

Features

- RoHS compliant*
- Working peak voltage 7 V or 12 V
- ESD protection 30 kV max.
- Surge protection

Applications

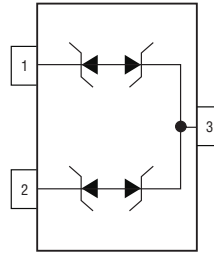
- Wireless systems
- Network protection
- Portable electronics
- RS-485 port protection

CDSOT23-SM712 - Surface Mount TVS Diode

General Information

The CDSOT23-SM712 device provides ESD, EFT and Surge protection for 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 two TVS diodes with a Working Peak Reverse Voltage of 7 V or 12 V and Minimum Breakdown Voltage of 7.5 V or 13.3 V respectively.

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.



Additional Information

Click these links for more information:



Absolute Maximum Ratings (@ T_A = 25 °C Unless Otherwise Noted)

| Parameter | Symbol | Value | Unit |
|--|------------------|-------------|------|
| Peak Pulse Power (t _p = 8/20 μs) ¹ | P _{PK} | 400 | W |
| Peak Pulse Current (8/20 μs) | I _{PP} | 17 | A |
| Storage Temperature | T _{STG} | -55 to +150 | °C |
| Operating Temperature | T _{OPR} | -55 to +150 | °C |

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

| Parameter | Symbol | Value | Unit |
|--|-----------------|-------------------------|------|
| Minimum Breakdown Voltage @ 1 mA Pin 3-1 and Pin 3-2 Pin 1-3 and Pin 2-3 | V _{BR} | 7.5 13.3 | V |
| Maximum Working Peak Voltage Pin 3-1 and Pin 3-2 Pin 1-3 and Pin 2-3 | V _{WM} | 7.0 12.0 | V |
| Maximum Leakage Current @ V _{WM} Pin 3-1 and Pin 3-2 Pin 1-3 and Pin 2-3 | I _D | 20.0 1.0 | μA |
| Maximum Clamping Voltage @ I _P = 1 A Pin 3-1 and Pin 3-2 Pin 1-3 and Pin 2-3 | V _C | 11 19 | V |
| Maximum Clamping Voltage @ I _P = 5 A Pin 3-1 and Pin 3-2 Pin 1-3 and Pin 2-3 | V _C | 12 20 | V |
| Maximum Clamping Voltage @ I _{PP} = 17 A Pin 3-1 and Pin 3-2 Pin 1-3 and Pin 2-3 | V _C | 14 26 | V |
| Typical Junction Capacitance @ 0 V, 1 MHz (Pin 3-1 and Pin 3-2) & (Pin 1-3 and Pin 2-3) | C _D | 75 | pF |
| ESD Protection (per IEC 61000-4-2) Contact - Min. Contact - Max. Air - Min. Air - Max. | ESD | ±8 ±30 ±15 ±30 | kV |

Note: 1. See Peak Pulse Power vs. Pulse Time.



WARNING Cancer and Reproductive Harm
www.P65Warnings.ca.gov

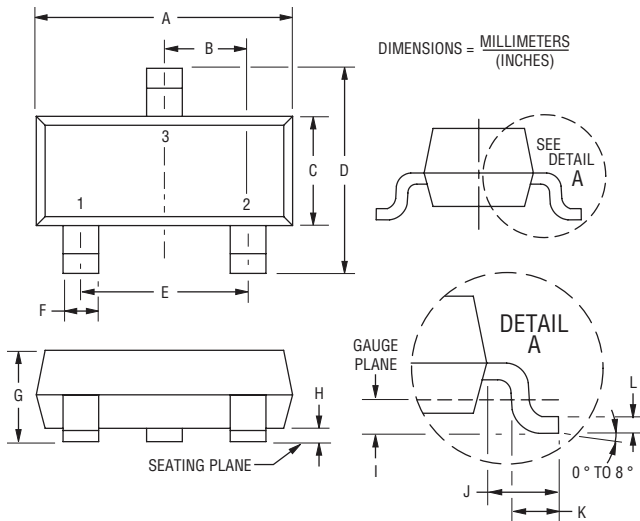
*RoHS Directive 2015/863, Mar 31, 2015 and Annex.
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CDSOT23-SM712 - Surface Mount TVS Diode



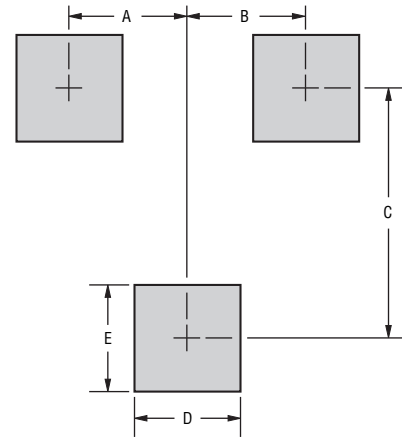
Product Dimensions

This is a molded JEDEC SOT23 package with 100 % Matte Sn plating on the lead frame. It weighs approximately 8 mg and has a flammability rating of UL 94V-0.



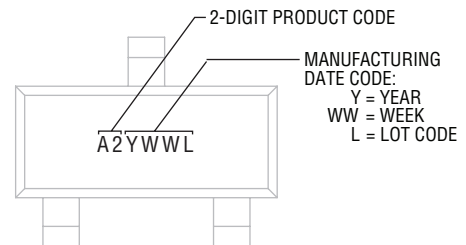
| Dimensions | |
|------------|--|
| A | $\frac{2.80 - 3.00}{(0.110 - 0.118)}$ |
| B | $\frac{0.95}{(0.037)}$ BSC |
| C | $\frac{1.20 - 1.40}{(0.047 - 0.055)}$ |
| D | $\frac{2.10 - 2.49}{(0.083 - 0.098)}$ |
| E | $\frac{1.90}{(0.075)}$ BSC |
| F | $\frac{0.30 - 0.50}{(0.012 - 0.019)}$ |
| G | $\frac{0.89 - 1.17}{(0.035 - 0.046)}$ |
| 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 | |
|------------|------------------------|
| 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 | $\frac{0.85}{(0.033)}$ |

Typical Part Marking



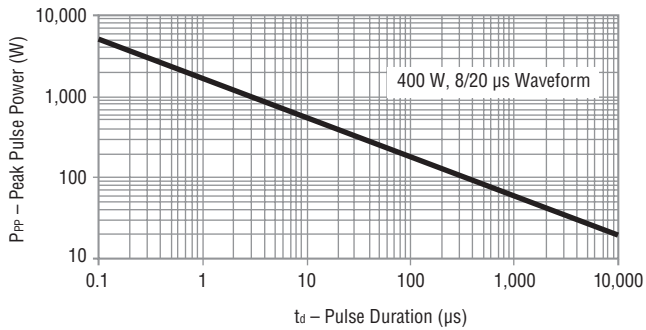
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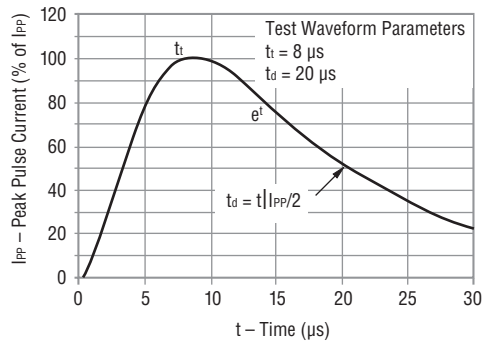
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Performance Graphs

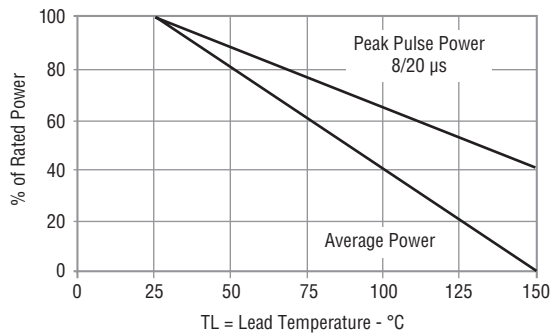
Peak Pulse Power vs. Pulse Time



Pulse Waveform



Power Derating Curve



How to Order

CD SOT23 - SM 712

Common Code _____
 Chip Diode _____
 Package _____
 • SOT23 = SOT23 Package
 Model _____
 SM = Special Model
 Working Peak Reverse Voltage _____
 712 = 7 V_{RWM} & 12 V_{RWM} (Volts)

Environmental Specifications

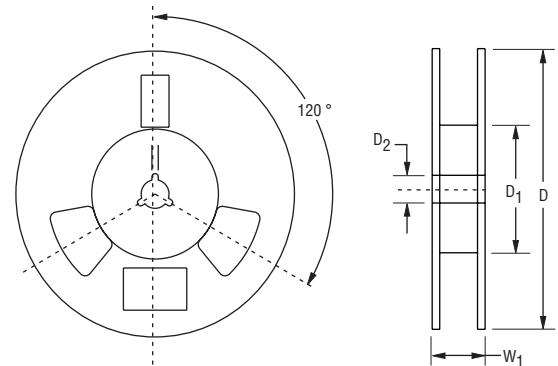
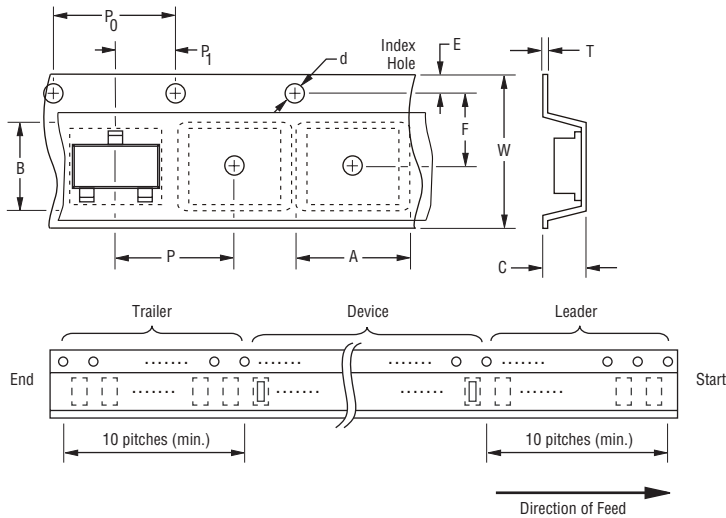
Moisture Sensitivity Level 1
 ESD Classification (HBM) 3B

CDSOT23-SM712 - Surface Mount TVS Diode

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Packaging Information

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



DIMENSIONS: $\frac{\text{MM}}{\text{(INCHES)}}$

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

| 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 | $\frac{50.0}{(1.969)}$ 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 | $\frac{14.4}{(0.567)}$ MAX. |
| Quantity per Reel | -- | 3,000 |

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REV. 06/24

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