



Features

- High-speed switching
- Surge withstand
- RoHS compliant*

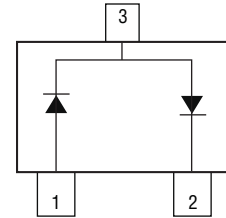


This series is currently available but not recommended for new designs.

CDSOT23-S2004 - Switching Diode Array

General Information

The Bourns® Model CDSOT23-S2004 device is a high-speed switching diode array offering a Working Peak Reverse Voltage of 240 V and a Minimum Breakdown Voltage of 300 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 their flat configuration minimizes roll away.



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

| Parameter | Symbol | CDSOT23-S2004 | Unit |
|---|----------------------|---------------|------|
| Peak Repetitive Peak Reverse Voltage | V _{RRM} | 300 | V |
| Working Peak Reverse Voltage | V _{RWM} | 240 | V |
| DC Blocking Voltage | V _R | 240 | V |
| RMS Reverse Voltage | V _R (RMS) | 170 | V |
| Forward Continuous Current (Note 2) | I _{FM} | 225 | mA |
| Peak Repetitive Forward Current (Note 2) | I _{FRM} | 625 | mA |
| Peak Forward Surge Current @ t = 1.0 μs @ t = 1.0 s | I _{FSM} | 4.0 1.0 | A |
| Power Dissipation (Note 2) | P _D | 350 | mW |
| 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 | Min. | Typ. | Max. | Unit |
|--|------------------|------|--------------|--------------|------|
| Reverse Breakdown Voltage (Note 1) @ I _R = 100 μA | V _{BR} | 300 | | | V |
| Reverse Leakage Current (Note 1) @ V _R = 240 V | I _R | | | 100 | nA |
| Forward Voltage @ I _F = 20 mA @ I _F = 100 mA | V _F | | 0.50 0.75 | 0.87 1.00 | V |
| Diode Capacitance @ V _R = 0 V, f = 1 MHz | C _T | | 3 | 5 | pF |
| Thermal Resistance, Junction to Ambient (Note 2) | R _{θJA} | | | 357 | °C/W |
| Reverse Recovery Time @ I _F = I _R = 30 mA, I _{RR} = 3.0 mA, R _L = 100 Ω | t _{rr} | | | 50 | ns |

Notes:

1. Short duration pulse test used to minimize self-heating effect.
2. Part mounted on FR-4 board with recommended pad layout.



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

*RoHS Directive 2015/863, Mar 31, 2015 and Annex.
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Applications

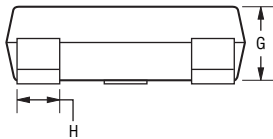
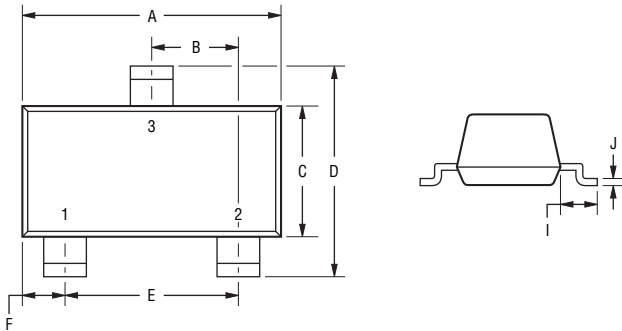
- Personal Digital Assistants (PDAs)
- Mobile phones and accessories
- Memory card protection
- SIM card port protection
- Portable electronics

CDSOT23-S2004 - Switching Diode Array

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Product Dimensions

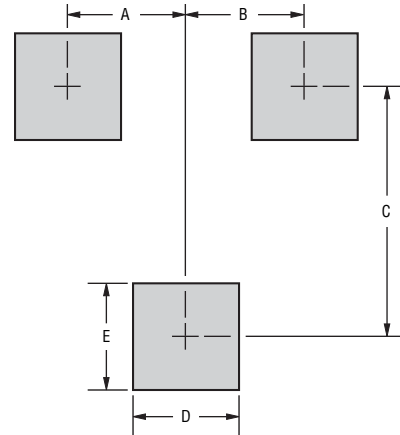
This is an RoHS compliant molded JEDEC SOT23 package with 100 % Matte Sn on the lead frame. It weighs approximately 8 mg and has a flammability rating of UL 94V-0.



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

CD SOT23 - S 2004

Common Diode _____
 Chip Diode _____

Package _____
 SOT23 = SOT23 Package

Model _____
 S = Switching Diode

Working Peak Reverse Voltage _____
 2004 = 240 V_{RWM} (Volts)

Typical Part Marking

CDSOT23-S2004..... S6

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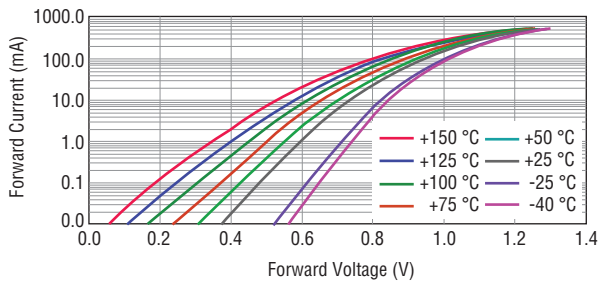
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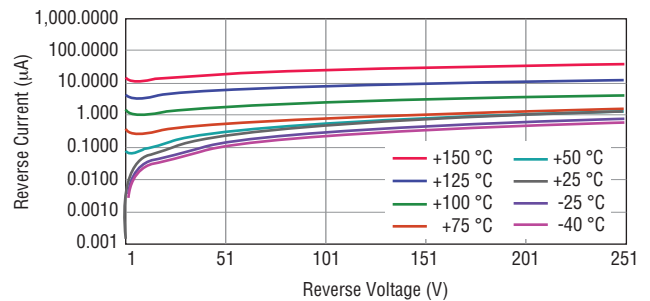
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Performance Graphs

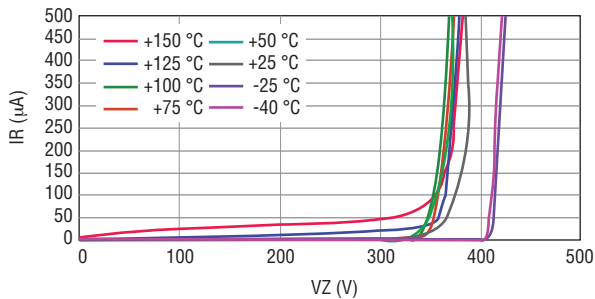
Forward Current Characteristics



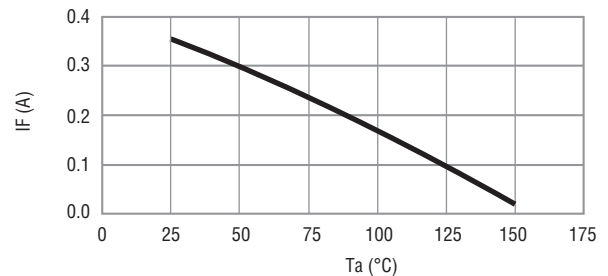
Reverse Current Characteristics



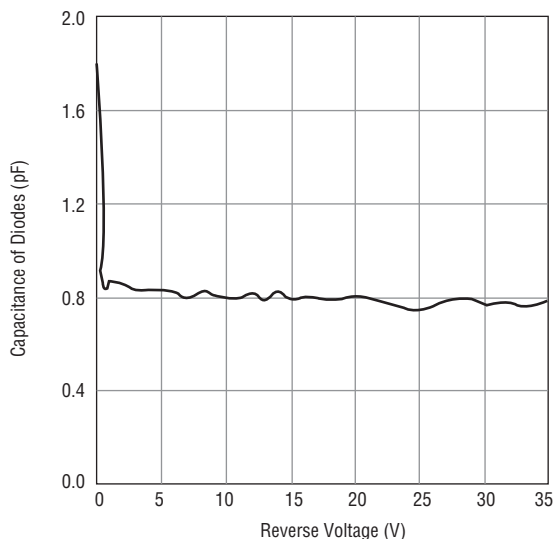
Reverse Voltage Characteristics



Power Derating Curve



Typical Capacitance



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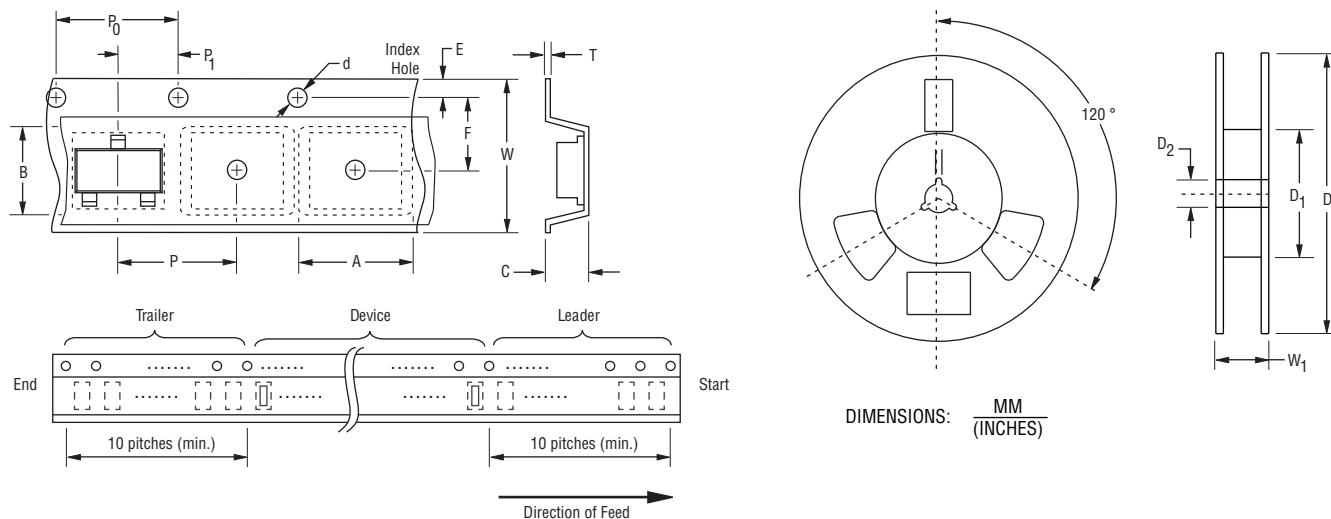
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Packaging Information

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



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

| 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. 08/19

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