



Features

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

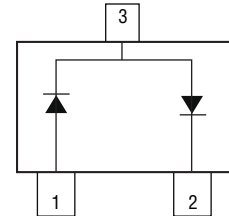


This series is currently available but not recommended for new designs.

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 (@ $T_A = 25^\circ\text{C}$ 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 @ $t = 1.0 \mu\text{s}$ @ $t = 1.0 \text{s}$	I_{FSM}	4.0 1.0	A
Power Dissipation (Note 2)	P_D	350	mW
Storage Temperature	T_{STG}	-55 to +150	$^\circ\text{C}$
Operating Temperature	T_{OPR}	-55 to +150	$^\circ\text{C}$

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

Parameter	Symbol	Min.	Typ.	Max.	Unit
Reverse Breakdown Voltage (Note 1) @ $I_R = 100 \mu\text{A}$	V_{BR}	300			V
Reverse Leakage Current (Note 1) @ $V_R = 240 \text{V}$	I_R			100	nA
Forward Voltage @ $I_F = 20 \text{mA}$ @ $I_F = 100 \text{mA}$	V_F		0.50 0.75	0.87 1.00	V
Diode Capacitance @ $V_R = 0 \text{V}$, $f = 1 \text{MHz}$	C_T		3	5	pF
Thermal Resistance, Junction to Ambient (Note 2)	$R_{\theta JA}$			357	$^\circ\text{C/W}$
Reverse Recovery Time @ $I_F = I_R = 30 \text{mA}$, $I_{RR} = 3.0 \text{mA}$, $R_L = 100 \Omega$	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.

*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.

The device characteristics and parameters in this data sheet can and do vary in different applications and actual device performance may vary over time.
Users should verify actual device performance in their specific applications.

Applications

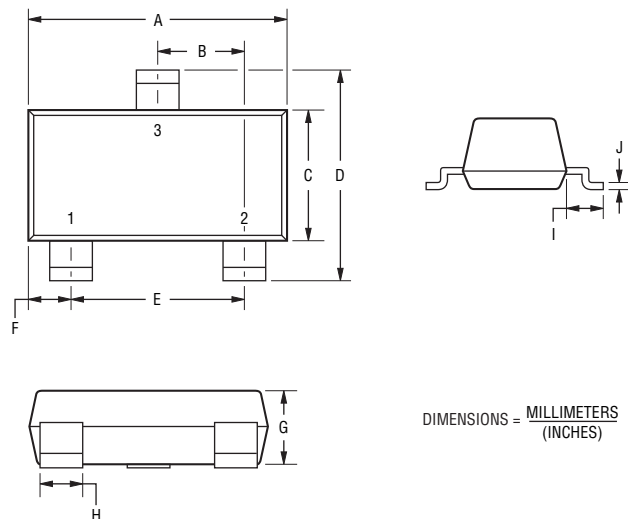
- Personal Digital Assistants (PDAs)
- Mobile phones and accessories
- Memory card protection
- SIM card port protection
- Portable electronics

CDSOT23-S2004 - Switching Diode Array

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Product Dimensions

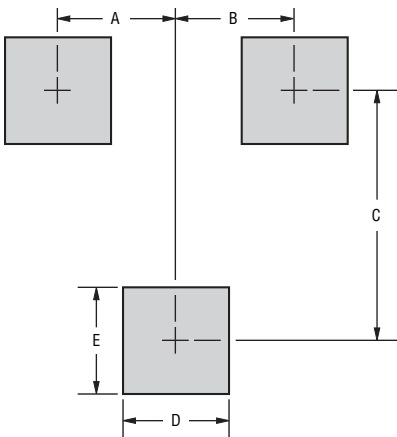
This is an RoHS compliant molded JEDEC SOT23 package with 100 % Matte Sn on the lead frame. It weighs approximately 8 mg and has a flammability rating of UL 94V-0.



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

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

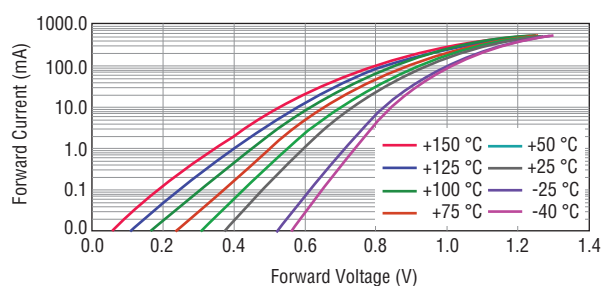
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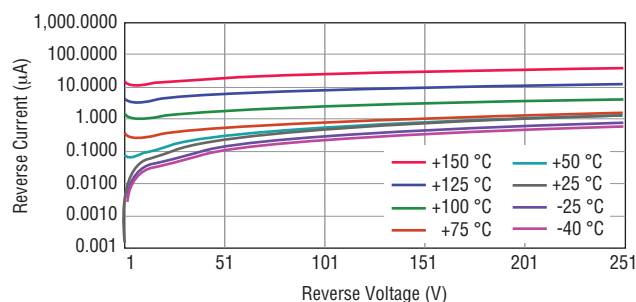
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Performance Graphs

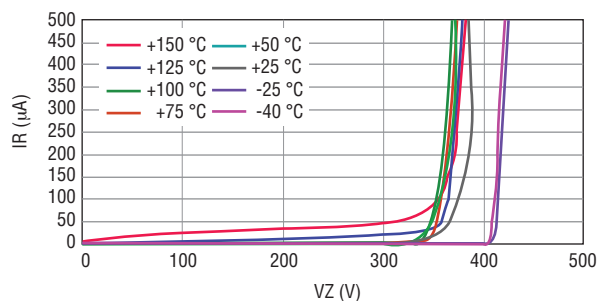
Forward Current Characteristics



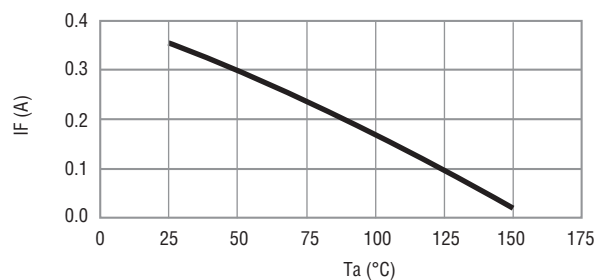
Reverse Current Characteristics



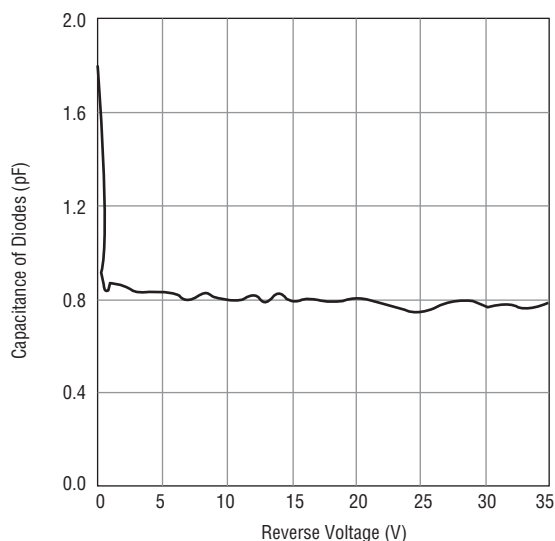
Reverse Voltage Characteristics



Power Derating Curve



Typical Capacitance



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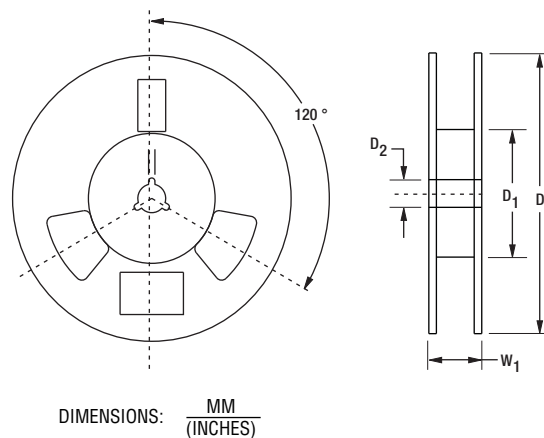
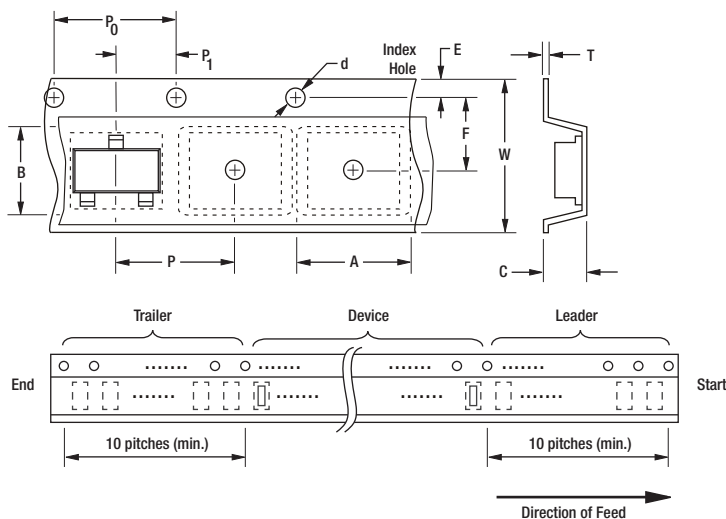
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Packaging Information

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



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	$\frac{50.0}{(1.969)} \text{ MIN.}$
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	$\frac{4.00 \pm 0.10}{(0.157 \pm 0.004)}$
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	$\frac{14.4}{(0.567)} \text{ MAX.}$
Quantity per Reel	--	3,000

REV. 12/15

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