

Features

- Lead free as standard*
- ESD protection 30 kV max.
- Protects 1 line
- Bidirectional configurations
- RoHS compliant**
- AEC-Q101 compliant***

Applications

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

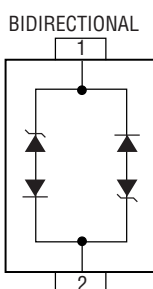
Sustainability

- Small size reduces material use
- Recyclable ESD-safe packaging
- ISO 14001, low-impact energy

Product Overview

Portable communications, automotive, computing and video equipment manufacturers are challenging the semiconductor industry to develop increasingly smaller electronic components.

Bourns offers AEC-Q101 compliant Transient Voltage Suppressor Diodes for surge and ESD protection applications, in SOD323 package size format. This automotive grade Transient Voltage Suppressor Array series offers a choice of voltage types ranging from 3 V to 36 V in a 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.

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Absolute Maximum Ratings (@ T_A = 25 °C Unless Otherwise Noted)

Parameter	Symbol	Value	Unit
Peak Pulse Power (t _p = 8/20 μs)	P _{PP}	400	W
Operating Temperature Range	T _L	-55 to +150	°C
Storage Temperature Range	T _{STG}	-55 to +150	°C
ESD Protection per IEC 61000-4-2 Contact Discharge	ESD	±30	kV

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

Parameter	Symbol	CDSOD323-T03SC-Q	CDSOD323-T12SC-Q	CDSOD323-T36SC-Q	Unit
Minimum Breakdown Voltage @ 1 mA	V _{BR}	4.0	13.3	40.0	V
Working Peak Voltage	V _{WM}	3.3	12.0	36.0	V
Maximum Clamping Voltage @ I _p = 1 A	V _C	8.0	19.0	60.0	V
Typical Clamping Voltage @ 8/20 μs @ I _{pp}	V _C	10.9 V @ 43 A	29.5 V @ 14 A	75.0 V @ 5 A	V
Maximum Leakage Current @ V _{WM}	I _D	125	1	1	μA
Typical Capacitance @ 0 V, 1 MHz	C _p	250	75	35	pF

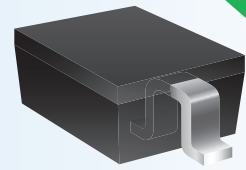
* No lead detected in standard tests of homogeneous materials.

** RoHS Directive 2015/863, Mar 31, 2015 and Annex.

*** "Q" part number suffix indicates AEC-Q101 compliance. Specifications are subject to change without notice.

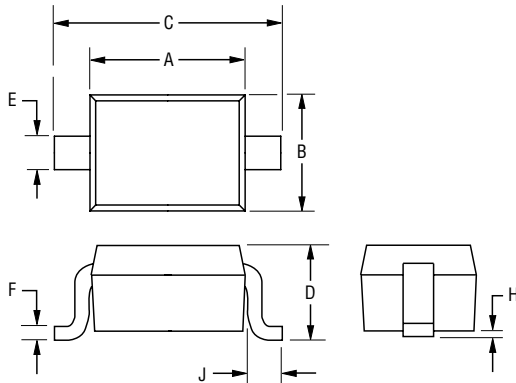
Users should verify actual device performance in their specific applications.

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Product Dimensions

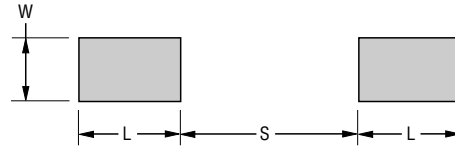
This is an RoHS compliant molded JEDEC SOD-323 package with 100 % Sn plating on the terminations. It weighs approximately 6 mg and has a flammability rating of UL 94V-0.



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	$\frac{0.92 - 1.14}{(0.036 - 0.045)}$
E	$\frac{0.25 - 0.40}{(0.010 - 0.016)}$
F	$\frac{0.08 - 0.20}{(0.003 - 0.008)}$
H	$\frac{0.13}{(0.005)} \text{ MAX.}$
J	$\frac{0.30 - 0.45}{(0.012 - 0.018)}$

DIMENSIONS: $\frac{\text{MM}}{(\text{INCHES})}$

Recommended Footprint



Dimensions (Nominal)	
L	$\frac{0.80}{(0.031)}$
S	$\frac{1.40}{(0.055)}$
W	$\frac{0.50}{(0.020)}$

DIMENSIONS: $\frac{\text{MM}}{(\text{INCHES})}$

Environmental Specifications

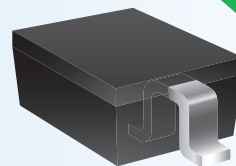
Moisture Sensitivity Level..... 1
ESD Classification (HBM)3B

How to Order

Common Code **CD SOD323-T 03 SC-Q**
 CD = Chip Diode
 Package SOD323 = SOD-323 Package
 Model T = Transient Voltage Suppressor
 Working Peak Voltage (Volts) _____
 03 = 3.3 V_{WM}
 12 = 12 V_{WM}
 36 = 36 V_{WM}
 Suffix SC = Standard Capacitance Bidirectional Diode
 AEC-Q101 Suffix _____
 Q = AEC-Q101 Compliant

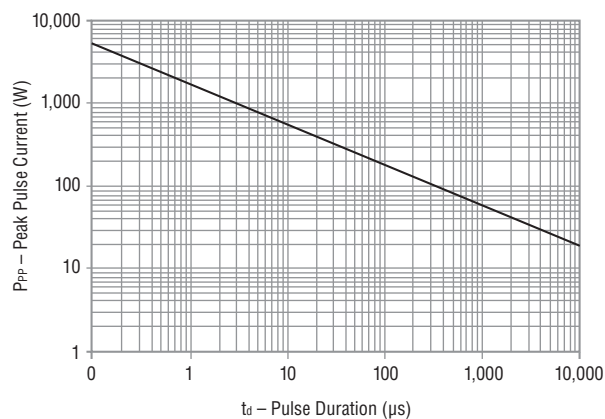
Typical Part Marking

CDSOD323-T03SC-Q.....G
 CDSOD323-T12SC-Q.....K
 CDSOD323-T36SC-Q.....I
 (Underline denotes AEC-Q101 compliancy)

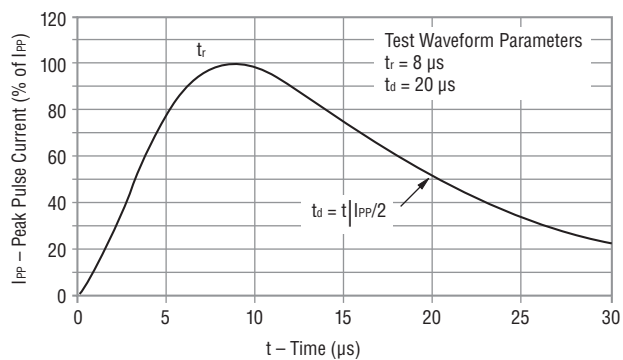


Performance Graphs

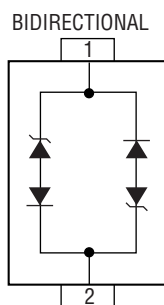
Typical Peak Pulse Power vs Pulse Time



Pulse Waveform

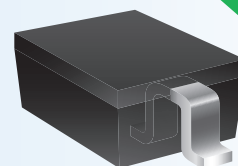


Block Diagram



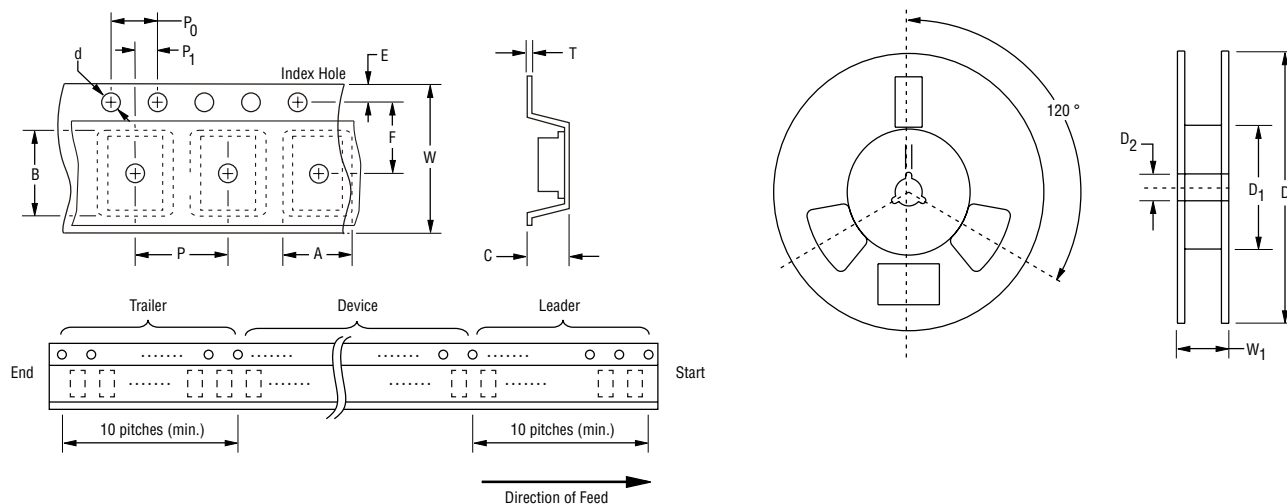
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Packaging Specifications

The product is packaged in 8 mm tape width format per EIA-481 standard.



Item	Symbol	SOD-323
Carrier Width	A	$\frac{1.55 \pm 0.10}{(0.061 \pm 0.004)}$
Carrier Length	B	$\frac{2.90 \pm 0.10}{(0.114 \pm 0.004)}$
Carrier Depth	C	$\frac{1.35 \pm 0.10}{(0.053 \pm 0.004)}$
Sprocket Hole	d	$\frac{1.55 \pm 0.05}{(0.061 \pm 0.002)}$
Reel Outside Diameter	D	$\frac{178}{(7.008)}$
Reel Inner Diameter	D ₁	$\frac{80.0}{(3.150)} \text{ MIN.}$
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	$\frac{4.00 \pm 0.10}{(0.157 \pm 0.004)}$
Sprocket Hole Pitch	P ₀	$\frac{4.00 \pm 0.10}{(0.157 \pm 0.004)}$
Embossment Center	P ₁	$\frac{2.00 \pm 0.05}{(0.079 \pm 0.002)}$

Item	Symbol	SOD-323
Overall Tape Thickness	T	$\frac{0.20 \pm 0.10}{(0.008 \pm 0.004)}$
Tape Width	W	$\frac{8.00 \pm 0.20}{(0.315 \pm 0.008)}$
Reel Width	W ₁	$\frac{13.5}{(0.531)} \text{ MAX.}$
Quantity per Reel	--	3000

DIMENSIONS: $\frac{\text{MM}}{(\text{INCHES})}$

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