

Features

- Lead free as standard**
- ESD protection 30 kV max.
- Surge protection >24 A
- Protects 1 line
- Uni/bidirectional configuration

Applications

- Computer notebooks
- Cellular phones
- Personal Digital Assistants (PDAs)
- Digital cameras

CDSOD323-TxxSC - TVS Diode Series

General Information

Portable communications, computing and video equipment manufacturers 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 series offers a choice of voltage types ranging from 3 V to 36 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 meets 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
Unidirectional Peak Pulse Power ($t_p = 8/20 \ \mu s$)	P _{PP}	500	W
Bidirectional Peak Pulse Power ($t_p = 8/20 \ \mu s$)	P _{PP}	400	W
Operating Temperature	ΤL	-55 to +150	°C
Storage Temperature	T _{STG}	-55 to +150	°C
ESD Protection (per IEC 61000-4-2) Contact - Min. Contact - Max. Air - Min. Air - Max.	ESD	±8 ±30 ±15 ±30	kV

		CDSOD323-								
Parameter	Symbol	Uni- T03S	Bi- T03SC	Uni- T05S	Bi- T05SC	Uni- T08S	Bi- T08SC	Uni- T12S	Bi- T12SC	Unit
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 _M	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	7.0	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	10.9 V @ 43 A	10.9 V @ 43 A	13.5 V @ 42 A	14.5 V @ 28 A	16.9 V @ 34 A	18.5 V @ 17 A	25.9 V @ 21 A	29.5 V @ 14 A	v
Maximum Leakage Current @ V _{WM}	I _D	125	125	10	10	10	10	1	1	μA
Typical Capacitance @ 0 V, 1 MHz	CP	500	200	350	175	250	150	150	50	pF

Notes:

1. Part numbers with suffix "C" indicate bidirectional device, i.e. CDSOD323-T05SC.

2. For bidirectional devices only, the electrical specifications apply in both directions.

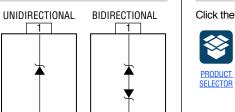


**No lead detected in standard tests of homogeneous materials.

Specifications are subject to change without notice.

Users should verify actual device performance in their specific applications.

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Additional Information

Click these links for more information:



CDSOD323-TxxSC - TVS Diode Series

Bourns

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

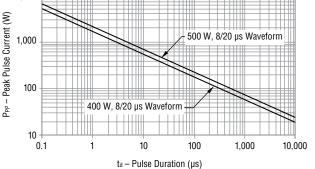
			CDSOD323-							
Parameter	Symbol	Uni- T15S	Bi- T15SC	Uni- T18S	Bi- T18SC	Uni- T24S	Bi- T24SC	Uni- T36S	Bi- T36SC	Unit
Min. Breakdown Voltage @ 1 mA	V _{BR}	16.7	16.7	20.0	20.0	26.7	26.7	40.0	40.0	V
Working Peak Voltage	V _M	15.0	15.0	18.0	18.0	24.0	24.0	36.0	36.0	V
Maximum Clamping Voltage @ $I_P = 1 A$	V _F	24.0	24.0	29.0	29.0	43.0	43.0	60.0	60.0	V
Typical Clamping Voltage @ 8/20 µs @ I _{PP}	V _C	30.0 V @ 17 A	33.0 V @ 12 A	40.0 V @ 9 A	40.0 V @ 9 A	49.0 V @ 12 A	46.2 V @ 9 A	75.0 V @ 5 A	75.0 V @ 5 A	V
Maximum Leakage Current @ V _{WM}	۱ _D					1				μA
Typical Capacitance @ 0 V, 1 MHz	CP	100	40	90	40	88	40	75	35	pF

Notes:

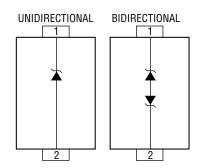
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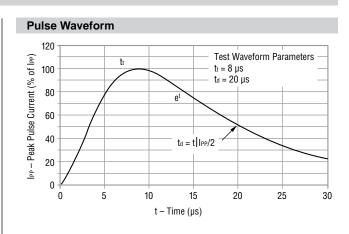
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Peak Pulse Power vs. Pulse Time

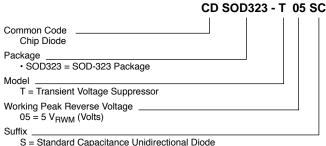


Block Diagram





How to Order



SC = Standard Capacitance Bidirectional Diode

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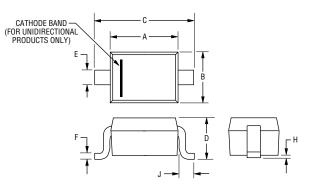
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Performance Graphs

CDSOD323-TxxSC - TVS Diode Series

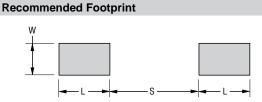
Product Dimensions

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				
А	<u>1.60 - 1.90</u> (0.063 - 0.075)			
В	<u>1.15 - 1.45</u> (0.045 - 0.057)			
С	<u>2.39 - 2.70</u> (0.094 - 0.106)			
D	<u>0.92 - 1.14</u> (0.036 - 0.045)			
E	<u>0.25 - 0.40</u> (0.010 - 0.016)			
F	<u>0.08 - 0.20</u> (0.003 - 0.008)			
н	<u>0.13</u> (0.005) MAX.			
J	<u>0.30 - 0.45</u> (0.012 - 0.018)			

MM DIMENSIONS: (INCHES)



OURN

Dimensions (Nominal)				
L	<u>0.80</u> (0.031)			
S	<u>1.40</u> (0.055)			
W	<u>0.50</u> (0.020)			

MM DIMENSIONS: (INCHES)

Typical Part Marking

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

CDSOD323-T03S CDSOD323-T03SC	
CDSOD323-T05SC	_
CDSOD323-T05SC	Н
CDSOD323-T08S	C
CDSOD323-T08SC	J
CDSOD323-T12S	D
CDSOD323-T12SC	K
CDSOD323-T15S	E
CDSOD323-T15SC	L
CDSOD323-T18S	0
CDSOD323-T18SC	N
CDSOD323-T24S	F
CDSOD323-T24SC	M
CDSOD323-T36S	R
CDSOD323-T36SC	Т

Environmental Specifications

Moisture Sensitivity Level	1
ESD Classification (HBM)	

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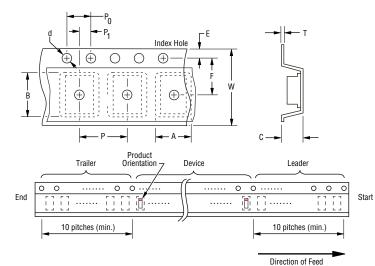
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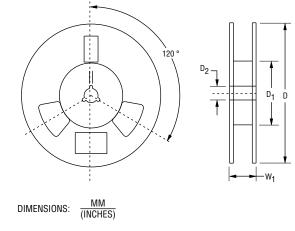
CDSOD323-TxxSC - TVS Diode Series

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Packaging Information

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





Devices are packed in accordance with EIA standard RS-481-A.

Item	Symbol	SOD-323
Carrier Width	А	$\frac{1.55 \pm 0.10}{(0.061 \pm 0.004)}$
Carrier Length	В	$\frac{2.90 \pm 0.10}{(0.114 \pm 0.004)}$
Carrier Depth	С	$\frac{1.35 \pm 0.10}{(0.053 \pm 0.004)}$
Sprocket Hole	d	$\frac{1.55 \pm 0.05}{(0.061 \pm 0.002)}$
Reel Outside Diameter	D	<u>178</u> (7.008)
Reel Inner Diameter	D ₁	80.0 (3.150) 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	Р	$\frac{4.00 \pm 0.10}{(0.157 \pm 0.004)}$
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	т	$\frac{0.20 \pm 0.10}{(0.008 \pm 0.004)}$
Tape Width	w	$\frac{8.00 \pm 0.20}{(0.315 \pm 0.008)}$
Reel Width	W ₁	<u>13.5</u> (0.531) Max.
Quantity per Reel		3,000

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