

Features

- Lead free as standard*
- Protects 1 line or 1 I/O port
- Bidirectional configuration
- ESD protection >30 kV
- Low capacitance ~3 pF typical
- Replaces 0805 MLV devices

Applications

- Cell phones
- PDAs and notebooks
- Digital cameras
- MP3 players and GPS
- USB interface

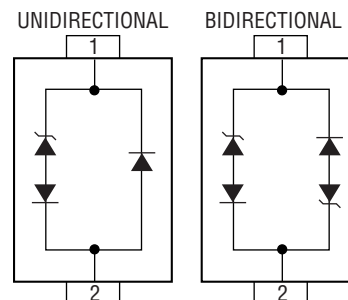
CDSOD323-TxxC – TVS Diode Series

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 Diodes for surge and ESD protection applications, in SOD323 package size format. The Transient Voltage Suppressor Diode series offers a choice of voltage types ranging from 3 V to 24 V in a unidirectional or bidirectional configuration. 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 & Thermal Characteristics (@ T_A = 25 °C Unless Otherwise Noted)

Parameter	Symbol	Value	Unit
Peak Pulse Power (t _p = 8/20 μs)	P _{PP}	350	W
Operating Temperature	T _J	-55 °C to 150 °C	°C
Storage Temperature	T _{STG}	-55 °C to 150 °C	°C
Minimum ESD Protection (per IEC 61000-4-2)			
Contact Discharge	ESD	±8	kV
Air Discharge	ESD	±15	kV

Parameter	Symbol	CDSOD323-								Unit
		Uni-T03	Bi-T03C	Uni-T05	Bi-T05C	Uni-T08	Bi-T08C	Uni-T12	Bi-T12C	
Min. Breakdown Voltage @ 1 mA	V _{BR}	4.0	4.0	6.0	6.0	8.5	8.5	13.3	13.3	V
Working Peak Voltage	V _{WM}	3.3	3.3	5.0	5.0	8.0	8.0	12.0	12.0	V
Maximum Clamping Voltage @ I _p = 1 A	V _F	8.0	8.0	9.8	9.8	13.4	13.4	19.0	19.0	V
Typical Clamping Voltage @ 8/20 μs @ I _{pp}	V _C	22.0 V @ 20 A	22.0 V @ 20 A	18.3 V @ 17 A	18.3 V @ 17 A	18.5 V @ 17 A	18.5 V @ 17 A	28.3 V @ 11 A	28.3 V @ 11 A	V
Maximum Leakage Current @ V _{WM}	I _D	5	5	5	5	2	2	1	1	μA
Typical Capacitance @ 0 V, 1 MHz	C _J	3								pF

Notes:

1. Part numbers with suffix "C" indicate bidirectional device, i.e. CDSOD323-T05C.
2. For bidirectional devices only, the electrical specifications apply in both directions.

*No lead detected in standard tests of homogeneous materials.

**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.

CDSOD323-TxxC – TVS Diode Series

BOURNS®

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

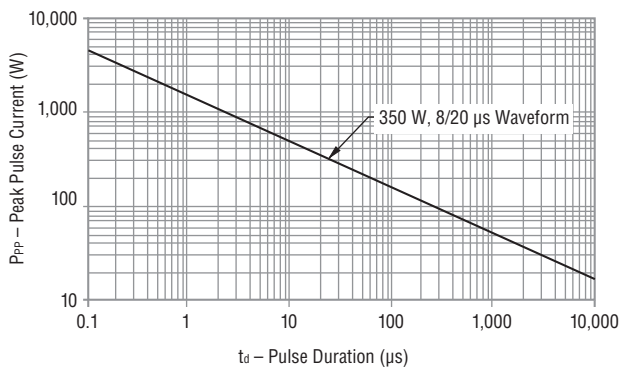
Parameter	Symbol	CDSOD323-						Unit
		Uni-T15	Bi-T15C	Uni-T18	Bi-T18C	Uni-T24	Bi-T24C	
Min. Breakdown Voltage @ 1 mA	V _{BR}	16.7	16.7	20.0	20.0	26.7	26.7	V
Working Peak Voltage	V _{WM}	15.0	15.0	18.0	18.0	24.0	24.0	V
Maximum Clamping Voltage @ I _p = 1 A	V _F	24.0	24.0	29.0	29.0	43.0	43.0	V
Typical Clamping Voltage @ 8/20 μs @ I _{pp}	V _C	31.8 V @ 10 A	31.8 V @ 10 A	45.0 V @ 8 A	45.0 V @ 8 A	56.0 V @ 6 A	56.0 V @ 6 A	V
Maximum Leakage Current @ V _{WM}	I _D	1						μA
Typical Capacitance @ 0 V, 1 MHz	C _J	3						pF

Notes:

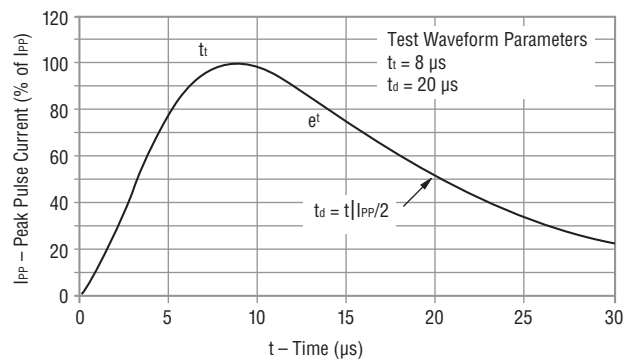
1. Part numbers with suffix "C" indicate bidirectional device, i.e. CDSOD323-T05C.
2. For bidirectional devices only, the electrical specifications apply in both directions.

Performance Graphs

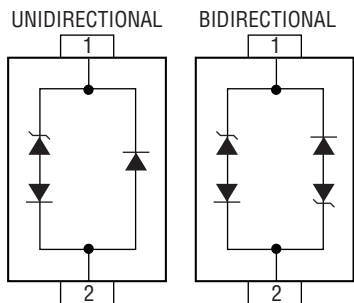
Peak Pulse Power vs Pulse Time



Pulse Wave Form



Block Diagram



How To Order

Common Code CD SOD323 - T 05 C
 Chip Diode
 Package SOD323 = SOD-323 Package
 Model T = Transient Voltage Suppressor
 Working Peak Reverse Voltage 05 = 5 V_{RWM} (Volts)
 Suffix C = Bidirectional Diode

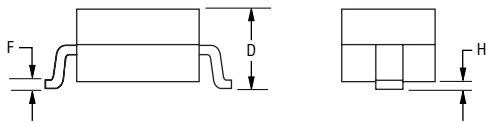
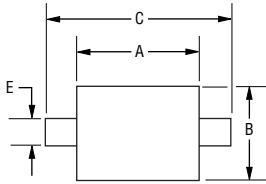
Specifications are subject to change without notice. Customers should verify actual device performance in their specific applications.

CDSOD323-TxxC – TVS Diode Series



Product Dimensions

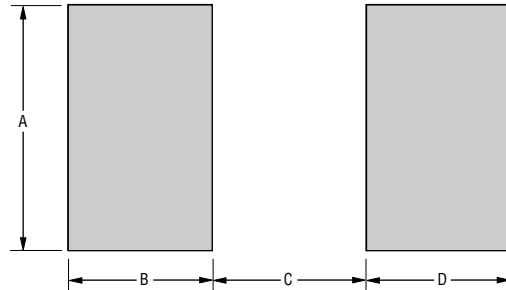
This is a molded JEDEC SOD-323 package with lead free 100 % Sn plating on the terminations. It weighs approximately 30 mg and has a flammability rating of UL 94V-0.



Dimensions	
A	$\frac{1.60 - 1.90}{0.063 - 0.075}$
B	$\frac{1.15 - 1.45}{0.045 - 0.057}$
C	$\frac{2.39 - 2.70}{0.094 - 0.106}$
D	$\frac{0.92 - 1.10}{0.036 - 0.043}$
E	$\frac{0.25 - 0.40}{0.010 - 0.016}$
F	$\frac{0.10 - 0.20}{0.004 - 0.008}$
H	$\frac{0.10}{0.004}$ MAX.

DIMENSIONS = $\frac{\text{MILLIMETERS}}{\text{(INCHES)}}$

Recommended Footprint



Dimensions (Nominal)	
A	$\frac{0.80}{0.031}$
B	$\frac{0.80}{0.031}$
C	$\frac{1.40}{0.055}$
D	$\frac{0.80}{0.031}$

DIMENSIONS = $\frac{\text{MILLIMETERS}}{\text{(INCHES)}}$

Typical Part Marking

Each device has device marking outlined below and the unidirectional devices have an additional Polarity Band indicating the cathode.

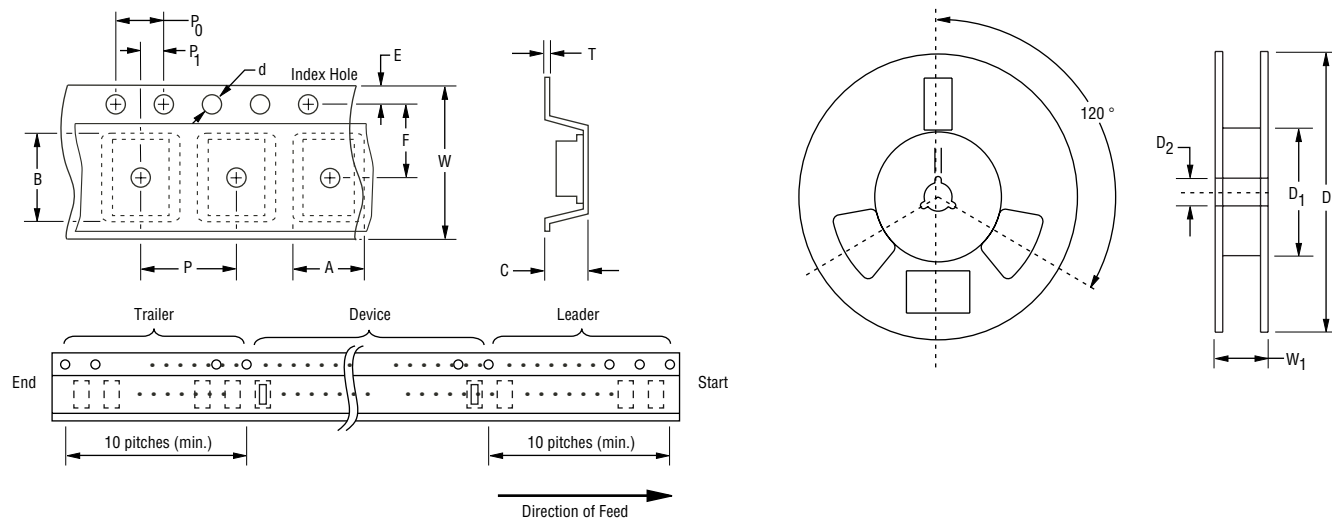
CDSOD323-T03	.....3
CDSOD323-T03C	.....3C
CDSOD323-T05	.....5
CDSOD323-T05C	.....5C
CDSOD323-T08	.....8
CDSOD323-T08C	.....8C
CDSOD323-T12	.....2
CDSOD323-T12C	.....2C
CDSOD323-T15	.....6
CDSOD323-T15C	.....6C
CDSOD323-T18	.....1
CDSOD323-T18C	.....1C
CDSOD323-T24	.....4
CDSOD323-T24C	.....4C

CDSOD323-TxxC – TVS Diode Series

BOURNS®

Packaging Information

The surface mount product is packaged in an 8 mm x 4 mm tape and reel format per EIA-481 standard.



Item	Symbol	SOD-323
Carrier Width	A	$\frac{1.55 \pm 0.10}{(0.061 - 0.004)}$
Carrier Length	B	$\frac{2.90 \pm 0.10}{(0.114 - 0.004)}$
Carrier Depth	C	$\frac{1.35 \pm 0.10}{(0.053 - 0.004)}$
Sprocket Hole	d	$\frac{1.55 \pm 0.05}{(0.061 - 0.002)}$
Reel Outside Diameter	D	$\frac{178}{(7.008)}$
Reel Inner Diameter	D ₁	$\frac{80.0}{(3.150)}$ Min.
Feed Hole Diameter	D ₂	$\frac{13.0 \pm 0.20}{(0.512 - 0.008)}$
Sprocket Hole Position	E	$\frac{1.75 \pm 0.10}{(0.069 - 0.004)}$
Punch Hole Position	F	$\frac{3.50 \pm 0.05}{(0.138 - 0.002)}$
Punch Hole Pitch	P	$\frac{4.00 \pm 0.10}{(0.157 - 0.004)}$
Sprocket Hole Pitch	P ₀	$\frac{4.00 \pm 0.10}{(0.157 - 0.004)}$
Embossment Center	P ₁	$\frac{2.00 \pm 0.05}{(0.079 - 0.002)}$
Overall Tape Thickness	T	$\frac{0.20 \pm 0.10}{(0.008 - 0.004)}$
Tape Width	W	$\frac{8.00 \pm 0.20}{(0.315 - 0.008)}$
Reel Width	W ₁	$\frac{13.5}{(0.531)}$ Max.
Quantity per Reel	—	3,000

REV. 03/11
 Specifications are subject to change without notice.
 Customers should verify actual device performance in their specific applications.