

## Features

- Lead free\*
- High-speed switching
- Surge withstand
- RoHS compliant\*\*

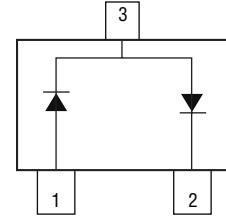
## Applications

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

# 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<sub>A</sub> = 25 °C Unless Otherwise Noted)

Parameter	Symbol	CDSOT23-S2004	Unit
Peak Repetitive Peak Reverse Voltage	V <sub>RRM</sub>	300	V
Working Peak Reverse Voltage	V <sub>RWM</sub>	240	V
DC Blocking Voltage	V <sub>R</sub>	240	V
RMS Reverse Voltage	V <sub>R</sub> (RMS)	170	V
Forward Continuous Current (Note 2)	I <sub>FM</sub>	225	mA
Peak Repetitive Forward Current (Note 2)	I <sub>FRM</sub>	625	mA
Peak Forward Surge Current @ t = 1.0 μs @ t = 1.0 s	I <sub>FSM</sub>	4.0 1.0	A
Power Dissipation (Note 2)	P <sub>D</sub>	350	mW
Storage Temperature	T <sub>STG</sub>	-55 to +150	°C
Operating Temperature	T <sub>OPR</sub>	-55 to +150	°C

## Electrical Characteristics (@ T<sub>A</sub> = 25 °C Unless Otherwise Noted)

Parameter	Symbol	Min.	Typ.	Max.	Unit
Reverse Breakdown Voltage (Note 1) @ I <sub>R</sub> = 100 μA	V <sub>BR</sub>	300			V
Reverse Leakage Current (Note 1) @ V <sub>R</sub> = 240 V	I <sub>R</sub>			100	nA
Forward Voltage @ I <sub>F</sub> = 20 mA @ I <sub>F</sub> = 100 mA	V <sub>F</sub>		0.50 0.75	0.87 1.00	V
Diode Capacitance @ V <sub>R</sub> = 0 V, f = 1 MHz	C <sub>T</sub>		3	5	pF
Thermal Resistance, Junction to Ambient (Note 2)	R <sub>θJA</sub>			357	°C/W
Reverse Recovery Time @ I <sub>F</sub> = I <sub>R</sub> = 30 mA, I <sub>RR</sub> = 3.0 mA, R <sub>L</sub> = 100 Ω	t <sub>rr</sub>			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.

\*No lead detected in standard tests of homogeneous materials.

\*\*RoHS Directive 2002/95/EC Jan 27, 2003 including Annex.

Specifications are subject to change without notice.

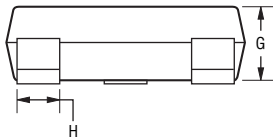
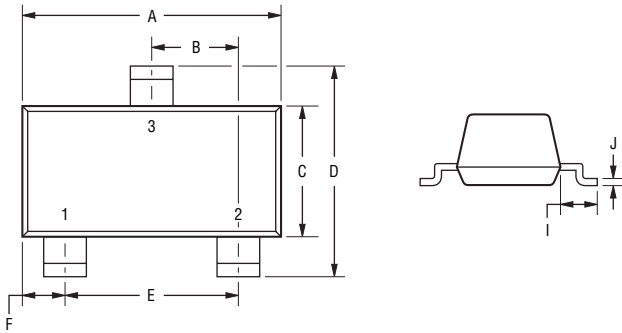
Customers should verify actual device performance in their specific applications.

# CDSOT23-S2004 - Switching Diode Array



## Product Dimensions

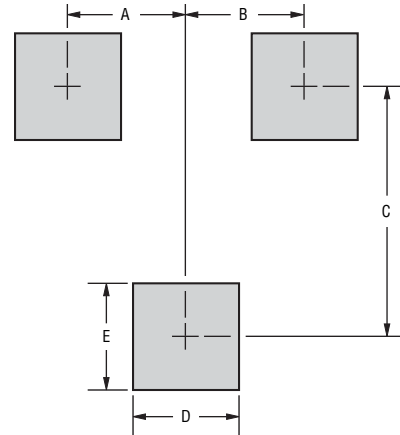
This is a molded JEDEC SOT23 package with lead free 100 % Matte Sn on the lead frame. It weighs approximately 8 mg and has a flammability rating of UL 94V-0.



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	$\frac{0.085 - 0.177}{(0.0034 - 0.0070)}$

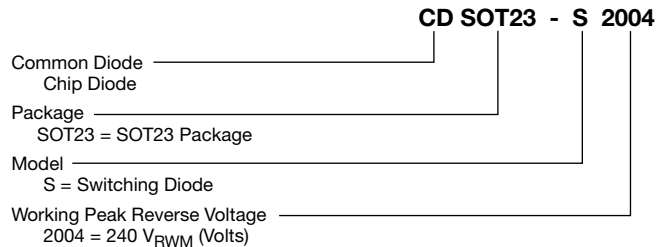
## Recommended Footprint



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



## Typical Part Marking

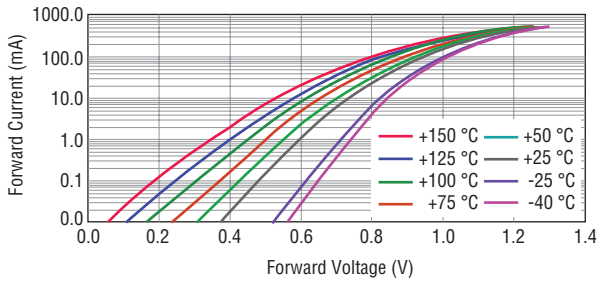
CDSOT23-S2004..... S6

# CDSOT23-S2004 - Switching Diode Array

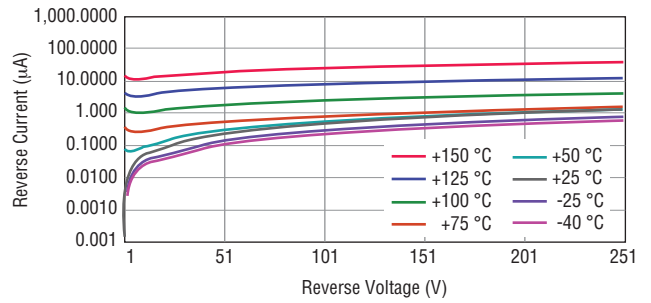
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## Performance Graphs

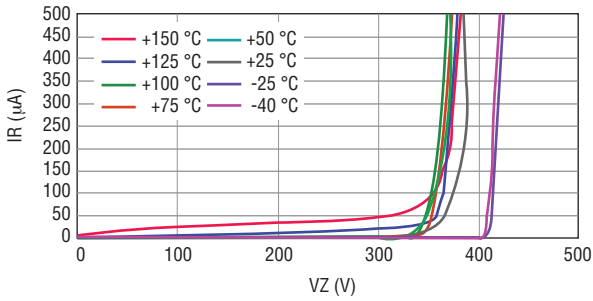
### Forward Current Characteristics



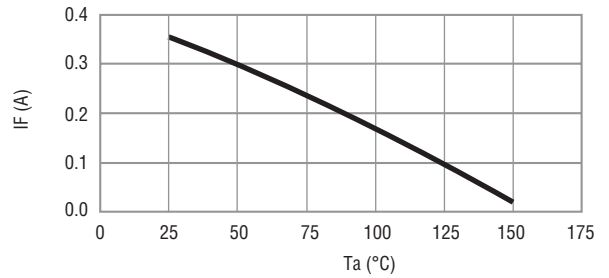
### Reverse Current Characteristics



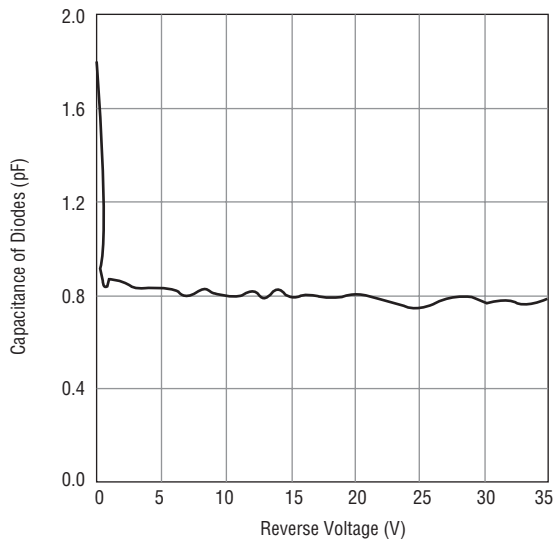
### Reverse Voltage Characteristics



### Power Derating Curve



### Typical Capacitance



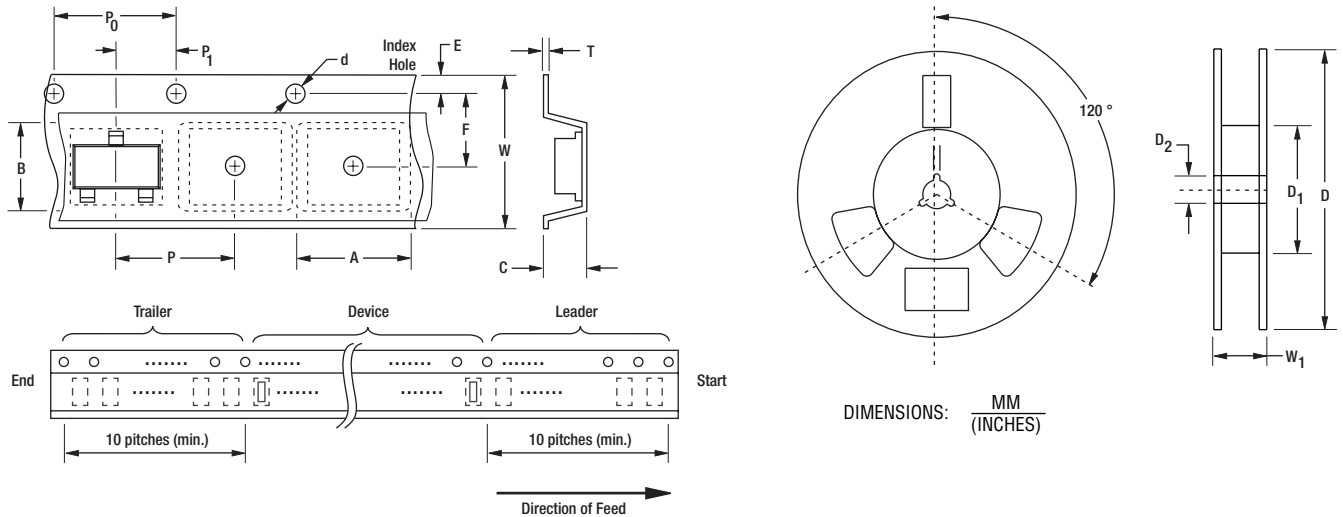
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# CDSOT23-S2004 - Switching Diode Array

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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 <sub>1</sub>	$\frac{50.0}{(1.969)}$ MIN.
Feed Hole Diameter	D <sub>2</sub>	$\frac{13.0 \pm 0.20}{(0.512 \pm 0.008)}$
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 <sub>0</sub>	$\frac{4.00 \pm 0.10}{(0.157 \pm 0.004)}$
Embossment Center	P <sub>1</sub>	$\frac{2.00 \pm 0.05}{(0.079 \pm 0.002)}$
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 <sub>1</sub>	$\frac{14.4}{(0.567)}$ MAX.
Quantity per Reel	--	3,000

**BOURNS®**

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