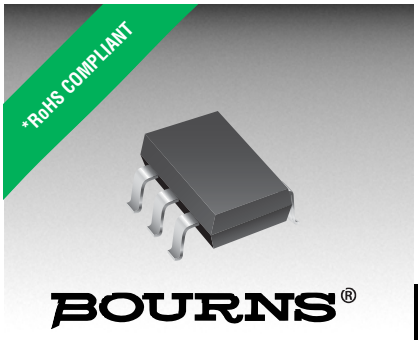
# THE DATASHEET OF

# CDSOT563-0502




## Features

- Lead free as standard
- RoHS compliant*
- Low capacitance - 2 pF
- ESD protection >15 kV

## Applications

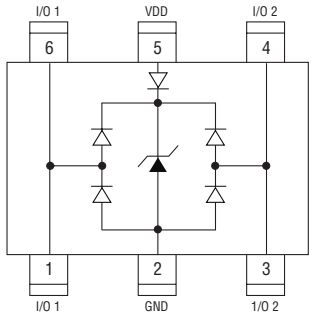
- Personal Digital Assistant (PDAs)
- Mobile phones and accessories
- Portable electronics
- ADSL / VDSL cards

# CDSOT563-0502 - Surface Mount TVS Diode Array

### General Information

The CDSOT563-0502 device provides ESD and EFT protection for high speed data ports meeting IEC 61000-4-2 (ESD) and IEC 61000-4-4 (EFT) requirements. The Transient Voltage Suppressor array offers a Working Peak Reverse Voltage of 5 V and Minimum Breakdown Voltage of 6 V.

The SOT563 packaged device will mount directly onto the industry standard SOT563 footprint. Bourns® Chip Diodes are easy to handle with standard pick and place equipment and the flat configuration minimizes roll away.



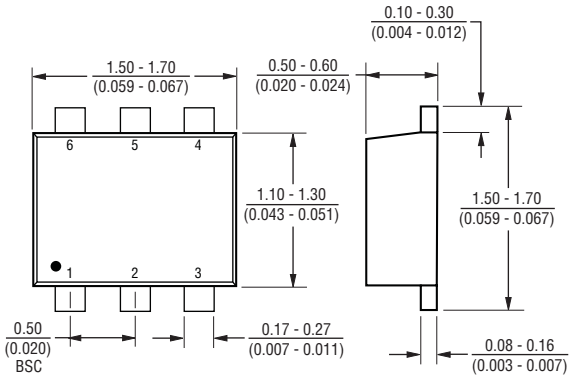

### Electrical & Thermal Characteristics (@ $T_A$ = 25 °C Unless Otherwise Noted)

| Parameter | Symbol | Test Condition | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|---|
| Peak Pulse Current | $I_{PPM}$ | ($t_p$ = 8/20 $\mu$s) | | | 6 | A |
| Storage Temperature | $T_{STG}$ | | -55 | +25 | +150 | °C |
| Operating Temperature | $T_{OPR}$ | | -40 | +25 | +125 | °C |
| Working Peak Voltage | $V_{WM}$ | | | | 5 | V |
| Breakdown Voltage | $V_{BR}$ | @ 1 mA, Pin 5 to Pin 2 | 6 | | 9 | V |
| Leakage Current @ $V_{WM}$ | $I_L$ | $V_{pin5}$ = 5 V, $V_{pin2}$ = 0 V, Pin 5 to Pin 2 | | | 5 | $\mu$A |
| Channel Leakage Current @ $V_{WM}$ | $I_{CH}$ | $V_{pin5}$ = 5 V, $V_{pin2}$ = 0 V, Any I/O to Pin 2 | | | 1 | $\mu$A |
| Forward Voltage | $V_F$ | @ If =15 mA | | 0.8 | 1 | V |
| Clamping Voltage | $V_{clamp\_VDD}$ | $I_{PP}$ = 5 A, $t_p$ = 8/20$\mu$s | | 9 | | V |
| Channel Input Capacitance | $C_{IN-1}$ | $V_{pin5}$ = 5 V, $V_{pin2}$ = 0 V, $V_{IN}$ = 2.5 V, f = 1 MHz | | 2 | 2.5 | pF |
| Channel Input Capacitance | $C_{IN-2}$ | $V_{pin5}$ = floated, $V_{pin2}$ = 0 V, $V_{IN}$ = 2.5 V, f = 1 MHz | | 2.8 | 3.6 | pF |
| Channel to Channel Input Capacitance | $C_{CROSS-1}$ | $V_{pin5}$ = 5 V, $V_{pin2}$ = 0 V, $V_{IN}$ = 2.5 V, f = 1 MHz | | 0.4 | 0.5 | pF |
| Channel to Channel Input Capacitance | $C_{CROSS-2}$ | $V_{pin5}$ = floated, $V_{pin2}$ = 0 V, $V_{IN}$ = 2.5 V, f = 1 MHz | | 0.55 | 0.65 | pF |

*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.
Customers should verify actual device performance in their specific applications

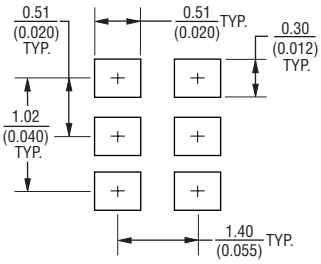
## Product Dimensions

This is a molded SOT563 package with lead free 100 % Matte Sn on the lead frame. It weighs approximately 3 mg and has a flammability rating of UL 94V-0.




DIMENSIONS = MILLIMETERS / (INCHES)

## Recommended Footprint




## Typical Part Marking

CDSOT563-0502.....52XY

("X" = Date Code; "Y" = Package House)

## How to Order

**CD SOT563 - 05 02**

Common Diode
Chip Diode

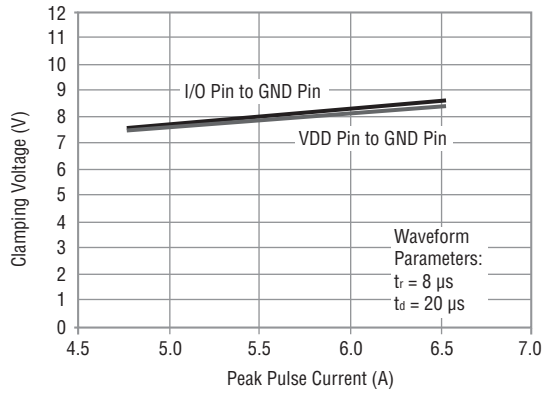
Package
SOT563 = SOT-563 Package

Working Peak Reverse Voltage
05 = 5 V (Volts)

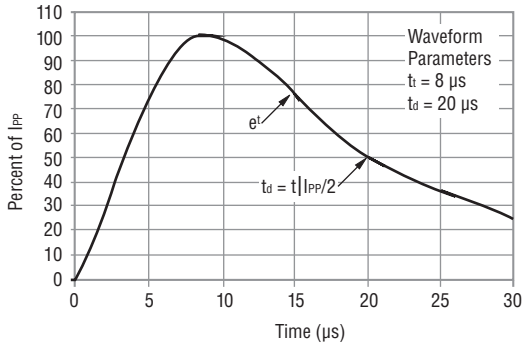
Data Lines
02 = 2 Data Lines

## Rating & Characteristic Curves

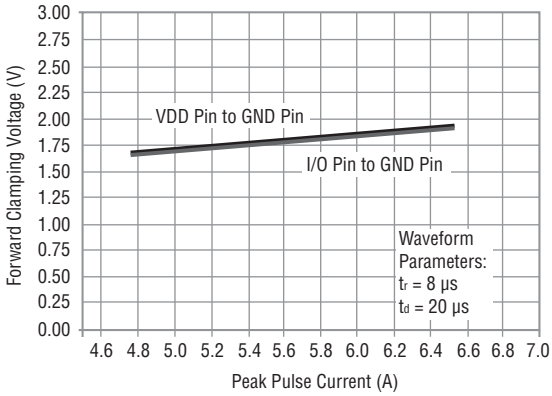
### Clamping Voltage vs. Peak Pulse Current



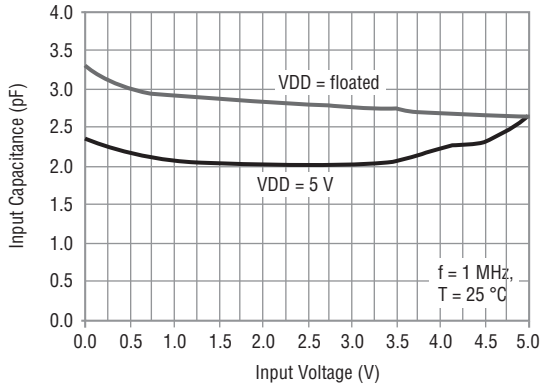

### Pulse Waveform




### Forward Clamping Voltage vs. Peak Pulse Current

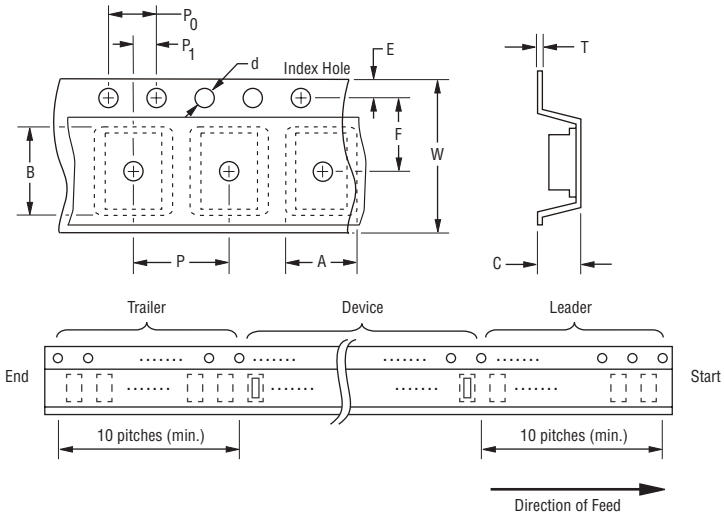


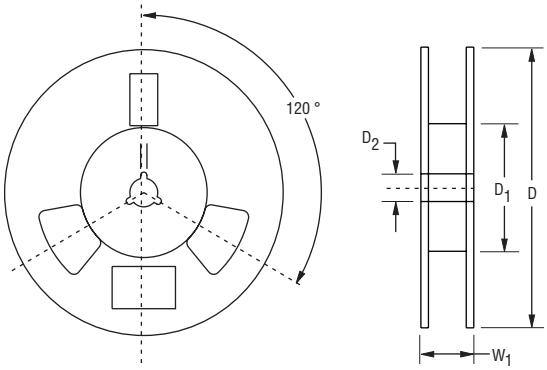

### Typical Variation of $C_{IN}$ vs. $V_{IN}$



## Packaging Information

The product will be dispensed in tape and reel format (see diagram below)




DIMENSIONS: MM / (INCHES)

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

| Item | Symbol | SOT563 |
|---|---|---|
| Carrier Width | A | 1.78 ± 0.05 (0.069 ± 0.002) |
| Carrier Length | B | 1.78 ± 0.05 (0.069 ± 0.002) |
| Carrier Depth | C | 0.69 ± 0.05 (0.027 ± 0.002) |
| 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 | -- | 3000 |

BOURNS®

**Asia-Pacific:**
Tel: +886-2 2562-4117
Fax: +886-2 2562-4116

**Europe:**
Tel: +41-41 768 5555
Fax: +41-41 768 5510

**The Americas:**
Tel: +1-951 781-5500
Fax: +1-951 781-5700

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- Shortage Management
- Alternative Solution
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