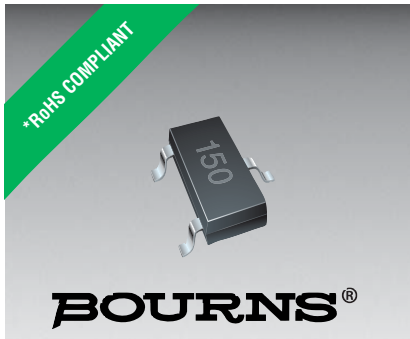




Features

- Lead free as standard
- RoHS compliant*
- Low clamping voltage
- Bidirectional ESD protection
- Protects 2 lines

Applications

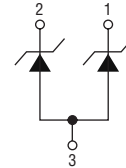
- Personal Digital Assistants (PDAs)
- Mobile phones & accessories
- Portable electronics
- Power lines and low speed data lines

CDSOT23-0502U - Surface Mount TVS Diode

General Information

The CDSOT23-0502U device provides ESD, EFT and Surge protection for high speed data ports meeting IEC 61000-4-2 (ESD), IEC 61000-4-4 (EFT) and IEC 61000-4-5 (Surge) requirements. The Transient Voltage Suppressor array offers a Working Peak Reverse Voltage of 5 V and Minimum Breakdown Voltage of 6 V.

The SOT23-3 packaged device will mount directly onto the industry standard SOT23-3 footprint. Bourns® Chip Diodes are easy to handle with standard pick and place equipment and their flat configuration minimizes roll away.



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

Parameter	Symbol	Value	Unit
Peak Pulse Current (t _p = 8/20μs)	I _{PPM}	16	A
Storage Temperature	T _{STG}	-55 to 125	°C
Operating Temperature	T _{OPR}	-55 to 150	°C
Minimum Breakdown Voltage @ 1 mA	V _{BR}	6.0	V
Reverse Standoff Voltage	V _M	5	V
Maximum Leakage Current @ V _{WM}	I _L	2.5	μA
Maximum Forward Voltage	V _F	1	V
Maximum Surge Clamping Voltage1 @ I _{PP} =5 A (NOTE 1,2)	V _{CS1}	7	V
Maximum Surge Clamping Voltage2 @ I _{PP} =5 A (NOTE 3)	V _{CS2}	8	V
Typical ESD Clamping Voltage1 @ I _{PP} =17 A (NOTE 1,2)	V _{ESD1}	9	V
Typical ESD Clamping Voltage2 @ I _{PP} =17 A (NOTE 3)	V _{ESD2}	11	V
Max Channel Input Capacitance @ 0 V, 1 MHz (NOTE 1,2)	C _N	65	pF
Max Channel to Channel Capacitance @ 0 V, 1 MHz (NOTE 3)	C _{CROSS}	32.5	pF

Notes:

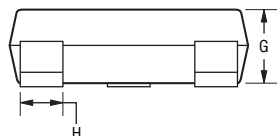
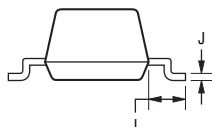
1. Test between Pins 1 to 3.
2. Test between Pins 2 to 3.
3. Test between Pins 1 to 2.



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Europe: Tel: +41-41 768 5555 • Fax: +41-41 768 5510
The Americas: Tel: +1-951 781-5500 • Fax: +1-951 781-5700
www.bourns.com

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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 - 05 02 U

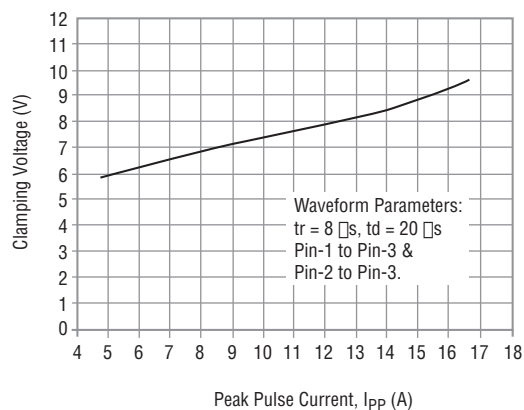
Common Code _____
Chip Diode _____
Package _____
 • SOT23 = SOT-23-3L Package
Working Peak Voltage _____
 05 = 5 V
Lines _____
 02 = 2 Lines
Suffix _____
 U = Unidirectional Diode

CDSOT23-0502U - Surface Mount TVS Diode

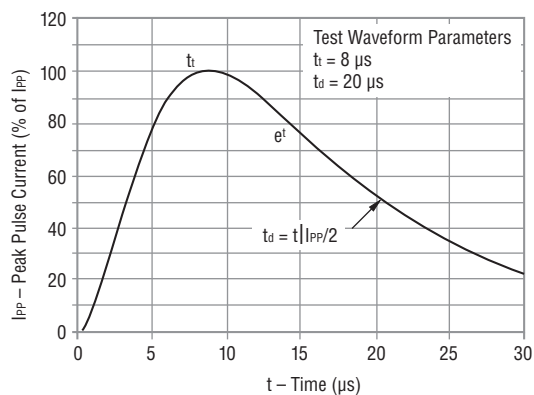
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Rating & Characteristic Curves

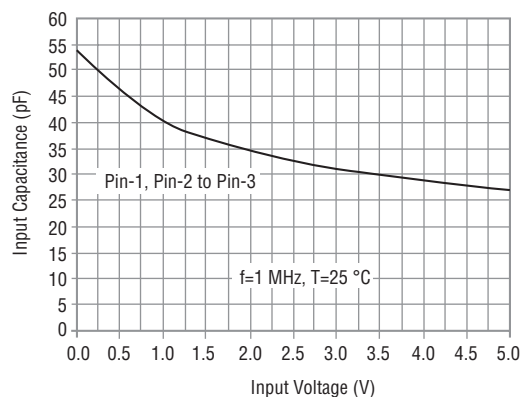
Reverse Clamping Voltage vs Peak Pulse Current



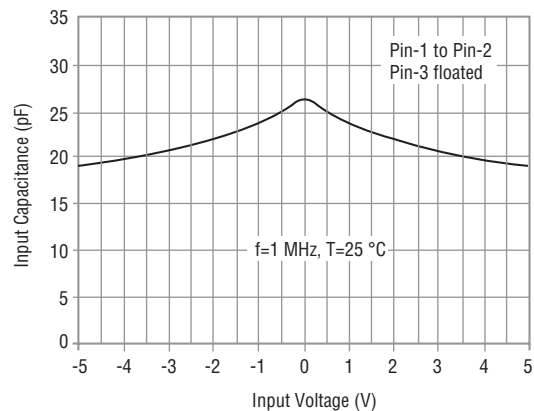
Pulse Waveform



Typical variation of C_{IN} vs. V_{IN} (1)



Typical variation of C_{IN} vs. V_{IN} (1)



Typical Part Marking

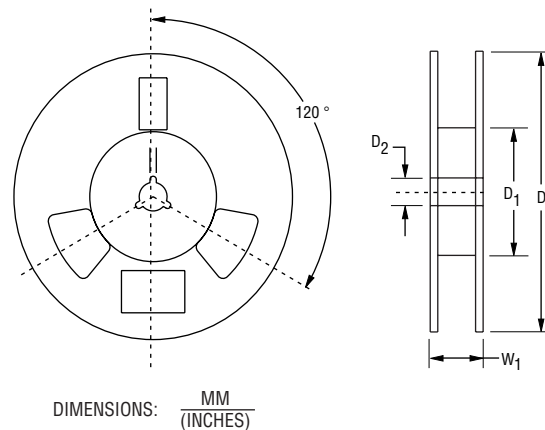
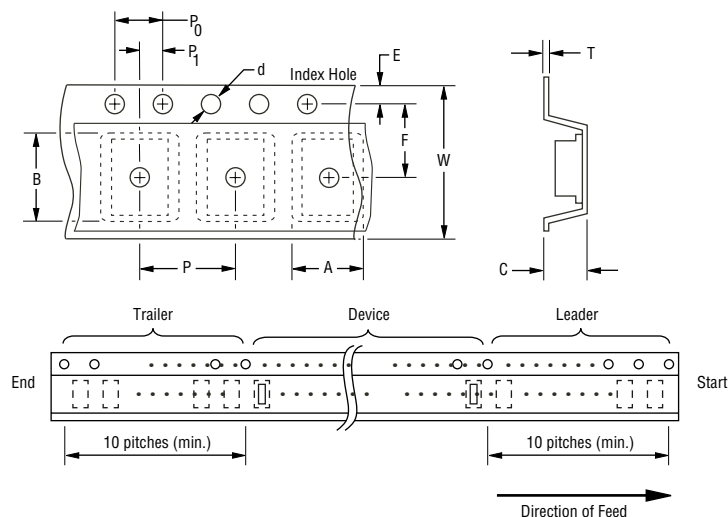
CDSOT23-0502U 52U

CDSOT23-0502U - Surface Mount TVS Diode

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Packaging Information

The product is dispensed in tape and reel format (see diagram below).



Devices are packed in accordance with EIA standard RS-481-A.

Item	Symbol	SOT-23
Carrier Width	A	$\frac{2.25 \pm 0.10}{(0.088 - 0.004)}$
Carrier Length	B	$\frac{2.34 \pm 0.10}{(0.092 - 0.004)}$
Carrier Depth	C	$\frac{1.22 \pm 0.10}{(0.048 - 0.004)}$
Sprocket Hole	d	$\frac{1.55 \pm 0.05}{(0.061 - 0.002)}$
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	$\frac{4.00 \pm 0.10}{(0.157 - 0.004)}$
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	$\frac{8.00 \pm 0.20}{(0.315 - 0.008)}$
Reel Width	W ₁	$\frac{14.4}{(0.567)} \text{ Max.}$
Quantity per Reel	--	3,000