

## Features

- RoHS compliant\*
- Low capacitance - 1 pF
- ESD protection >15 kV
- Protects 4 I/O and 1 V<sub>DD</sub> line

## Applications

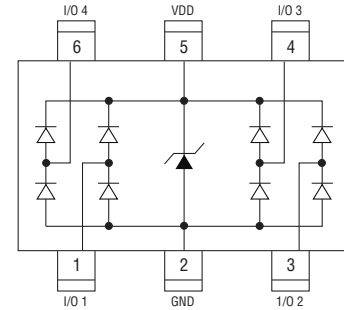
- HDMI 1.3 version
- PDAs and notebooks
- Consumer electronics
- Display port interface
- USB 2.0 up to 480 Mb/s

# CDSOT236-0504C - TVS/Steering Diode Array

## General Information

The CDSOT236-0504C 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 5 V and Minimum Breakdown Voltage of 6 V.

The SOT23-6 packaged device will mount directly onto the industry standard SOT23-6 footprint. Bourns® Chip Diodes are easy to handle with standard pick and place equipment and their flat configuration minimizes roll away.



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

Parameter	Symbol	CDSOT236-0504C	Unit
Peak Pulse Current (t <sub>p</sub> = 8/20 μs)	I <sub>PP</sub>	5.5	A
Storage Temperature	T <sub>STG</sub>	-55 to +150	°C
Operating Temperature	T <sub>OPR</sub>	-55 to +85	°C
Operating Supply Voltage	V <sub>DC</sub>	6	V
ESD per IEC 61000-4-2 (Air) (I/O Pins)	V <sub>ESD_IO</sub>	15	kV
ESD per IEC 61000-4-2 (Contact) (I/O Pins)		8	
ESD per IEC 61000-4-2 (Air) (V <sub>CC</sub> to GND)	V <sub>ESD_VCC</sub>	30	kV
ESD per IEC 61000-4-2 (Contact) (V <sub>CC</sub> to GND)		30	
DC Voltage at any I/O Pin	V <sub>IO</sub>	(GND-0.5) to (V <sub>CC</sub> +0.5)	V

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

Parameter	Symbol	CDSOT236-0504C	Unit
Maximum Reverse Standoff Voltage <sup>1</sup>	V <sub>RWM</sub>	5.0	V
Maximum Leakage Current <sup>1</sup> @ V <sub>RWM</sub>	I <sub>L</sub>	2.0	μA
Maximum Channel Leakage Current @ V <sub>RWM</sub>	I <sub>CD</sub>	1.0	μA
Minimum Reverse Breakdown Voltage <sup>1</sup> @ I <sub>BV</sub> = 1 mA	V <sub>BR</sub>	6.0	V
Maximum Forward Voltage <sup>4</sup> @ I <sub>F</sub> = 15 mA	V <sub>F</sub>	1.2	V
Maximum Clamping Voltage <sup>2</sup> @ 5 A 8/20 μs	V <sub>C</sub>	10	V
Typical ESD Clamping Voltage - I/O <sup>2</sup>	V <sub>clamp_io</sub>	14	V
Maximum Channel Input Capacitance <sup>2</sup> @ V <sub>PIN5</sub> = 5 V, V <sub>PIN2</sub> = 0 V, V <sub>IN</sub> = 2.5 V, f = 1 MHz	C <sub>IN</sub>	1.2	pF
Maximum Channel to Channel Input Capacitance <sup>3</sup> @ V <sub>PIN5</sub> = 5 V, V <sub>PIN2</sub> = 0 V, V <sub>IN</sub> = 2.5 V, f = 1 MHz	C <sub>CROSS</sub>	0.12	pF
Maximum Variation of Channel Input Capacitance @ V <sub>PIN5</sub> = 5 V, V <sub>PIN2</sub> = 0 V, V <sub>IN</sub> = 2.5 V, f = 1 MHz (I/O Pin to GND)	ΔC <sub>IN</sub>	0.05	pF

### NOTES:

1. Pin 5 to Pin 2 (GND)
2. Pin 1,3,4 or 6 to Pin 2 (GND)
3. Between any two of Pins 1,3,4,6
4. Pin 2 (GND) to Pin 5

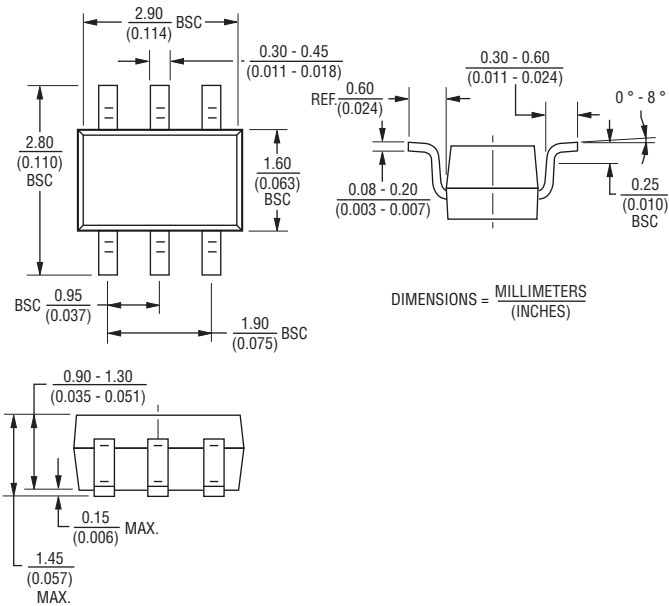
\*RoHS Directive 2002/95/EC Jan. 27, 2003 including annex and RoHS Recast 2011/65/EU June 8, 2011. Specifications are subject to change without notice. Customers should verify actual device performance in their specific applications.

# CDSOT236-0504C - TVS/Steering Diode Array

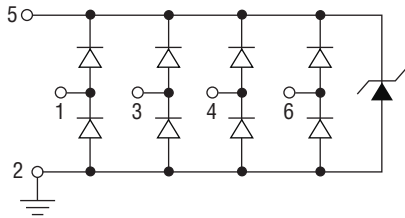


## Product Dimensions

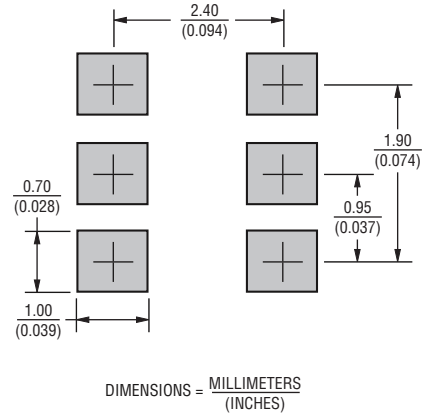
This is a molded SOT23-6L package with lead free 100 % Matte Sn on the lead frame. It weighs approximately 3 mg and has a flammability rating of UL 94V-0.



## Circuit Diagram



## Recommended Footprint



## Typical Part Marking

CDSOT236-0504C ..... 54C

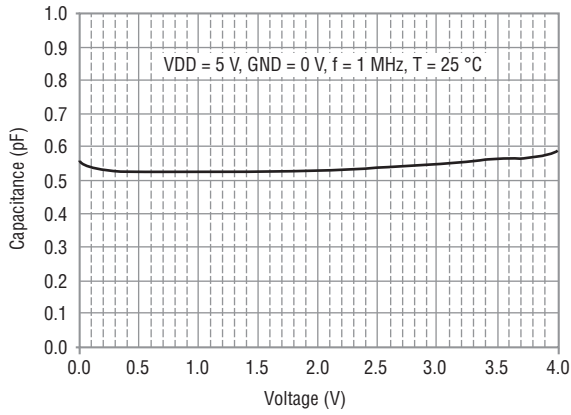
## How to Order

**CD SOT236 - 05 04 C**

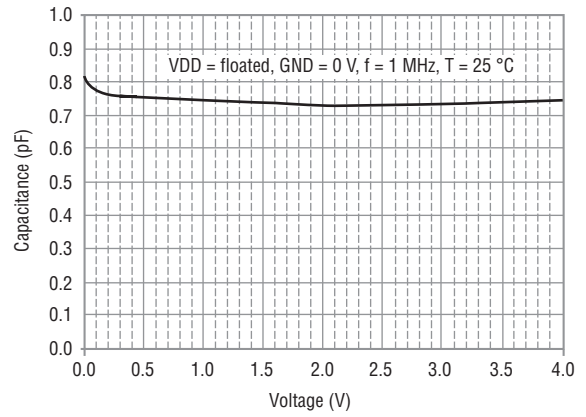
Common Code \_\_\_\_\_  
 Chip Diode \_\_\_\_\_  
 Package \_\_\_\_\_  
 SOT236 = SOT23-6 Package \_\_\_\_\_  
 Working Peak Reverse Voltage \_\_\_\_\_  
 05 = 5 V<sub>RWM</sub> (Volts) \_\_\_\_\_  
 Number of Lines \_\_\_\_\_  
 04 = 4 Data Lines \_\_\_\_\_  
 Suffix \_\_\_\_\_  
 C = Low Capacitance \_\_\_\_\_

## Typical Characteristics

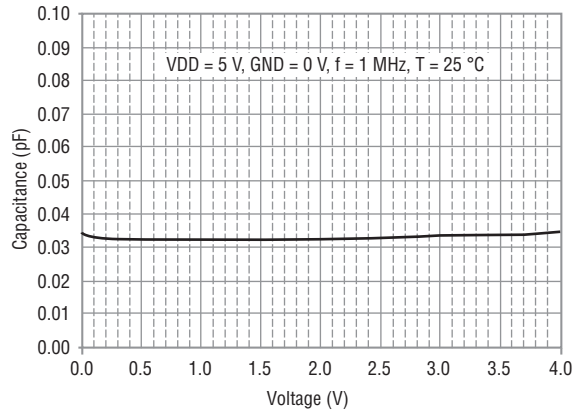
### Typical Variation of $C_{IN}$ vs. $V_{IN}$



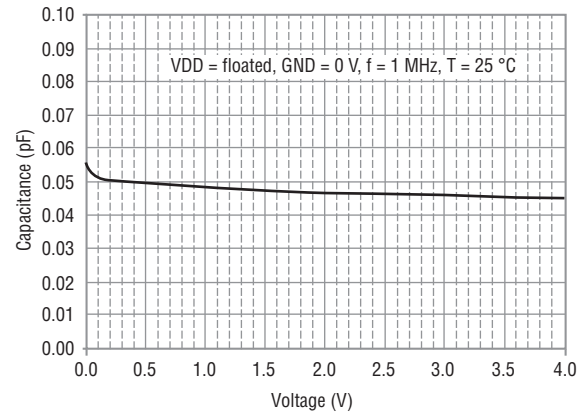
### Typical Variation of $C_{IN}$ vs. $V_{IN}$



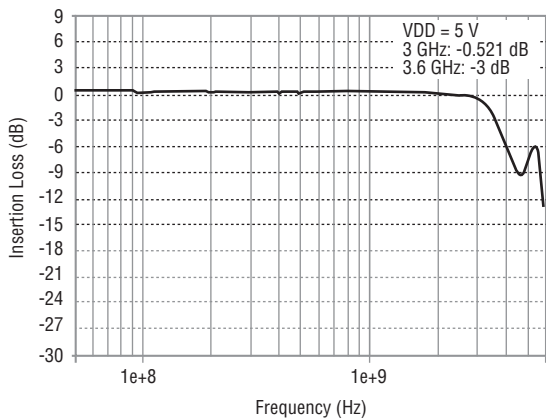
### Typical Variation of $C_{IO}$ to $I/O$ vs. $V_{IN}$



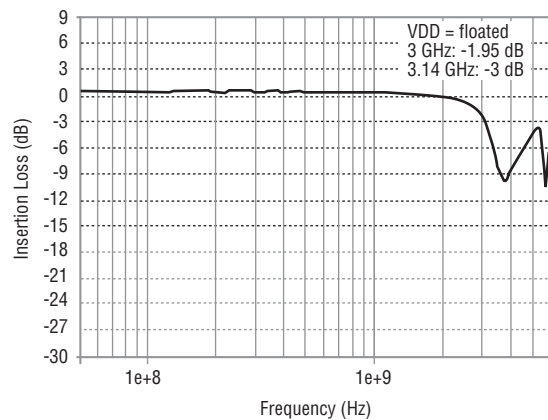
### Typical Variation of $C_{IO}$ to $I/O$ vs. $V_{IN}$



### Insertion Loss S21 (I/O to GND)



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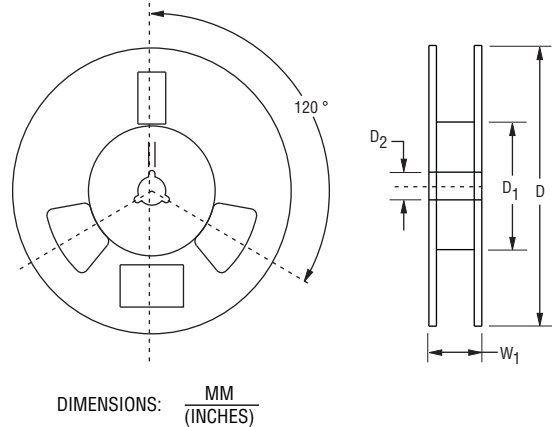
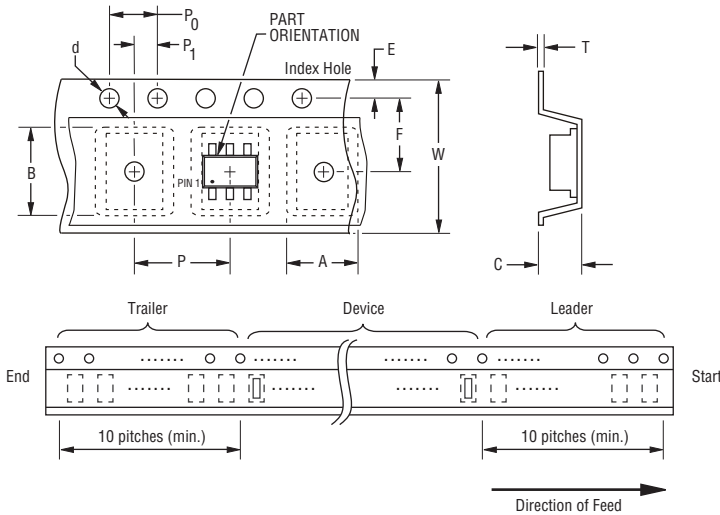


# CDSOT236-0504C - TVS/Steering Diode Array

**BOURNS®**

## Packaging Information

The product is packaged in tape and reel format per EIA-481 standard.



Item	Symbol	SOT23-6
Carrier Width	A	$\frac{3.90 \pm 0.10}{(0.154 \pm 0.004)}$
Carrier Length	B	$\frac{3.90 \pm 0.10}{(0.154 \pm 0.004)}$
Carrier Depth	C	$\frac{0.90 \pm 0.10}{(0.035 \pm 0.004)}$
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	--	3000

**BOURNS®**

**Asia-Pacific:**

Tel: +886-2 2562-4117

Fax: +886-2 2562-4116

**Europe:**

Tel: +41-41 768 5555

Fax: +41-41 768 5510

**The Americas:**

Tel: +1-951 781-5500

Fax: +1-951 781-5700

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

REV. 12/12

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