

## Features

- RoHS compliant\*
- Low capacitance - 0.55 pF
- ESD protection >15 kV
- Protects 4 I/O and 1 V<sub>DD</sub> line

## Applications

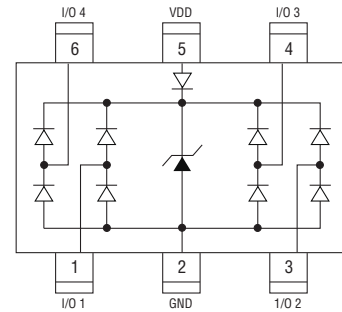
- HDMI 1.4
- Digital Visual Interface (DVI)
- USB 3.0 / USB OTG
- Memory protection
- SIM card ports

# CDSOT236-0504LC - TVS/Steering Diode Array

## General Information

The CDSOT236-0504LC 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 SOT23-6L packaged device will mount directly onto the industry standard SOT23-6L 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	CDSOT236-0504LC	Unit
Peak Pulse Current (t <sub>p</sub> = 8/20 μs)	I <sub>PP</sub>	4.7	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>	19	kV
ESD per IEC 61000-4-2 (Contact) (I/O Pins)		12	
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	CDSOT236-0504LC	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>	5.0	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>	1.0	V
Typical Clamping Voltage <sup>2</sup>	V <sub>C</sub>	8.1	V
Typical ESD Clamping Voltage - I/O <sup>2</sup>	V <sub>clamp_io</sub>	12	V
Typical ESD Clamping Voltage - V <sub>CC</sub> <sup>1</sup>	V <sub>clamp_VCC</sub>	9.0	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>	0.65	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>	0.06	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>	0.06	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



**WARNING**  
Cancer and Reproductive Harm  
[www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov)

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

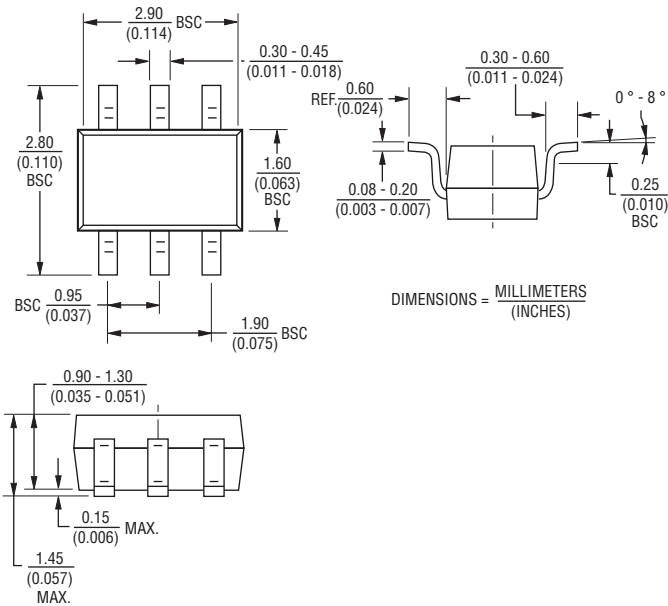
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# CDSOT236-0504LC - TVS/Steering Diode Array

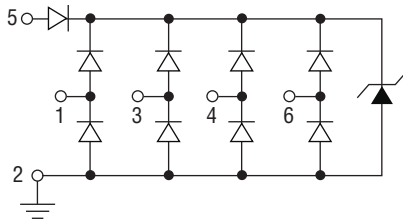
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## Product Dimensions

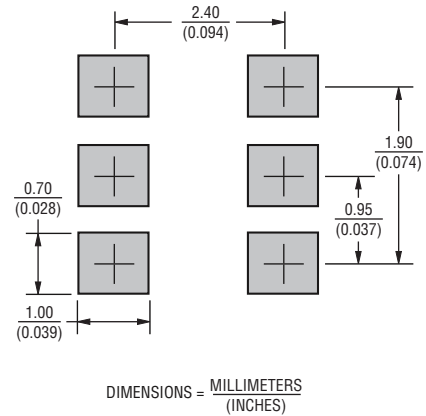
This is a molded SOT23-6L package with lead free 100 % Matte Sn on the lead frame. It weighs approximately 3 mg and has a flammability rating of UL 94V-0.



## Circuit Diagram



## Recommended Footprint



## Typical Part Marking

CDSOT236-0504LC .....54L

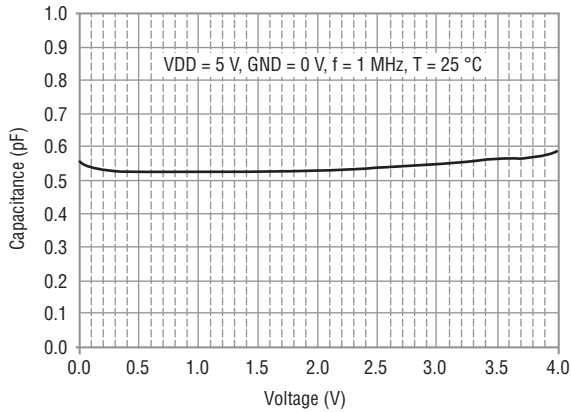
## How to Order

**CD SOT236 - 05 04 LC**

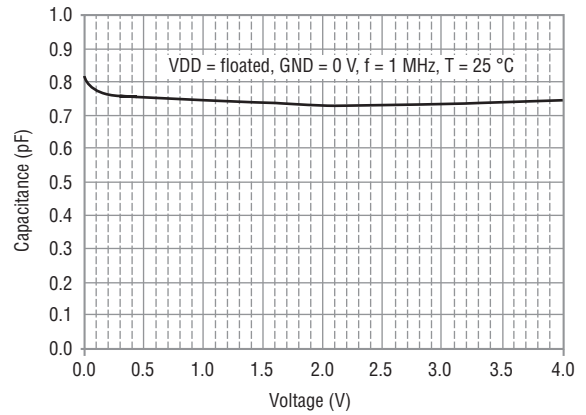
Common Code \_\_\_\_\_  
 Chip Diode \_\_\_\_\_  
 Package \_\_\_\_\_  
 SOT236 = SOT23-6L Package \_\_\_\_\_  
 Working Peak Reverse Voltage \_\_\_\_\_  
 05 = 5 V<sub>RWM</sub> (Volts) \_\_\_\_\_  
 Number of Lines \_\_\_\_\_  
 04 = 4 Data Lines \_\_\_\_\_  
 Suffix \_\_\_\_\_  
 LC = Low Capacitance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

## Typical Characteristics

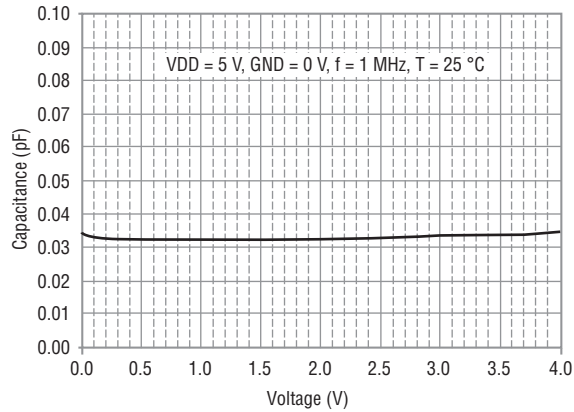
### Typical Variation of $C_{IN}$ vs. $V_{IN}$



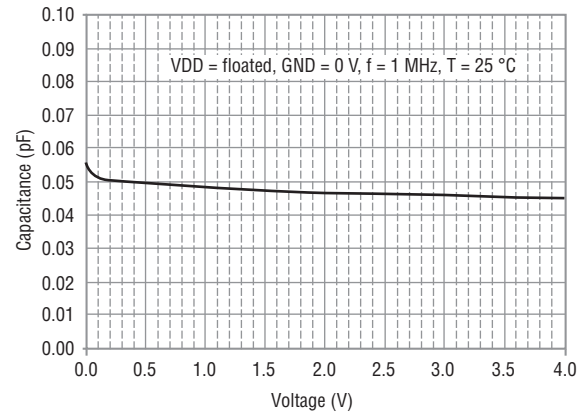
### Typical Variation of $C_{IN}$ vs. $V_{IN}$



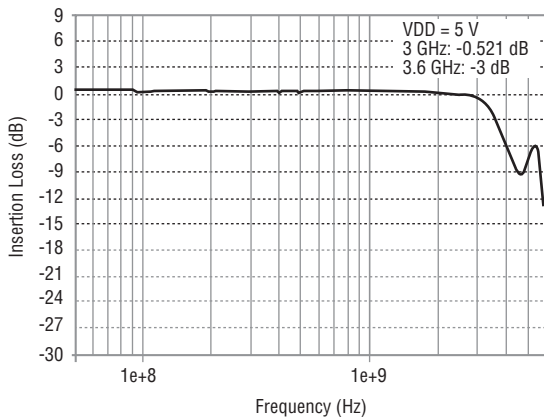
### Typical Variation of $C_{IO}$ to $I/O$ vs. $V_{IN}$



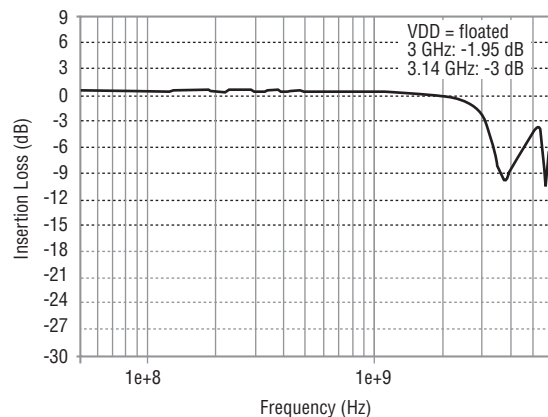
### Typical Variation of $C_{IO}$ to $I/O$ vs. $V_{IN}$



### Insertion Loss $S_{21}$ (I/O to GND)



### Insertion Loss $S_{21}$ (I/O to GND)



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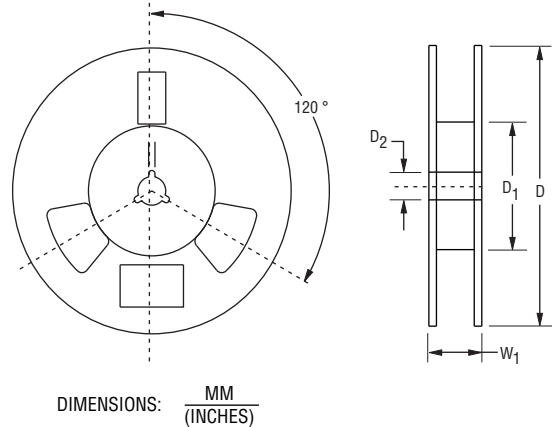
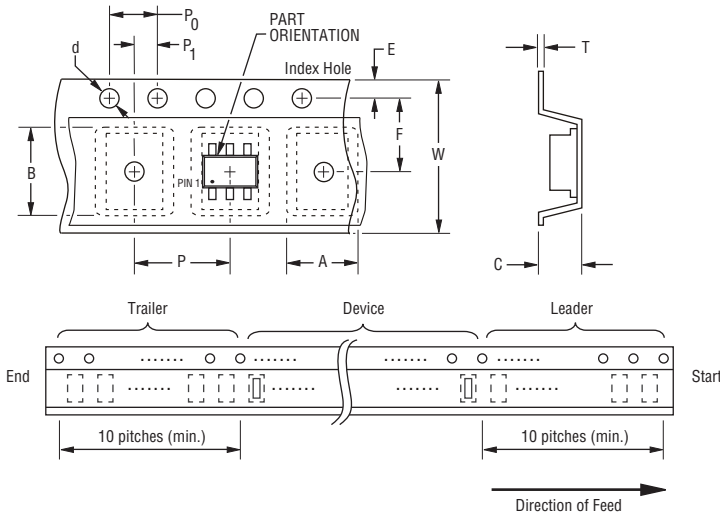
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# CDSOT236-0504LC - TVS/Steering Diode Array

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## Packaging Information

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



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

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

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