Features

- Provides ESD Protection per IEC 61000-4-2 Standard: Air – ±30kV, Contact – ±30kV
- 4 Channels of Bi-directional ESD Protection
- Low Channel Input Capacitance
- Typically Used at Portable Electronics, Cellular Handsets and Communication Systems
- Lead Free/RoHS Compliant (Note 1)
- "Green" Device (Note 2)

Mechanical Data

- Case: SOT553
- Case Material: Molded Plastic, "Green" Molding Compound.
- UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Matte Tin Finish annealed over Copper leadframe (Lead Free Plating). Solderable per MIL-STD-202, Method 208
- Weight: 0.002 grams (approximate)

Ordering Information (Note 3)

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Case</th>
<th>Packaging</th>
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<tr>
<td>D5V0L4B5V-7</td>
<td>SOT553</td>
<td>3000/Tape &amp; Reel</td>
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Notes:
1. EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant. No purposely added lead. Halogen and Antimony free.
2. Diodes Inc.'s "Green" policy can be found on our website at http://www.diodes.com.
3. For packaging details, go to our website at http://www.diodes.com.

Marking Information

TB6 = Product Type Marking Code
YM = Date Code Marking
Y = Year (ex: Z = 2012)
M = Month (ex: 9 = September)

Date Code Key

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D5V0L4B5V

January 2012

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### Maximum Ratings \( @T_A = 25°C \) unless otherwise specified

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<th>Characteristic</th>
<th>Symbol</th>
<th>Value</th>
<th>Unit</th>
<th>Conditions</th>
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<td>Peak Pulse Power Dissipation</td>
<td>( P_{PP} )</td>
<td>84</td>
<td>W</td>
<td>8/20( \mu )s, Per Fig. 2</td>
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<tr>
<td>Peak Pulse Current</td>
<td>( I_{PP} )</td>
<td>6</td>
<td>A</td>
<td>8/20( \mu )s, Per Fig. 2</td>
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<tr>
<td>ESD Protection – Contact Discharge</td>
<td>( V_{ESD_Contact} )</td>
<td>( \pm 30 )</td>
<td>kV</td>
<td>Standard IEC 61000-4-2</td>
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<tr>
<td>ESD Protection – Air Discharge</td>
<td>( V_{ESD_Air} )</td>
<td>( \pm 30 )</td>
<td>kV</td>
<td>Standard IEC 61000-4-2</td>
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### Thermal Characteristics \( @T_A = 25°C \) unless otherwise specified

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Symbol</th>
<th>Value</th>
<th>Unit</th>
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</thead>
<tbody>
<tr>
<td>Package Power Dissipation (Note 5)</td>
<td>( P_D )</td>
<td>380</td>
<td>mW</td>
</tr>
<tr>
<td>Thermal Resistance, Junction to Ambient (Note 5)</td>
<td>( R_{JUA} )</td>
<td>327</td>
<td>°C/W</td>
</tr>
<tr>
<td>Operating Junction Temperature Range</td>
<td>( T_J )</td>
<td>-65 to +150</td>
<td>°C</td>
</tr>
<tr>
<td>Storage Temperature Range</td>
<td>( T_{STG} )</td>
<td>-65 to +150</td>
<td>°C</td>
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### Electrical Characteristics \( @T_A = 25°C \) unless otherwise specified

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Symbol</th>
<th>Min</th>
<th>Typ</th>
<th>Max</th>
<th>Unit</th>
<th>Test Conditions</th>
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<tbody>
<tr>
<td>Reverse Working Voltage</td>
<td>( V_{RWM} )</td>
<td>-</td>
<td>5.0</td>
<td></td>
<td>V</td>
<td></td>
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<tr>
<td>Breakdown Voltage</td>
<td>( V_{BR} )</td>
<td>6</td>
<td>7</td>
<td>8</td>
<td>V</td>
<td>( I_R = 1.0,mA )</td>
</tr>
<tr>
<td>Reverse Leakage Current (Note 6)</td>
<td>( I_R )</td>
<td>-</td>
<td>10</td>
<td>100</td>
<td>nA</td>
<td>( V_{RWM} = 5V )</td>
</tr>
<tr>
<td>Clamping Voltage (Note 4)</td>
<td>( V_{CL} )</td>
<td>-</td>
<td>7.0</td>
<td>9.0</td>
<td>V</td>
<td>( I_{PP} = 1A, I_p = 8/20\mu S)</td>
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<tr>
<td></td>
<td></td>
<td>-</td>
<td>8.7</td>
<td>10.7</td>
<td>V</td>
<td>( I_{PP} = 3A, I_p = 8/20\mu S)</td>
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<tr>
<td></td>
<td></td>
<td>-</td>
<td>10.5</td>
<td>12.0</td>
<td>V</td>
<td>( I_{PP} = 5A, I_p = 8/20\mu S)</td>
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<td></td>
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<td>14.0</td>
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<td>( I_{PP} = 6A, I_p = 8/20\mu S)</td>
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<tr>
<td>Differential Resistance</td>
<td>( R_{DIF} )</td>
<td>-</td>
<td>0.2</td>
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<td>Ω</td>
<td>( I_R = 1.0A, I_p = 8/20\mu S)</td>
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<tr>
<td>Channel Input Capacitance</td>
<td>( C_T )</td>
<td>-</td>
<td>15</td>
<td>20</td>
<td>pF</td>
<td>( V_N = 0V, f = 1MHz ) ( \text{Channel to Pin 2} )</td>
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Notes:
4. Measured from channel to pin 2; Non-repetitive current pulse per Fig. 2.
5. Device mounted on FR-4 PCB pad layout (2oz copper) as shown on Diodes, Inc. suggested pad layout AP02001, which can be found on our website at http://www.diodes.com.
6. Short duration pulse test used to minimize self-heating effect.
Typical Applications

Driver

Connector

D5V0L4B5V
**Package Outline Dimensions**

![Package Diagram](image1)

<table>
<thead>
<tr>
<th>SOT553</th>
<th>Dim</th>
<th>Min</th>
<th>Max</th>
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<td>A</td>
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<td>0.60</td>
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<td>c</td>
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<td></td>
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<tr>
<td>D</td>
<td>1.50</td>
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<td>E</td>
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<td>E1</td>
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<td>a</td>
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<td>All Dimensions in mm</td>
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**Suggested Pad Layout**

![Pad Layout Diagram](image2)

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<th>Dimensions</th>
<th>Value (in mm)</th>
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<tr>
<td>G</td>
<td>1.2</td>
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<td>X</td>
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<td>Y</td>
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<tr>
<td>C1</td>
<td>1.7</td>
</tr>
<tr>
<td>C2</td>
<td>0.5</td>
</tr>
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</table>
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