



**THE DATASHEET OF
CDSOT23-T05LC-Q**





Features

- RoHS compliant*
- Protects one line
- ESD protection 30 kV max.
- AEC-Q101 compliant**

Applications

- Protection of power buses
- Protection of I/O interfaces
- Overvoltage transient protection
- Telecom, computer, industrial and consumer electronics applications

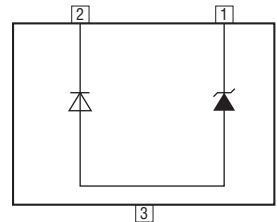
CDSOT23-TxxLC-Q - Low Capacitance TVS Diode Array Series

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 Array Diodes for surge and ESD protection applications, in compact chip package SOT23 size format. The Transient Voltage Suppressor Array series offers a choice of voltage types as listed below. 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 in meeting IEC 61000-4-2 (ESD), IEC 61000-4-4 (EFT) and IEC 61000-4-5 (Surge) requirements.



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

Parameter	Symbol	Value	Unit
Ambient Temperature	T _A	-55 to +150	°C
Storage Temperature	T _{STG}	-55 to +150	°C

Additional Information

Click these links for more information:



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

Parameter	Symbol	CDSOT23-			Unit
		T03LC-Q	T05LC-Q	T08LC-Q	
Working Peak Voltage	V _{WM}	3.3	5.0	8.0	V
Breakdown Voltage @ 1 mA	V _{BR}	4.0	6.0	8.5	V
Maximum Clamping Voltage V _C @ I _A ¹	V _C	8.0	9.8	13.4	V
Typical Clamping Voltage @ 8/20 μs V _C @ I _{PP} ¹	V _C	16.9 V @ 43 A	17 V @ 42 A	19.5 V @ 34 A	V
Typical Peak Pulse Power (t _p = 8/20 μs)	P _{PP}	500			W
Maximum Leakage Current @ V _{WM}	I _D	125	20	10	μA
Typical Capacitance Bidirectional @ 0 V, 1 MHz	C _{J(SD)}	5			pF
ESD Protection Contact - Max. Air - Max.	ESD	±30 ±30			kV

Notes:

1. See Pulse Wave Form.

Positive Potential is applied from Pin 1 to Pin 2 with Pin 2 as ground.

Do not test or surge from Pin 2 to Pin 1.



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.

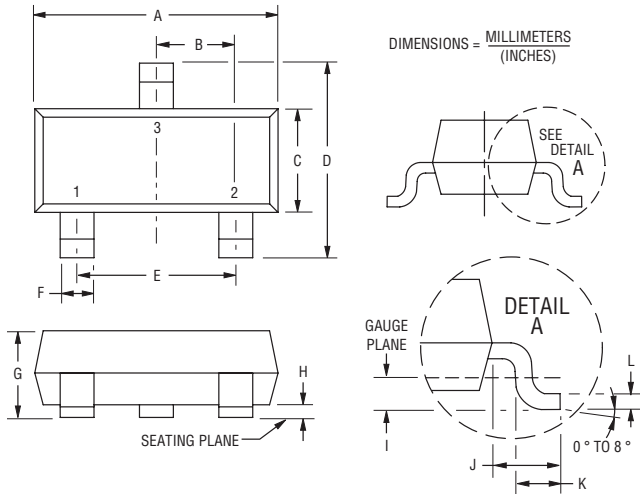
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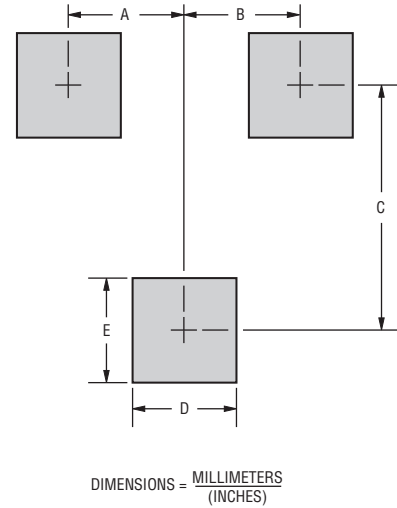
Product Dimensions

This is a molded JEDEC SOT23-6 package with lead free 100 % Sn plating on the lead frame. It weighs approximately 0.6 g and has a flammability rating of UL 94V-0.



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

Recommended Footprint



Dimensions	
A	$\frac{0.95}{(0.037)}$
B	$\frac{0.95}{(0.037)}$
C	$\frac{2.00}{(0.079)}$
D	$\frac{0.85}{(0.033)}$
E	$\frac{0.85}{(0.033)}$

How to Order

CD SOT23 - T xx LC - Q

Common Code _____
 CD = Chip Diode

Package _____
 SOT23 = SOT23 Package

Model _____
 T = Transient Voltage Suppressor

Working Peak Voltage _____
 03 = 3 V_{WM} (Volts)
 05 = 5 V_{WM} (Volts)
 08 = 8 V_{WM} (Volts)

Suffix _____
 LC = Low Capacitance Diode

AEC-Q101 Suffix _____
 Q = AEC-Q101 Compliant

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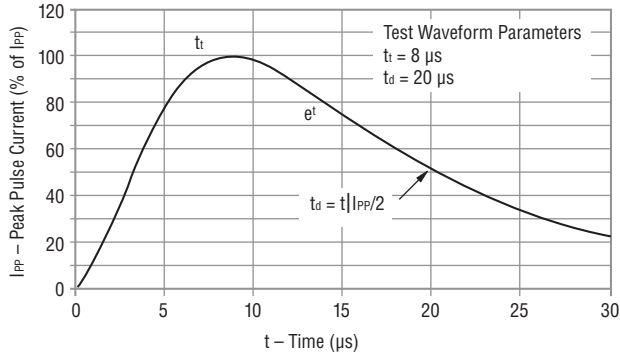
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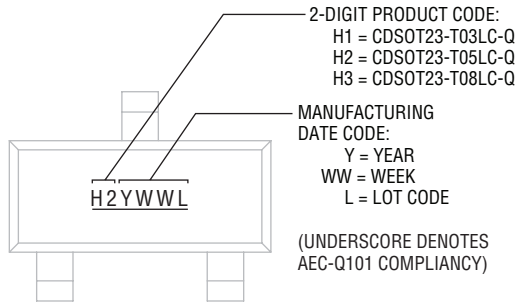
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Performance Graph - Pulse Waveform

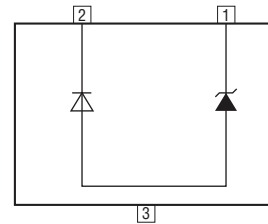


Typical Part Marking



Block Diagram

The device block diagram below includes the pin names and basic electrical connections.



Environmental Specifications

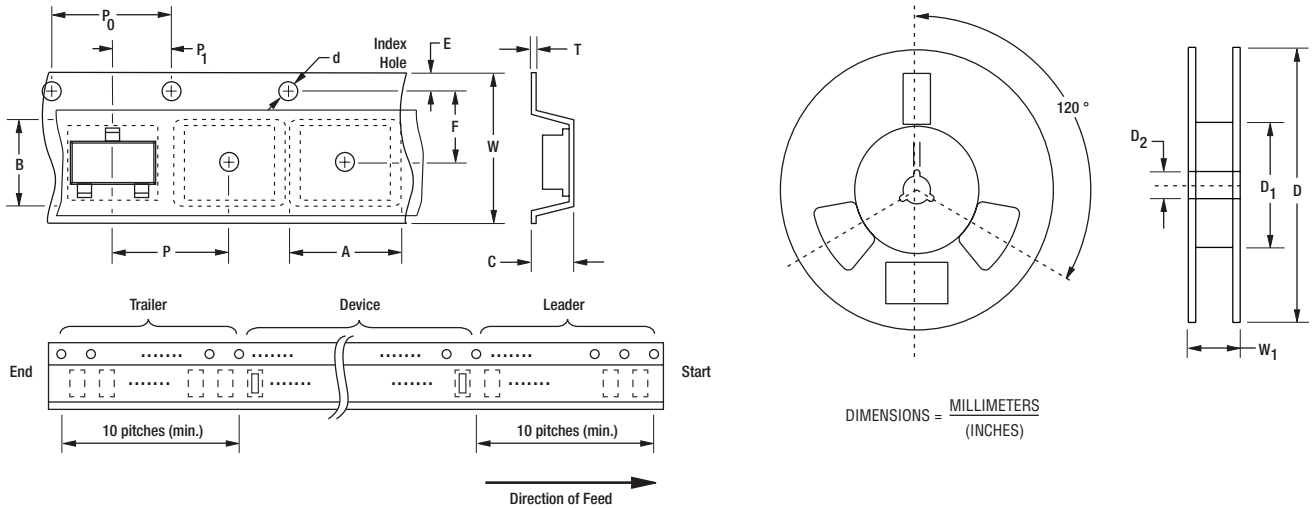
Moisture Sensitivity Level.....	1
ESD Classification (HBM).....	3A

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Packaging Information

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



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

Item	Symbol	SOT23
Carrier Width	A	$\frac{2.25 \pm 0.10}{(0.088 \pm 0.004)}$
Carrier Length	B	$\frac{2.34 \pm 0.10}{(0.092 \pm 0.004)}$
Carrier Depth	C	$\frac{1.22 \pm 0.10}{(0.048 \pm 0.004)}$
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	$\frac{50.0}{(1.969)}$ 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	$\frac{2.00 \pm 0.05}{(0.079 \pm 0.002)}$
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	$\frac{14.4}{(0.567)}$ Max.
Quantity per Reel	—	3,000



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REV. 04/23

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-  Shortage Management
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