



Features

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

Applications

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

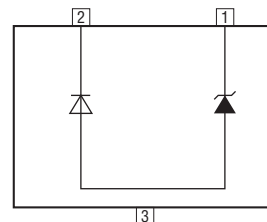
CDSOT23-T03LC~T36LC - Low Capacitance TVS Diode Array Series

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 ranging from 3 V to 36 V. 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.



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

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

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

Parameter	Symbol	T03LC	T05LC	T08LC	T12LC	T15LC	T24LC	T36LC	Unit
Breakdown Voltage @ 1 mA	V _{BR}	4.0	6.0	8.5	13.3	16.7	26.7	40.0	V
Working Peak Voltage	V _{WM}	3.3	5.0	8.0	12.0	15.0	24.0	36.0	V
Maximum Clamping Voltage V _C @ I _P ¹	V _F	8.0	9.8	13.4	19.0	24.0	43.0	51.0	V
Maximum Clamping Voltage @ 8/20 μs V _C @ I _{PP} ¹	V _F	10.9 V @ 43 A	13.5 V @ 42 A	16.9 V @ 34 A	25.9 V @ 27 A	30.0 V @ 17 A	49.0 V @ 12 A	76.8 V @ 9 A	V
Maximum Leakage Current @ V _{WM}	I _D	125	20	10	2	1	1	1	μA
Typical Capacitance Bidirectional @ 0 V, 1 MHz	C _{J(SD)}	5							pF
ESD Protection (per IEC 61000-4-2) Contact - Min. Contact - Max. Air - Min. Air - Max.	ESD	±8 ±30 ±15 ±30							kV
Peak Pulse Power (t _p = 8/20 μs) ²	P _{PP}	500							W

Notes:

1. See Pulse Wave Form.
2. See Peak Pulse Power vs. Pulse Time.
3. Positive Potential is applied from Pin 1 to Pin 2 with Pin 2 as ground.
4. Do not test or surge from Pin 2 to Pin 1.

*RoHS Directive 2002/95/EC Jan. 27, 2003 including annex and RoHS Recast 2011/65/EU June 8, 2011.

Specifications are subject to change without notice.

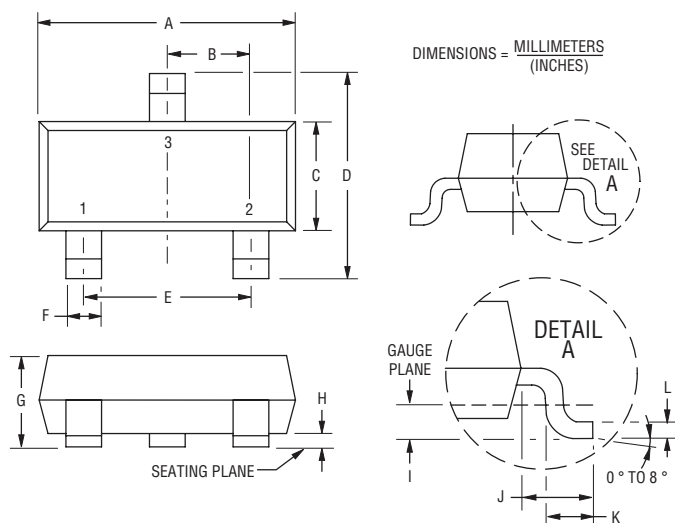
The device characteristics and parameters in this data sheet can and do vary in different applications and actual device performance may vary over time. Users should verify actual device performance in their specific applications.

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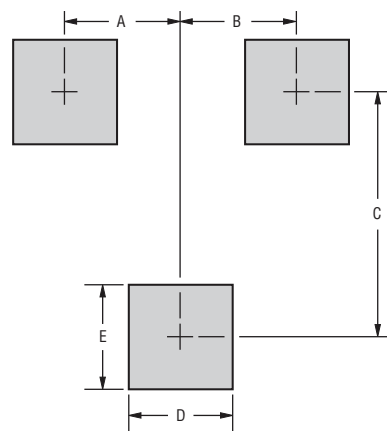
Product Dimensions

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

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

Common Code CD SOT23 - T 03 LC

CD = Chip Diode

Package SOT23 = SOT23 Package

Model T = Transient Voltage Suppressor

Working Peak Voltage 03 = 3 V_{RWM} (Volts)

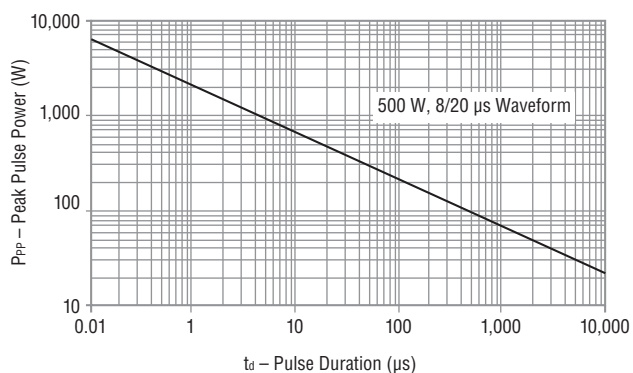
Suffix LC = Low Capacitance Diode

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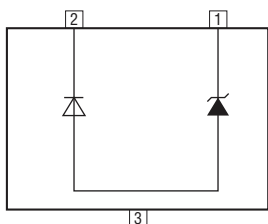
Performance Graphs

Peak Pulse Power vs. Pulse Time

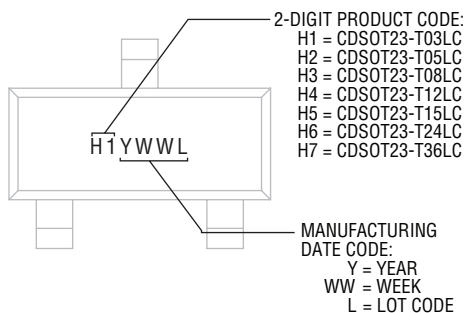


Block Diagram

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



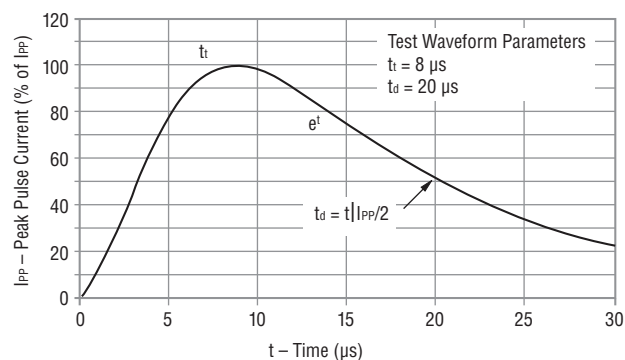
Typical Part Marking



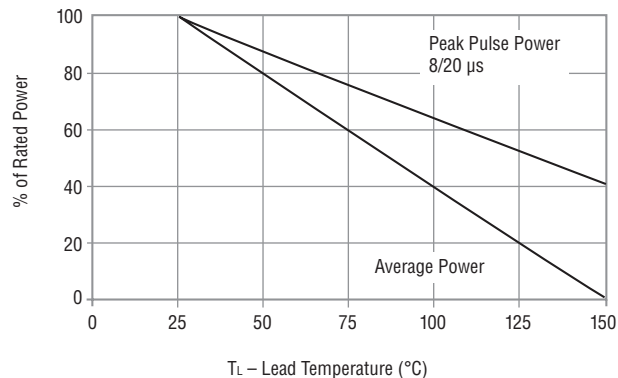
Environmental Specifications

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

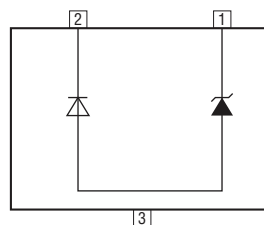
Pulse Waveform



Power Derating Curve



Pin Out



Pin	Function
1	I/O
2	I/O
3	N.C.

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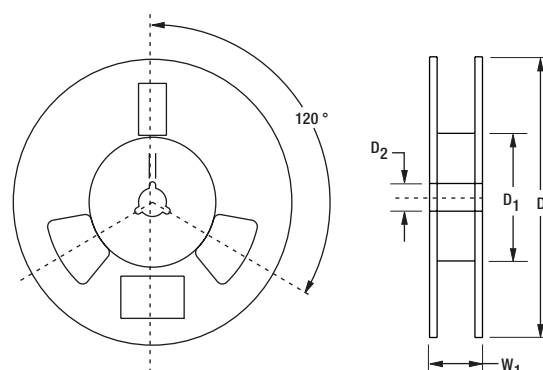
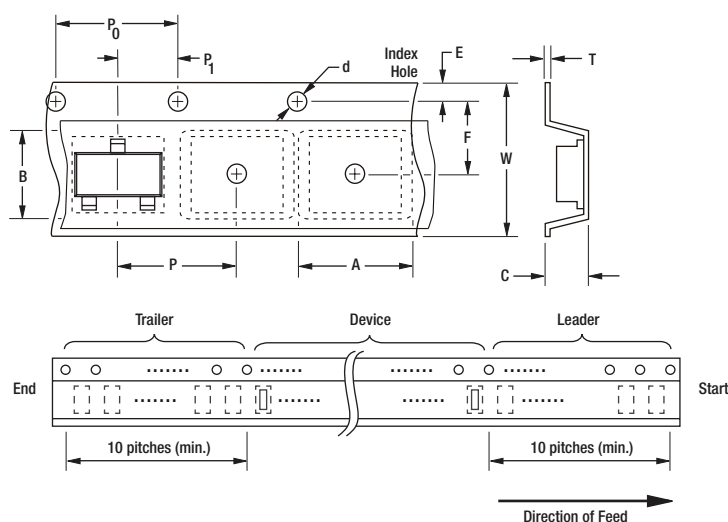
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Packaging Information

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	$\frac{50.0}{(1.969)} \text{ Min.}$
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	$\frac{2.00 \pm 0.05}{(0.079 \pm 0.002)}$
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	$\frac{14.4}{(0.567)} \text{ Max.}$
Quantity per Reel	—	3,000

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REV. 01/18

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