Features

- RoHS compliant*
- Protects one or two lines
- Unidirectional and bidirectional configurations
- ESD protection 30 kV max.
- AEC-Q101 compliant**

Applications

- RS-232, RS-422 and RS-423 data lines
- Portable electronics
- Wireless bus protection
- Control and monitoring systems

CDSOT23-T24C-Q - TVS Diode Array

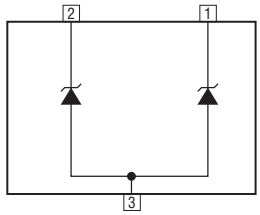
General Information

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

Bourns offers Transient Voltage Suppressor Array Diodes for surge and ESD protection applications, in compact chip package SOT23 size format. 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.

UNI/BIDIRECTIONAL



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

Parameter	Symbol	Value	Unit
Junction Temperature	T_J	-55 to +150	ºC
Storage Temperature	T_{STG}	-55 to +150	ºC
ESD Protection (per IEC 61000-4-2) Contact and Air	ESD	±30	kV
Maximum Working Peak Voltage	V_{WM}	24.0	V

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

Parameter	Symbol	Value	Unit
Minimum Breakdown Voltage @ 1 mA	V_{BR}	26.7	V
Maximum Clamping Voltage V_C @ I_P = 1 A (1)	V_C	37.0	V
Maximum Clamping Voltage @ 8/20 μs V_C @ I_{PP} (1)	V_C	46.0 V @ 9 A	V
Maximum Leakage Current @ V_{WM}	I_D	1	μA
Typical Capacitance - Unidirectional @ 0 V, 1 MHz	$C_{j(SD)}$	88	pF
Typical Capacitance - Bidirectional @ 0 V, 1 MHz	$C_{j(SD)}$	44	pF
Forward Voltage @ 100 mA, 300 μs - Square Wave	V_F	1.5	V

Note: 1. See Pulse Wave Form.

Additional Information

Click these links for more information:

PRODUCT SELECTOR | TECHNICAL LIBRARY | INVENTORY | SAMPLES | CONTACT

Environmental Specifications

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

How to Order

CD SOT23 - T 24 C - Q

Common Code
Chip Diode

Package
• SOT23 = SOT23 Package

Model
T = Transient Voltage Suppressor

Working Peak Voltage
24 = 24 V_{RWM} (Volts)

Suffix
C = Uni/Bidirectional Diode

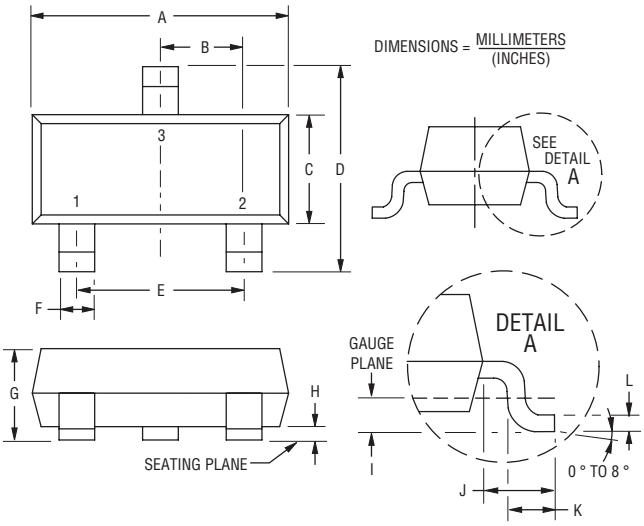
AEC-Q101 Suffix
Q = AEC-Q101 Compliant

WARNING
Cancer and Reproductive Harm
www.P65Warnings.ca.gov

* 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. The products described herein and this document are subject to specific legal disclaimers as set forth on the last page of this document, and at www.bourns.com/docs/legal/disclaimer.pdf.

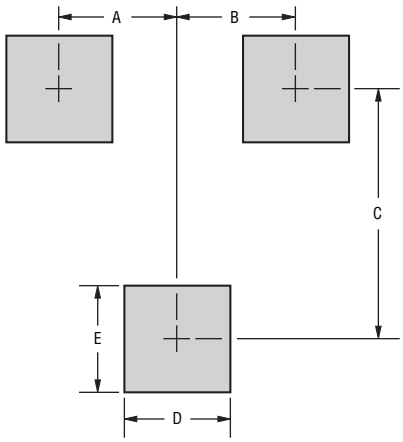
Product Dimensions

This is a molded JEDEC SOT23 package with 100 % Matte Sn plating on the lead frame. It weighs approximately 10 mg and has a flammability rating of UL 94V-0.



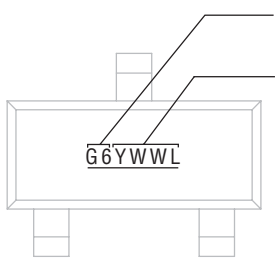
Dimensions	
A	2.80 - 3.00 (0.110 - 0.118)
B	0.95 (0.037) BSC
C	1.20 - 1.40 (0.047 - 0.055)
D	2.10 - 2.49 (0.083 - 0.098)
E	1.90 (0.075) BSC
F	0.30 - 0.50 (0.012 - 0.019)
G	0.89 - 1.17 (0.035 - 0.046)
H	0.05 - 0.015 (0.002 - 0.006)
I	0.25 (0.010) BSC
J	0.46 - 0.64 (0.018 - 0.025)
K	0.40 - 0.58 (0.016 - 0.023)
L	0.08 - 0.20 (0.003 - 0.008)

Recommended Footprint



Dimensions	
A	0.95 (0.037)
B	0.95 (0.037)
C	2.00 (0.079)
D	0.85 (0.033)
E	0.85 (0.033)

Typical Part Marking

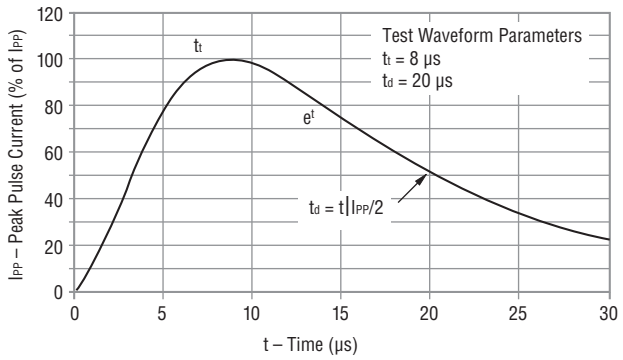


2-DIGIT PRODUCT CODE:
G6 = CDSOT23-T24C

MANUFACTURING DATE CODE:
Y = YEAR
WW = WEEK
L = LOT CODE

UNDERSCORE DENOTES AEC-Q101 COMPLIANCY

Pulse Waveform

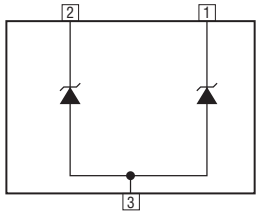


Block Diagram

The device block diagrams below includes the pin names and basic electrical connections associated with each channel. The CDSOT23-T24C-Q can be used to protect one signal line in a bidirectional configuration or two signal lines in a unidirectional configuration against voltage transients, up to rated limits. Two signal lines can be connected from Pin 1 to Pin 3 and Pin 2 to Pin 3 for a unidirectional configuration. It can also be used in a bidirectional configuration when the line is connected between Pin 1 and Pin 2. As long as the voltage level on the signal line does not exceed the maximum working peak voltage, the CDSOT23-T24C-Q will have no impact on the system apart from the leakage current and parasitic capacitance.

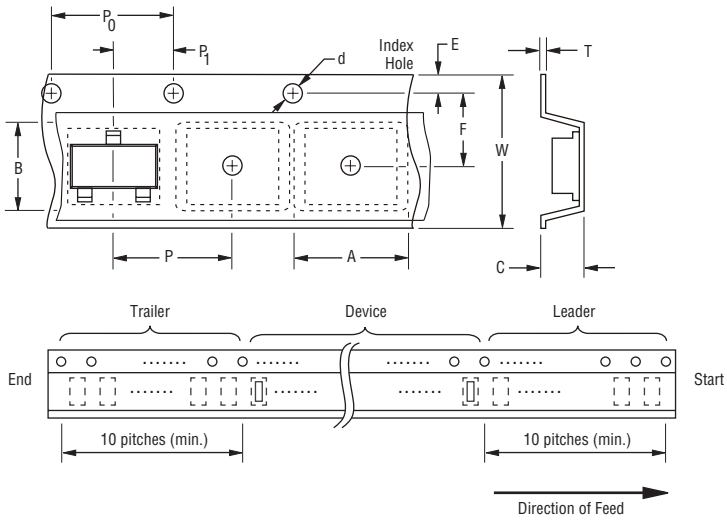
As soon as the positive transient voltage exceeds the breakdown voltage of the diode, the diode begins to conduct and shunt current to ground. The clamping voltage (V_C) will be defined by the breakdown voltage and internal resistance. The clamping voltage will be specified in the datasheet relative to a peak pulse current and a reference surge waveform.

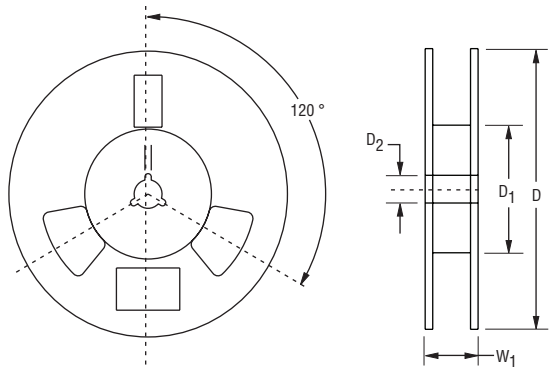
UNI/BIDIRECTIONAL



Packaging Information

The surface mount product is packaged in an 12 mm x 8 mm tape and reel format per EIA-481 standard.





DIMENSIONS: MM / (INCHES)

Item	Symbol	SOT23
Carrier Width	A	2.25 ± 0.10 (0.088 ± 0.004)
Carrier Length	B	2.34 ± 0.10 (0.092 ± 0.004)
Carrier Depth	C	1.22 ± 0.10 (0.048 ± 0.004)
Sprocket Hole	d	1.55 ± 0.05 (0.061 ± 0.002)
Reel Outside Diameter	D	178 (7.008)
Reel Inner Diameter	D_1	50.0 (1.969) 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	4.00 ± 0.10 (0.157 ± 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	8.00 ± 0.20 (0.315 ± 0.008)
Reel Width	W_1	14.4 (0.567) MAX.
Quantity per Reel	--	3,000

BOURNS®

Asia-Pacific:
Tel: +886-2 2562-4117
Email: asiacus@bourns.com

Europe:
Tel: +36 88 885 877
Email: eurocus@bourns.com

Mexico:
Tel: +52 614 478 0400
Email: mexicus@bourns.com

The Americas:
Tel: +1-951 781-5500
Email: americus@bourns.com

www.bourns.com

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