**CDSOT236-0504LC - TVS/Steering Diode Array**

### Features
- RoHS compliant*
- Low capacitance - 0.55 pF
- ESD protection >15 kV
- Protects 4 I/O and 1 VDD line

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

### 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 (@ TA = 25 °C Unless Otherwise Noted)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Symbol</th>
<th>CDSOT236-0504LC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peak Pulse Current (tp = 8/20 μs)</td>
<td>Ipp</td>
<td>4.7 A</td>
</tr>
<tr>
<td>Storage Temperature</td>
<td>TSTG</td>
<td>-55 to +150 °C</td>
</tr>
<tr>
<td>Operating Temperature</td>
<td>TOPR</td>
<td>-55 to +85 °C</td>
</tr>
<tr>
<td>Operating Supply Voltage</td>
<td>VDC</td>
<td>6 V</td>
</tr>
<tr>
<td>ESD per IEC 61000-4-2 (Air) (I/O Pins)</td>
<td>VESD_IO</td>
<td>19 kV</td>
</tr>
<tr>
<td>ESD per IEC 61000-4-2 (Contact) (I/O Pins)</td>
<td>VESD_VCC</td>
<td>30 kV</td>
</tr>
<tr>
<td>DC Voltage at any I/O Pin</td>
<td>VIO</td>
<td>(GND-0.5) to (VCC+0.5)</td>
</tr>
</tbody>
</table>

### Electrical Characteristics (@ TA = 25 °C Unless Otherwise Noted)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Symbol</th>
<th>CDSOT236-0504LC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum Reverse Standoff Voltage</td>
<td>VRWM</td>
<td>5.0 V</td>
</tr>
<tr>
<td>Maximum Leakage Current @ VRWM</td>
<td>IL</td>
<td>5.0 μA</td>
</tr>
<tr>
<td>Maximum Channel Leakage Current @ VRWM</td>
<td>ICD</td>
<td>1.0 μA</td>
</tr>
<tr>
<td>Minimum Reverse Breakdown Voltage @ IGBV = 1 mA</td>
<td>VBR</td>
<td>6.0 V</td>
</tr>
<tr>
<td>Maximum Forward Voltage @ IF = 15 mA</td>
<td>VF</td>
<td>1.0 V</td>
</tr>
<tr>
<td>Typical Clamping Voltage</td>
<td>VC</td>
<td>8.1 V</td>
</tr>
<tr>
<td>Typical ESD Clamping Voltage - I/O</td>
<td>Vclamp_IO</td>
<td>12 V</td>
</tr>
<tr>
<td>Typical ESD Clamping Voltage - VCC</td>
<td>Vclamp_VCC</td>
<td>9.0 V</td>
</tr>
<tr>
<td>Maximum Channel Input Capacitance @ VPIN5 = 5 V, VPIN2 = 0 V, VIN = 2.5 V, f = 1 MHz</td>
<td>CIN</td>
<td>0.65 pF</td>
</tr>
<tr>
<td>Maximum Channel to Channel Input Capacitance @ VPIN5 = 5 V, VPIN2 = 0 V, VIN = 2.5 V, f = 1 MHz</td>
<td>CCROSS</td>
<td>0.06 pF</td>
</tr>
<tr>
<td>Maximum Variation of Channel Input Capacitance @ VPIN5 = 5 V, VPIN2 = 0 V, VIN = 2.5 V, f = 1 MHz (I/O Pin to GND)</td>
<td>ΔCIN</td>
<td>0.06 pF</td>
</tr>
</tbody>
</table>

**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

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

Recommended Footprint

Circuit Diagram

How to Order

Common Code
Chip Diode
Package
SOT236 = SOT23-6L Package
Working Peak Reverse Voltage
05 = 5 V_{PVRM} (Volts)
Number of Lines
04 = 4 Data Lines
Suffix
LC = Low Capacitance

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**Typical Characteristics**

**Typical Variation of C\textsubscript{IN} vs. V\textsubscript{IN}**

![Capacitance (pF) vs. Voltage (V) graph](Image)

VDD = 5 V, GND = 0 V, f = 1 MHz, T = 25 °C

**Typical Variation of C\textsubscript{IO} to I\textsubscript{O} vs. V\textsubscript{IN}**

![Capacitance (pF) vs. Voltage (V) graph](Image)

VDD = floated, GND = 0 V, f = 1 MHz, T = 25 °C

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

![Insertion Loss (dB) vs. Frequency (Hz) graph](Image)

VDD = 5 V

- 3 GHz: -0.521 dB
- 3.6 GHz: -3 dB

VDD = floated

- 3 GHz: -1.92 dB
- 3.14 GHz: -3 dB

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Packaging Information

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

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**Item** | **Symbol** | **SOT236**
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Carrier Width | A | 3.90 ± 0.10 (0.154 ± 0.004)
Carrier Length | B | 3.90 ± 0.10 (0.154 ± 0.004)
Carrier Depth | C | 0.90 ± 0.10 (0.035 ± 0.004)
Sprocket Hole | d | 1.56 ± 0.05 (0.061 ± 0.002)
Reel Outside Diameter | D | 178 (7.008)
Reel Inner Diameter | D₁ | 50.9 (1.999) MIN.
Feed Hole Diameter | D₂ | 13.0 ± 0.20 (0.512 ± 0.008)
Sprocket Hole Position | E | 1.75 ± 0.10 (0.069 ± 0.004)
Punch Hole Position | F | 3.50 ± 0.05 (0.138 ± 0.002)
Punch Hole Pitch | P | 4.00 ± 0.10 (0.157 ± 0.004)
Sprocket Hole Pitch | P₀ | 4.00 ± 0.10 (0.157 ± 0.004)
Embossment Center | P₁ | 2.00 ± 0.05 (0.079 ± 0.002)
Overall Tape Thickness | T | 0.20 ± 0.10 (0.008 ± 0.004)
Tape Width | W | 8.00 ± 0.20 (0.315 ± 0.008)
Reel Width | W₁ | 14.4 (0.567) MAX.
Quantity per Reel | -- | 3000

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