

Features

- Protects one line or one I/O port
- Bidirectional configuration
- ESD protection 30 kV max.
- Low capacitance: ~3 pF typical
- Replaces 0805 MLV devices
- RoHS compliant*
- AEC-Q101 compliant**

Applications

- Cellular phones
- PDAs and notebooks
- Digital cameras
- MP3 players and GPS
- USB interfaces
- Automotive

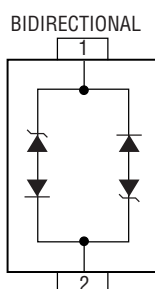
Sustainability

- 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 Array 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 of 5 V and 12 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 will assist compliance with IEC 61000-4-2 (ESD), IEC 61000-4-4 (EFT) and IEC 61000-4-5 (Surge) requirements.

Contact Information

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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}	350	W
Operating Temperature Range	T _J	-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-T05C-Q	CDSOD323-T12C-Q	Unit
Minimum Breakdown Voltage @ 1 mA	V _{BR}	6.0	13.3	V
Working Peak Voltage	V _{WM}	5.0	12.0	V
Maximum Clamping Voltage @ I _p = 1 A	V _C	9.8	19.0	V
Typical Clamping Voltage @ 8/20 μs @ I _{pp}	V _C	18.3 V @ 17 A	28.3 V @ 11 A	V
Maximum Leakage Current @ V _{WM}	I _D	5	1	μA
Typical Capacitance @ 0 V, 1 MHz	C _p	3	3	pF

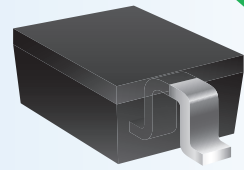
* RoHS Directive 2015/863, Mar 31, 2015 and Annex.

** "Q" part number suffix indicates AEC-Q101 compliance.

Specifications are subject to change without notice.

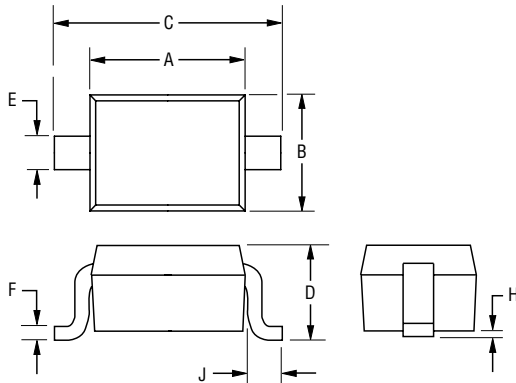
Users should verify actual device performance in their specific applications.

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Product Dimensions

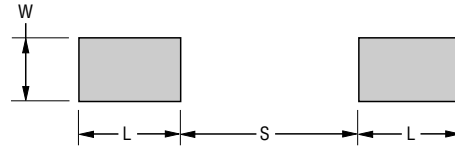
This is an RoHS compliant molded JEDEC SOD-323 package with 100 % Sn plating on the terminations. It weighs approximately 6 mg and has a flammability rating of UL 94V-0.



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	$\frac{0.13}{(0.005)}$ 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

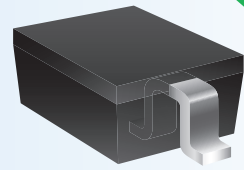
How to Order

Common Code CD SOD323-T 05 C-Q
 CD = Chip Diode
 Package SOD323 = SOD-323 Package
 Model T = Transient Voltage Suppressor
 Working Peak Reverse Voltage (Volts) 05 = 5 V_{WM}
12 = 12 V_{WM}
 Suffix C = Bidirectional Diode
 AEC-Q101 Suffix Q = AEC-Q101 Compliant

Typical Part Marking

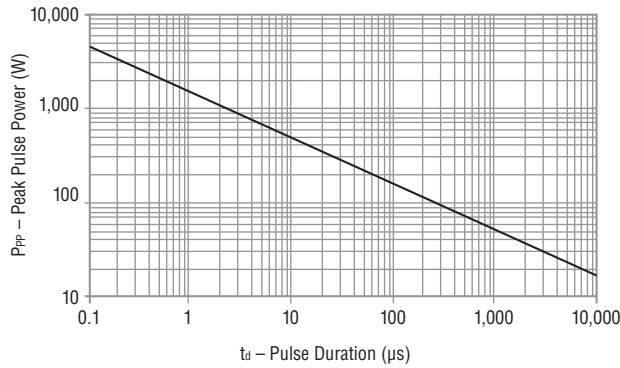
CDSOD323-T05C-Q5C
 CDSOD323-T12C-Q2C

(Underline denotes AEC-Q101 compliancy)

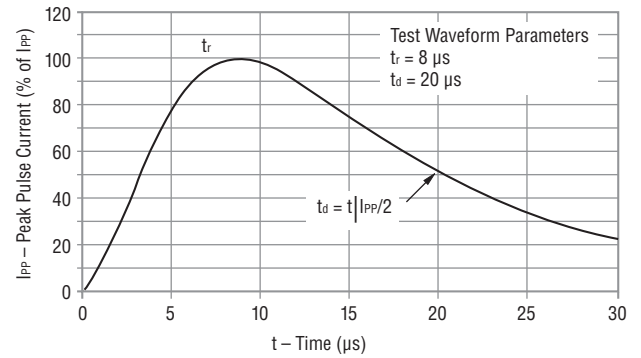


Performance Graphs

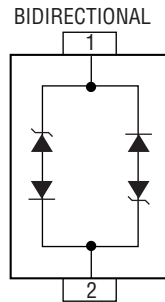
Typical Peak Pulse Power vs Pulse Time



Pulse Waveform

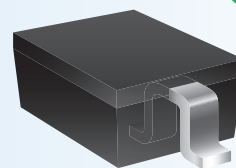


Block Diagram



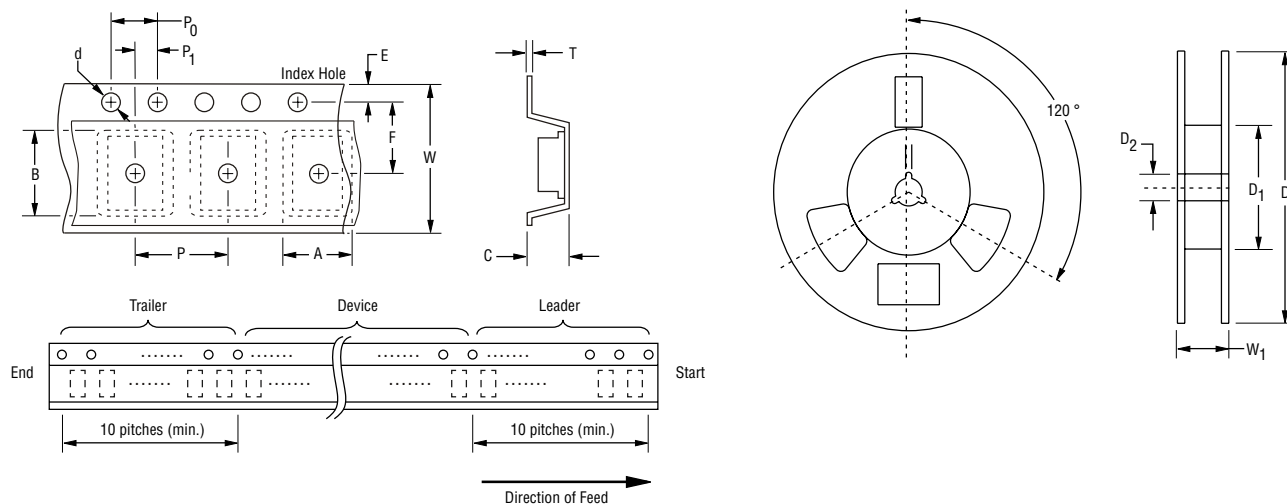
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Packaging Specifications

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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