

2 CHANNEL LOW CAPACITANCE BI-DIRECTIONAL TVS ARRAY
Features

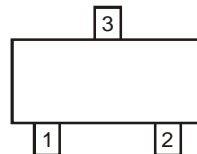
- Provides ESD Protection per IEC 61000-4-2 Standard:
Air – ±30kV, Contact – ±30kV
- 2 Channels of Bi-Directional ESD Protection
- Low Channel Input Capacitance
- Typically Used in Cellular Handsets, Portable Electronics, Communication Systems, Computers and Peripherals
- **Lead Free/RoHS Compliant (Note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

Mechanical Data

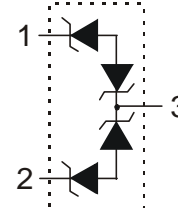
- Case: SOT23
- Case Material: Molded Plastic, “Green” Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Matte Tin Finish annealed over Alloy 42 leadframe (Lead Free Plating). Solderable per MIL-STD-202, Method 208
- Weight: 0.0089 grams (approximate)



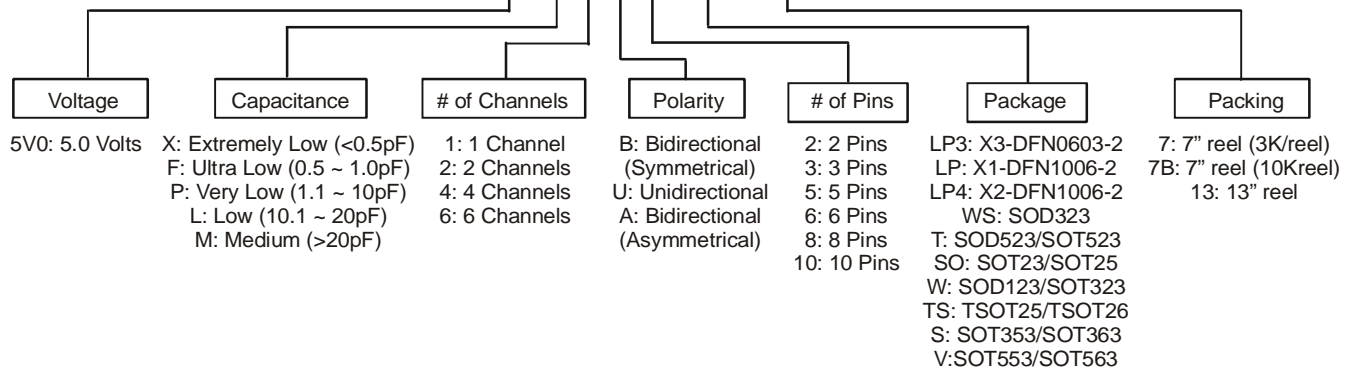
Top View



Pin Configuration

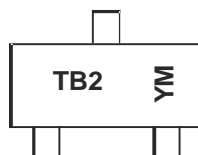


Device Schematic

Ordering Information (Note 3)
D 5V0 L X B X XXX- XX


| Part Number | Case | Packaging |
|--------------|-------|------------------|
| D5V0L2B3SO-7 | SOT23 | 3000/Tape & Reel |

- 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


TB2 = Product Type Marking Code
 YM = Date Code Marking
 Y = Year (ex: Z = 2012)
 M = Month (ex: 9 = September)

Date Code Key

| Year | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 |
|------|------|------|------|------|------|------|------|
| Code | Y | Z | A | B | C | D | E |

| Month | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|-------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Code | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | O | N | D |

Maximum Ratings @ $T_A = 25^\circ\text{C}$ unless otherwise specified

| Characteristic | Symbol | Value | Unit | Conditions |
|------------------------------------|--------------------|----------|------|------------------------------------|
| Peak Pulse Power Dissipation | P_{PP} | 84 | W | 8/20 μs , Per in Fig. 1 |
| Peak Pulse Current | I_{PP} | 6 | A | 8/20 μs , Per in Fig. 1 |
| ESD Protection – Contact Discharge | $V_{ESD_Contact}$ | ± 30 | kV | Standard IEC 61000-4-2 |
| ESD Protection – Air Discharge | V_{ESD_Air} | ± 30 | kV | Standard IEC 61000-4-2 |

Thermal Characteristics

| Characteristic | Symbol | Value | Unit |
|--|-----------------|-------------|--------------------|
| Package Power Dissipation (Note 5) | P_D | 300 | mW |
| Thermal Resistance, Junction to Ambient (Note 5) | $R_{\theta JA}$ | 417 | $^\circ\text{C/W}$ |
| Operating Junction Temperature Range | T_J | -65 to +150 | $^\circ\text{C}$ |
| Storage Temperature Range | T_{STG} | -65 to +150 | $^\circ\text{C}$ |

Electrical Characteristics @ $T_A = 25^\circ\text{C}$ unless otherwise specified

| Characteristic | Symbol | Min | Typ | Max | Unit | Test Conditions |
|----------------------------------|-----------|-----|------|------|----------|--|
| Reverse Working Voltage | V_{RWM} | - | - | 5.0 | V | - |
| Breakdown Voltage | V_{BR} | 6 | 7 | 8 | V | $I_R = 1.0\text{mA}$ |
| Reverse Leakage Current (Note 6) | I_R | - | 10 | 100 | nA | $V_{RWM} = 5\text{V}$ |
| Clamping Voltage (Note 4) | V_{CL} | - | 7.0 | 9.0 | V | $I_{PP} = 1\text{A}$, $t_p = 8/20\mu\text{s}$ |
| | | - | 8.7 | 10.7 | V | $I_{PP} = 3\text{A}$, $t_p = 8/20\mu\text{s}$ |
| | | - | 10.5 | 12.0 | V | $I_{PP} = 5\text{A}$, $t_p = 8/20\mu\text{s}$ |
| | | - | 11.5 | 14.0 | V | $I_{PP} = 6\text{A}$, $t_p = 8/20\mu\text{s}$ |
| Differential Resistance | R_{DIF} | - | 0.2 | - | Ω | $I_R = 1.0\text{A}$, $t_p = 8/20\mu\text{s}$ |
| Channel Input Capacitance | C_T | - | 15 | 20 | pF | $V_{IN} = 0\text{V}$, $f = 1\text{MHz}$ (Channel to Pin 3) |

- Notes:
4. Measured from channel to pin 3; Non-repetitive current pulse per Fig. 1.
 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.

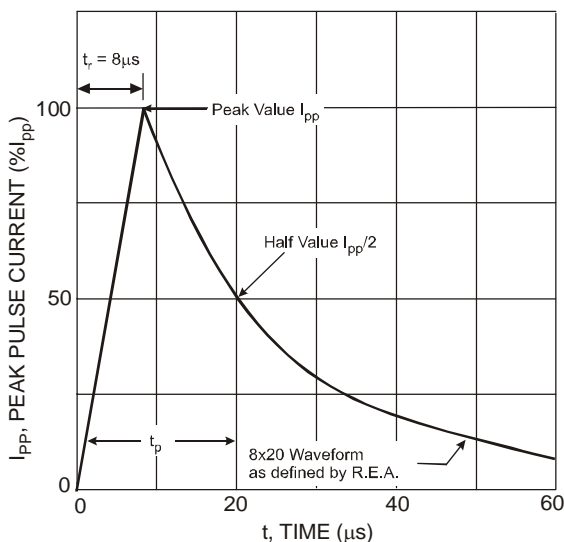
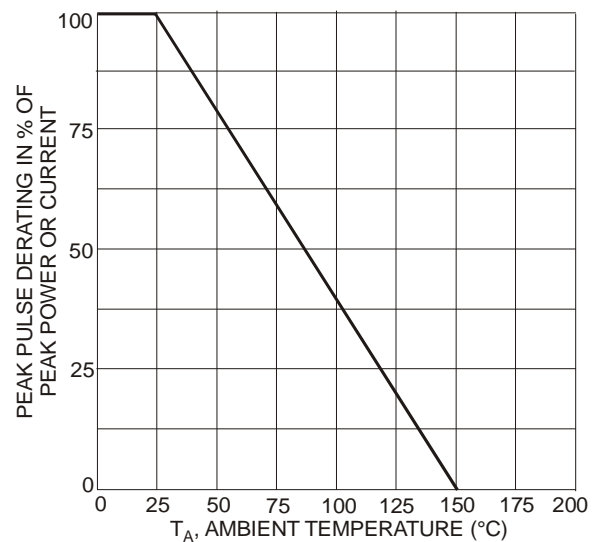

 Fig. 1 Typical 8 x 20 μs Pulse Waveform


Fig. 2 Pulse Derating Curve

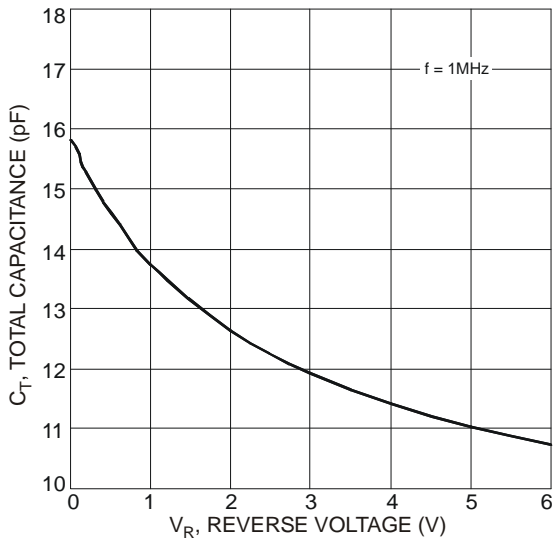


Fig. 3 Typical Total Capacitance vs. Reverse Voltage

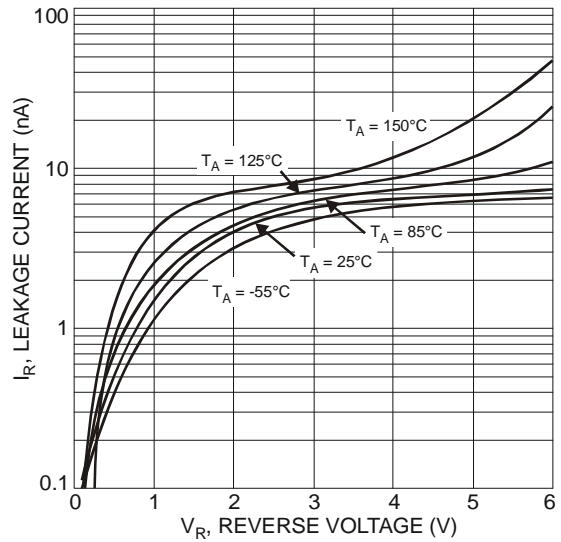
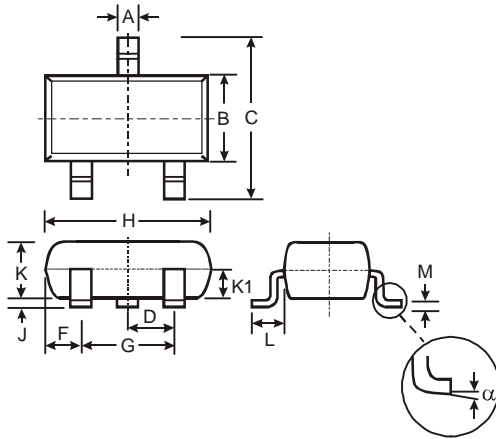


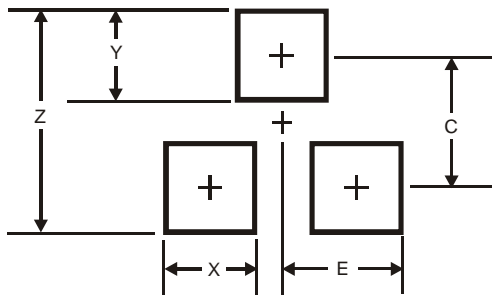
Fig. 4 Typical Reverse Characteristics

Package Outline Dimensions



| SOT23 | | | |
|----------------------|-------|------|-------|
| Dim | Min | Max | Typ |
| A | 0.37 | 0.51 | 0.40 |
| B | 1.20 | 1.40 | 1.30 |
| C | 2.30 | 2.50 | 2.40 |
| D | 0.89 | 1.03 | 0.915 |
| F | 0.45 | 0.60 | 0.535 |
| G | 1.78 | 2.05 | 1.83 |
| H | 2.80 | 3.00 | 2.90 |
| J | 0.013 | 0.10 | 0.05 |
| K | 0.903 | 1.10 | 1.00 |
| K1 | - | - | 0.400 |
| L | 0.45 | 0.61 | 0.55 |
| M | 0.085 | 0.18 | 0.11 |
| α | 0° | 8° | - |
| All Dimensions in mm | | | |

Suggested Pad Layout



| Dimensions | Value (in mm) |
|------------|---------------|
| Z | 2.9 |
| X | 0.8 |
| Y | 0.9 |
| C | 2.0 |
| E | 1.35 |

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