



## Features

- RoHS Compliant\*
- Low capacitance - 2.5 pF
- ESD protection
- Surge protection

## Applications

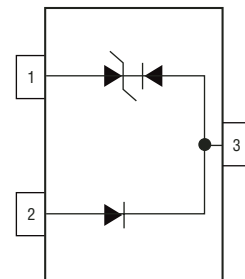
- Personal Digital Assistants (PDAs)
- Mobile phones & accessories
- Memory card protection
- SIM card port protection
- Portable electronics

## CDSOT23-SLVU2.8 – Surface Mount TVS Diode

### General Information

The CDSOT23-SLVU2.8 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 2.8 V and Minimum Breakdown Voltage of 3 V.

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



### Electrical Characteristics (@ $T_A = 25^\circ\text{C}$ Unless Otherwise Noted)

| Parameter                                                                                               | Symbol    | Value       | Unit             |
|---------------------------------------------------------------------------------------------------------|-----------|-------------|------------------|
| Peak Pulse Power ( $t_p = 8/20 \mu\text{s}$ ) <sup>1</sup>                                              | $P_{PK}$  | 600         | W                |
| Peak Pulse Current ( $t_p = 8/20 \mu\text{s}$ )                                                         | $I_{PPM}$ | 30          | A                |
| Storage Temperature                                                                                     | $T_{STG}$ | -55 to +150 | $^\circ\text{C}$ |
| Operating Temperature                                                                                   | $T_{OPR}$ | -55 to +150 | $^\circ\text{C}$ |
| Minimum Breakdown Voltage @ 1 mA                                                                        | $V_{BR}$  | 3.0         | V                |
| Minimum Snap Back Voltage @ 50 mA                                                                       | $V_{BR}$  | 2.8         | V                |
| Maximum Working Peak Voltage                                                                            | $V_{WM}$  | 2.8         | V                |
| Maximum Leakage Current @ $V_{WM}$<br>(Pin 3 to Pin 1) or (Pin 2 to Pin 1)                              | $I_D$     | 1.0         | $\mu\text{A}$    |
| Maximum Clamping Voltage @ $I_P = 2 \text{ A}$                                                          | $V_C$     | 3.9         | V                |
| Maximum Clamping Voltage @ $I_P = 5 \text{ A}$<br>(Pin 2 to in 1)                                       | $V_C$     | 7.0<br>8.5  | V                |
| Maximum Clamping Voltage @ $I_P = 30 \text{ A}$                                                         | $V_C$     | 21.0        | V                |
| Typical Junction Capacitance @ 0 V, 1 MHz<br>(Pin 3 to Pin 1 & Pin 2)<br>(Pin 2 to Pin 1 with Pin 3 NC) | $C_D$     | 20<br>2.5   | pF               |
| Maximum Junction Capacitance @ 0 V, 1 MHz                                                               | $C_D$     | 3           | pF               |
| Maximum Peak Reverse Voltage @ $I = 10 \mu\text{A}$                                                     | $V_{RRM}$ | 40          | V                |
| Maximum Reverse Leakage Current @ $V_{WM}$                                                              | $I_{DR}$  | 0.1         | $\mu\text{A}$    |
| Maximum Forward Voltage @ $I_F = 1 \text{ A}$ , 120 $\mu\text{S}$                                       | $V_F$     | 2           | V                |

Note:

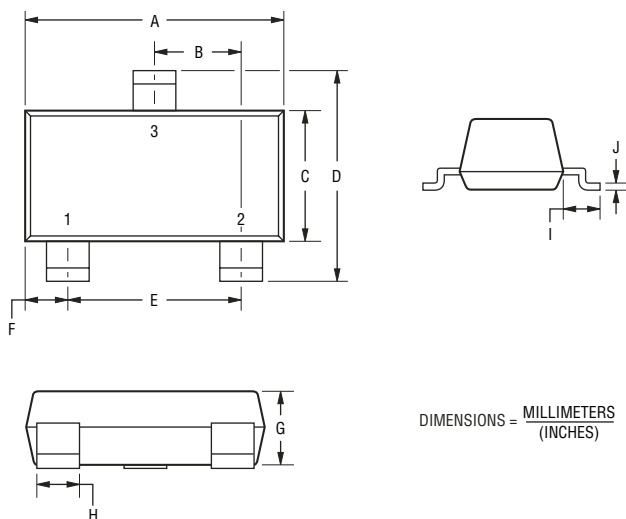
1. See Peak Pulse Power vs. Pulse Time.

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## Product Dimensions

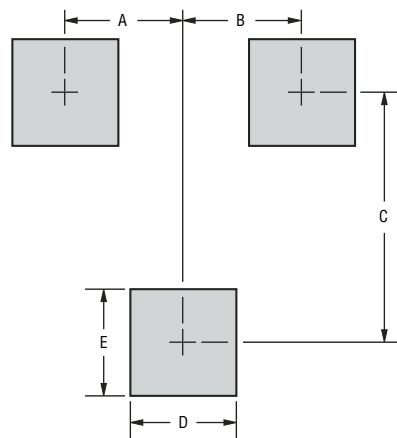
This is a molded JEDEC SOT-23 package with 100 % Matte Sn plating on the lead frame. It weighs approximately 8 mg and has a flammability rating of UL 94V-0.



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

| Dimensions |                                           |
|------------|-------------------------------------------|
| A          | $\frac{2.80 - 3.04}{(0.1102 - 0.1197)}$   |
| B          | $\frac{0.89 - 1.02}{(0.0350 - 0.0401)}$   |
| C          | $\frac{1.20 - 1.40}{(0.0472 - 0.0551)}$   |
| D          | $\frac{2.10 - 2.50}{(0.0830 - 0.0984)}$   |
| E          | $\frac{1.78 - 2.04}{(0.0701 - 0.0807)}$   |
| F          | $\frac{0.45 - 0.60}{(0.0177 - 0.0236)}$   |
| G          | $\frac{0.89 - 1.11}{(0.035 - 0.044)}$     |
| H          | $\frac{0.34 - 0.50}{(0.0150 - 0.0200)}$   |
| I          | $\frac{0.45 - 0.60}{(0.0180 - 0.0236)}$   |
| J          | $\frac{0.085 - 0.177}{(0.0034 - 0.0070)}$ |

## 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 - SLVU 2.8**  
 Chip Diode  
 Package  
 • SOT23 = SOT23 Package  
 Model  
 SLVU = Special Model  
 Working Peak Reverse Voltage  
 2.8 = 2.8 V<sub>RWM</sub> (Volts)

## Typical Part Marking

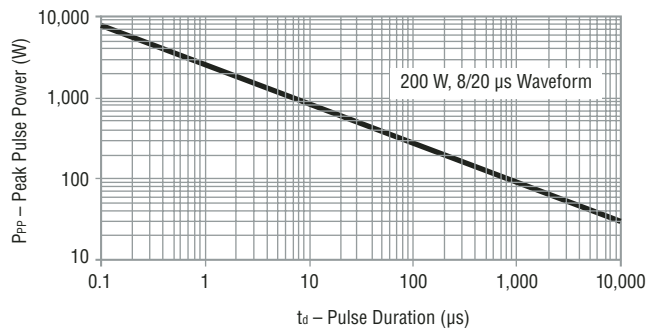
CDSOT23-SLVU2.8..... SLA

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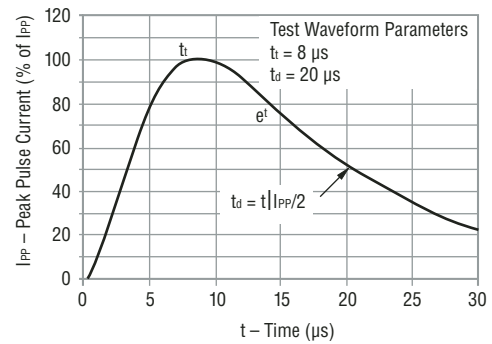
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## Performance Graphs

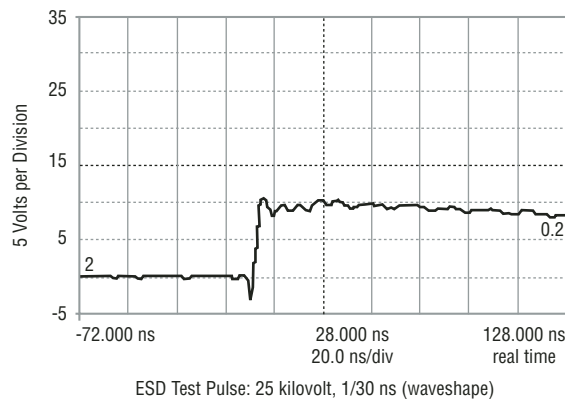
### Peak Pulse Power vs Pulse Time



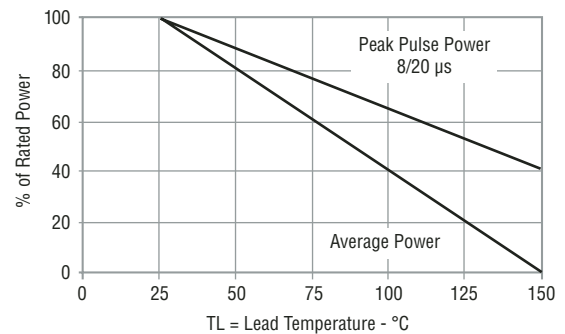
### Pulse Waveform



### Overshoot & Clamping Voltage



### Power Derating Curve

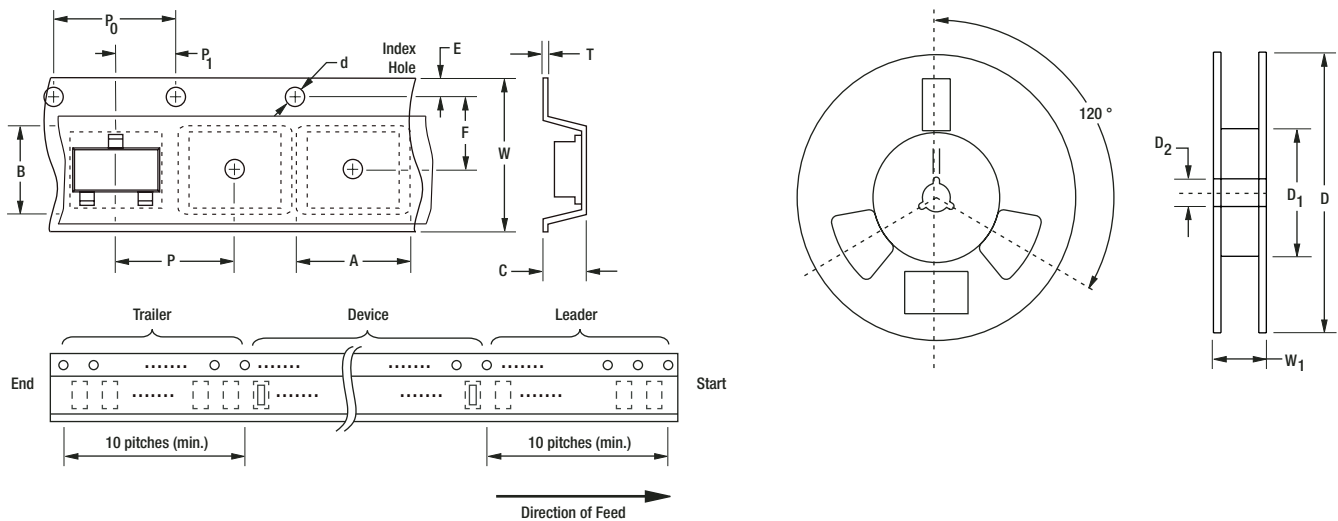


# CDSOT23-SLVU2.8 – Surface Mount TVS Diode

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## Packaging Information

The product is packaged in an 8 mm x 4 mm tape and reel format per EIA-481-A standard.



| Item                   | Symbol         | SOT23                                   |
|------------------------|----------------|-----------------------------------------|
| 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 <sub>1</sub> | $\frac{50.0}{(1.969)} \text{ Min.}$     |
| Feed Hole Diameter     | D <sub>2</sub> | $\frac{13.0 \pm 0.20}{(0.512 - 0.008)}$ |
| Sprocket Hole Position | E              | $\frac{1.75 \pm 0.10}{(0.069 - 0.004)}$ |
| Punch Hole Position    | F              | $\frac{3.50 \pm 0.05}{(0.138 - 0.002)}$ |
| Punch Hole Pitch       | P              | $\frac{4.00 \pm 0.10}{(0.157 - 0.004)}$ |
| Sprocket Hole Pitch    | P <sub>0</sub> | $\frac{4.00 \pm 0.10}{(0.157 - 0.004)}$ |
| Embossment Center      | P <sub>1</sub> | $\frac{2.00 \pm 0.05}{(0.079 - 0.002)}$ |
| Overall Tape Thickness | T              | $\frac{0.20 \pm 0.10}{(0.008 - 0.004)}$ |
| Tape Width             | W              | $\frac{8.00 \pm 0.20}{(0.315 - 0.008)}$ |
| Reel Width             | W <sub>1</sub> | $\frac{14.4}{(0.567)} \text{ Max.}$     |
| Quantity per Reel      | —              | 3,000                                   |



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[www.bourns.com](http://www.bourns.com)

REV. 09/08

Specifications are subject to change without notice.  
Customers should verify actual device performance in their specific applications.