Otherwise Noted)

Parameter	Symbol	CDNBS08-														Unit
		Uni-T03	Bi-T03C	Uni-T05	Bi-T05C	Uni-T08	Bi-T08C	Uni-T12	Bi-T12C	Uni-T15	Bi-T15C	Uni-T24	Bi-T24C	Uni-T36	Bi-T36C	
Min. Breakdown Voltage @ 1 mA	V_{BR}	3.3		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
Max. Clamping Voltage V_C @ I_P = 1 A [1]	V_C	8.0		9.8		13.4		19.0		24.0		43.0		51.0		V
Typ. Clamping Voltage @ 8/20 μs V_C @ I_{PP} [1]	V_C	10.9 V @ 43 A		13.5 V @ 42 A		16.9 V @ 34 A		25.9 V @ 21 A		30.0 V @ 17 A		49.0 V @ 12 A		76.8 V @ 9 A		V
Max. Leakage Current @ V_{WM}	I_D	125		20		10		1		1		1		1		μA
Max. Cap. Bidirectional @ 0 V, 1 MHz	$C_{J(SD)}$	450		308		300		105		80		50		45		pF
ESD Protection per IEC 61000-4-2 Contact - Min. Contact - Max. Air - Min. Air - Max.	ESD	±8 ±30 ±15 ±30														kV
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

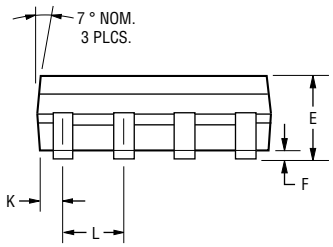
Notes:
1. See Pulse Wave Form.
2. See Peak Pulse Power vs. Pulse Time.
3. Only applies to unidirectional devices.
4. Part numbers with a “C” suffix are bidirectional devices, i.e. CDNBS08-T03C.

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.

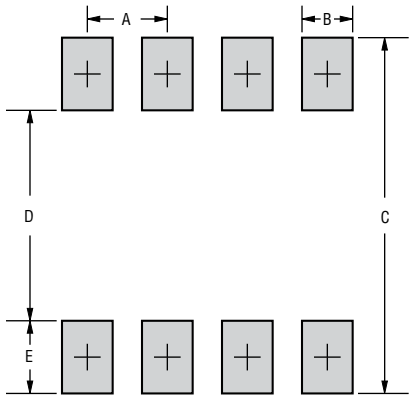


DIMENSIONS = MILLIMETERS / (INCHES)



Dimensions	
A	4.80 - 5.00 / (0.189 - 0.197)
B	3.81 - 4.00 / (0.150 - 0.157)
C	5.80 - 6.20 / (0.228 ± 0.244)
D	0.36 - 0.51 / (0.014 - 0.020)
E	1.35 - 1.75 / (0.053 - 0.069)
F	0.102 - 0.203 / (0.004 - 0.008)
G	0.25 - 0.50 / (0.010 - 0.020)
H	0.51 - 1.12 / (0.020 - 0.044)
I	0.190 - 0.229 / (0.0075 - 0.0090)
J	4.60 - 5.21 / (0.181 - 0.205)
K	0.28 - 0.79 / (0.011 - 0.031)
L	1.27 / (0.050)

Recommended Footprint



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

DIMENSIONS: MM / (INCHES)

Typical Part Marking

CDNBS08-T03	SDL
CDNBS08-T03C	SDM
CDNBS08-T05	SDA
CDNBS08-T05C	SDB
CDNBS08-T08	SDJ
CDNBS08-T08C	SDK
CDNBS08-T12	SDC
CDNBS08-T12C	SDD
CDNBS08-T15	SDE
CDNBS08-T15C	SDF
CDNBS08-T24	SDG
CDNBS08-T24C	SDH
CDNBS08-T36	SDN
CDNBS08-T36C	SDP

How to Order

CD NBS08 - T 03 C

Common Code
Chip Diode

Package
NBS08 = Narrow Body SOIC8 Package

Model
T = Transient Voltage Suppressor

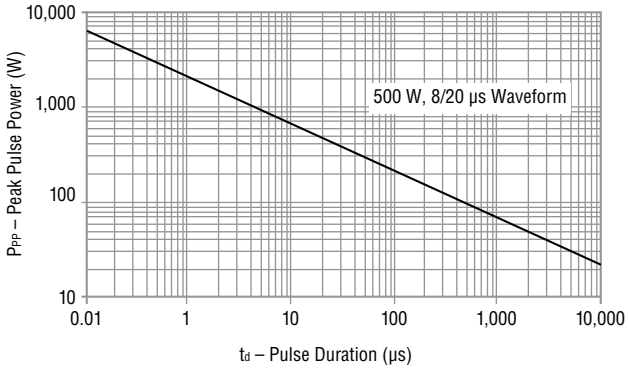
Working Peak Voltage
03 = 3 V_{RWM} (Volts)

Suffix
C = Bidirectional Diode

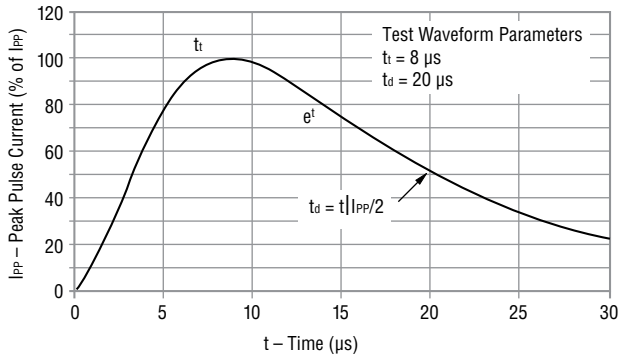
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Performance Graphs

Peak Pulse Power vs Pulse Time

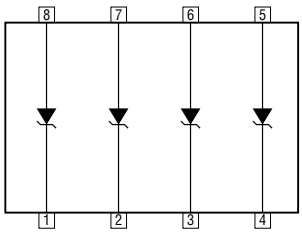


Pulse Waveform

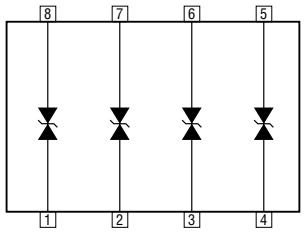


Block Diagram

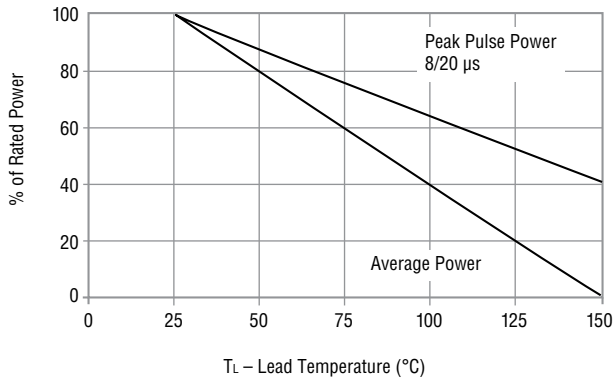
Unidirectional



Bidirectional



Power Derating Curve



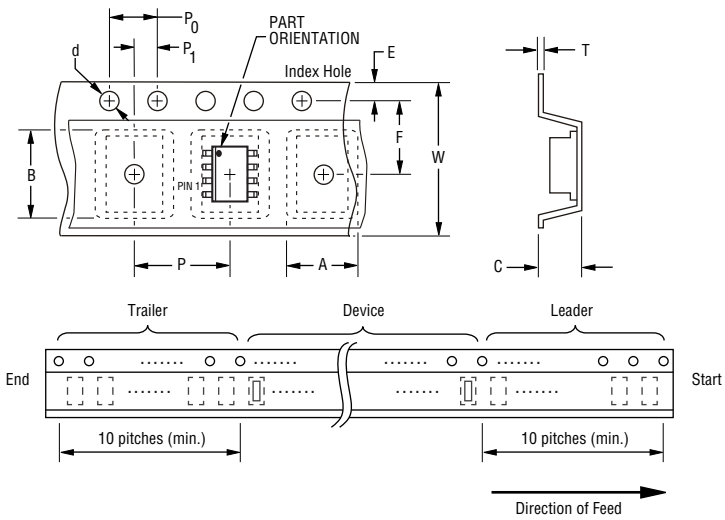
Device Pinout

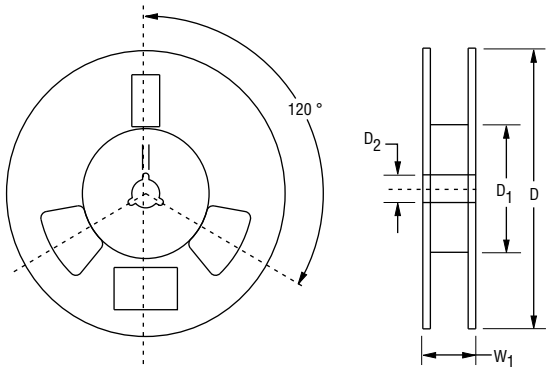
Pin	Function
1	I/O 1
2	I/O 2
3	I/O 3
4	I/O 4
5	GND
6	GND
7	GND
8	GND

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Packaging Information

The product is packaged in tape and reel format per EIA-481 standard.





DIMENSIONS: MM / (INCHES)

Item	Symbol	NSOIC 8L
Carrier Width	A	6.7 ± 0.10 (0.264 ± 0.004)
Carrier Length	B	5.5 ± 0.10 (0.217 ± 0.004)
Carrier Depth	C	2.10 ± 0.10 (0.083 ± 0.004)
Sprocket Hole	d	1.55 ± 0.05 (0.061 ± 0.002)
Reel Outside Diameter	D	330 (12.992)
Reel Inner Diameter	D_1	80.0 (3.1500) MIN.
Feed Hole Diameter	D_2	13.0 ± 0.20 (0.512 ± 0.008)
Sprocket Hole Position	E	1.75 ± 0.10 (0.069 ± 0.004)
Punch Hole Position	F	3.50 ± 0.05 (0.138 ± 0.002)
Punch Hole Pitch	P	8.00 ± 0.10 (0.315 ± 0.004)
Sprocket Hole Pitch	P_0	4.00 ± 0.10 (0.157 ± 0.004)
Embossment Center	P_1	2.00 ± 0.05 (0.079 ± 0.002)
Overall Tape Thickness	T	0.20 ± 0.10 (0.008 ± 0.004)
Tape Width	W	12.00 ± 0.20 (0.472 ± 0.008)
Reel Width	W_1	18.4 (0.724) MAX.
Quantity per Reel	--	2500

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Bourns® products are not recommended, authorized or intended for use in applications where failure or malfunction may result in personal injury, death, or severe property or environmental damage, such as without limitation nuclear, life-critical medical and certain automotive and aviation applications. Except as set forth in the bullet points below or unless expressly and specifically approved in writing on a case-by-case basis by an authorized Bourns' representative, use of any Bourns® products in such unauthorized high-risk applications is at the user's sole risk.

- Bourns considers implantable/invasive devices and devices/procedures designed as life-supporting or life-sustaining by the U.S. Food and Drug Administration or equivalent organizations outside of the United States as "life-critical" medical applications. Bourns expressly identifies those Bourns® standard products that are suitable for use in typical medical applications that are not life-critical in its publication entitled "Bourns Medical Grade Component Guide."

- Bourns expressly identifies those Bourns® standard products that are suitable for use in typical automotive applications associated with any Automate Safety Integrity Level (ASIL) in its publication entitled "Bourns Automotive Grade Component Guide." Bourns' designation of Bourns® product as compliant with the AEC-Q standard does not by itself mean that Bourns has approved such product for use in an automotive application.

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