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

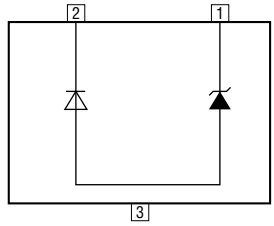
CDSOT23-T03LC~T36LC - Low Capacitance TVS Diode Array Series

General Information

The markets of portable communications, computing and video equipment 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 Supressor 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

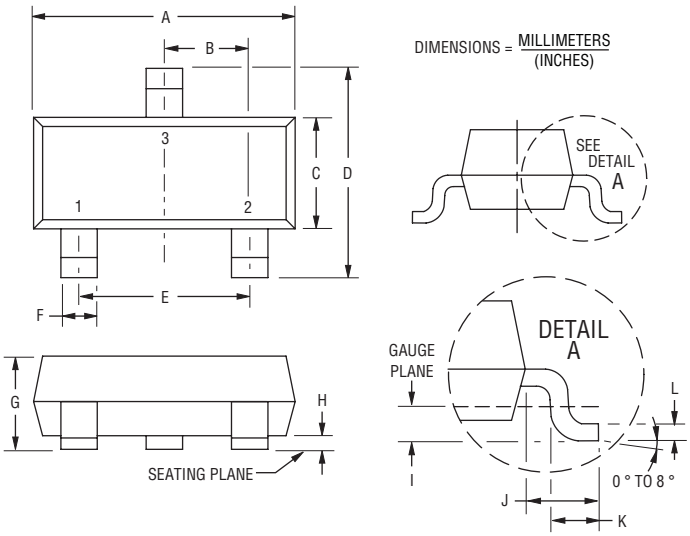
Electrical Characteristics (@ T_A = 25 °C Unless Otherwise Noted)

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.

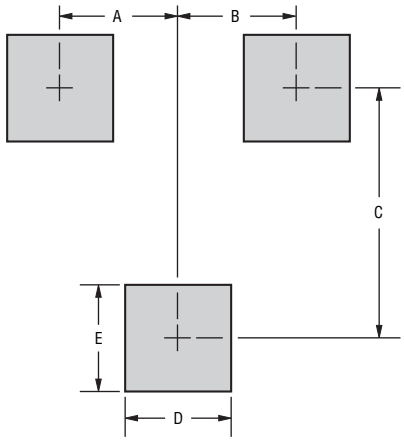
Product Dimensions

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	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)

How to Order

CD SOT23 - T 03 LC

Common Code
CD = Chip Diode

Package
SOT23 = SOT23 Package

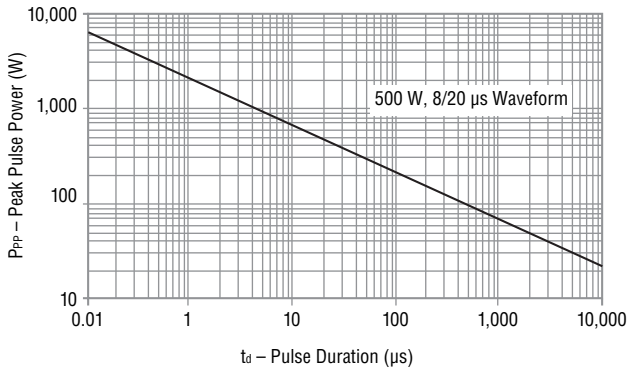
Model
T = Transient Voltage Suppressor

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

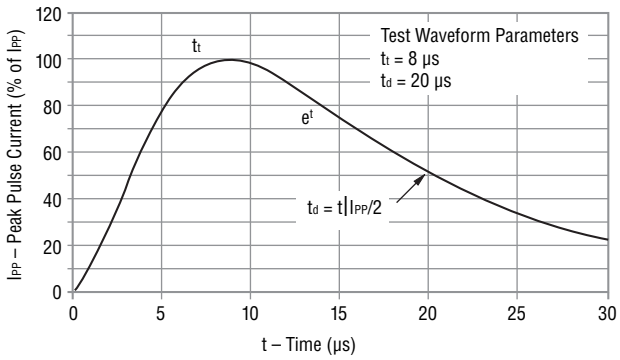
Suffix
LC = Low Capacitance Diode

Performance Graphs

Peak Pulse Power vs. Pulse Time

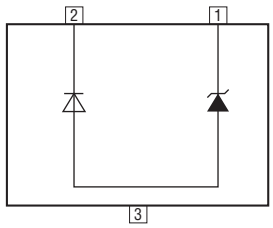


Pulse Waveform

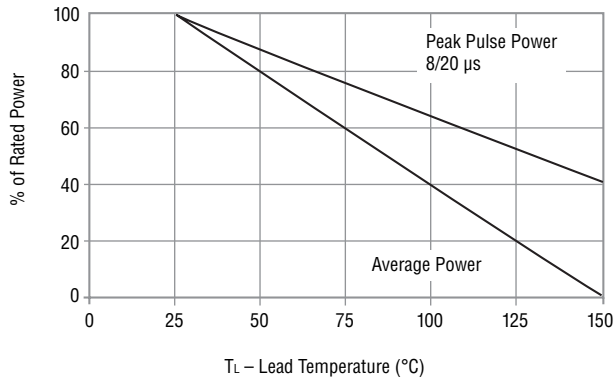


Block Diagram

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



Power Derating Curve



Typical Part Marking

CDSOT23-T03LC 03L

CDSOT23-T05LC 05L

CDSOT23-T08LC 08L

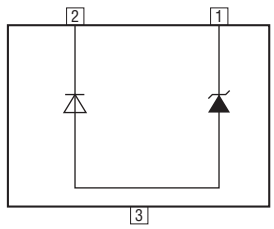
CDSOT23-T12LC 12L

CDSOT23-T15LC 15L

CDSOT23-T24LC 24L

CDSOT23-T36LC 36L

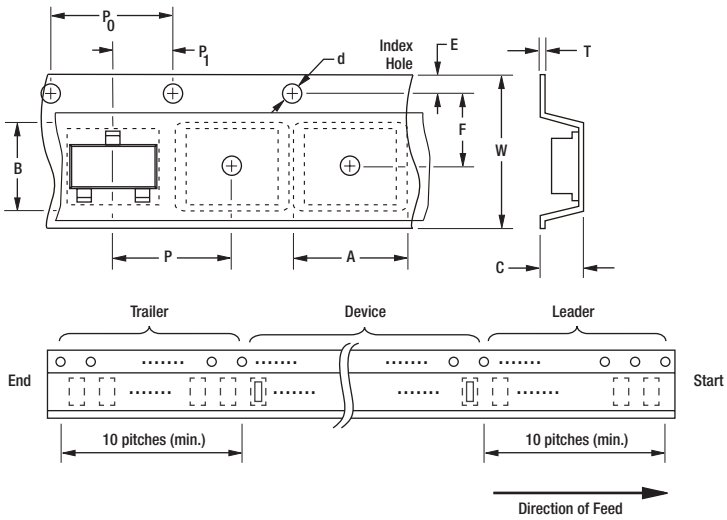
Pin Out

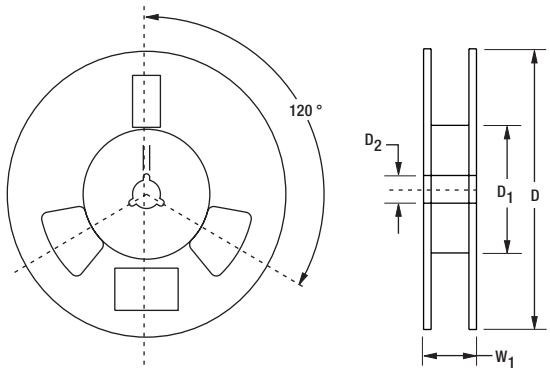


Pin	Function
1	I/O
2	I/O
3	N.C.

Packaging Information

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





DIMENSIONS = MILLIMETERS / (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

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