

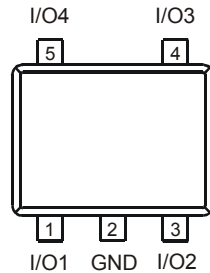
4 CHANNEL LOW CAPACITANCE TVS DIODE ARRAY

Features

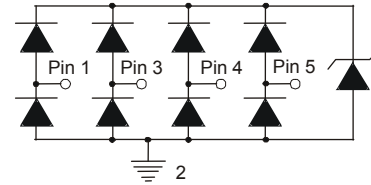
- IEC 61000-4-2 (ESD): Air – ±15kV, Contact – ±12kV
- 4 Channels of ESD Protection
- Low Channel Input Capacitance of 0.5pF Typical
- Typically Used at High Speed Ports such as USB 2.0, IEEE1394, Serial ATA, DVI, HDMI, PCI
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**

Mechanical Data

- Case: SOT953
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminal Finish: Matte Tin, Annealed Over Copper Leadframe. Solderable per MIL-STD-202, Method 208 Ⓔ③
- Weight: 0.002 grams (approximate)



Pin Description (Top View)



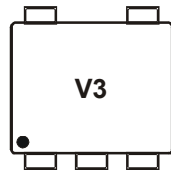
Device Schematic

Ordering Information (Note 4)

| Product | Compliance | Marking | Reel size(inches) | Tape width(mm) | Quantity per reel |
|--------------|------------|---------|-------------------|----------------|--------------------|
| D5V0F4U5P5-7 | AEC-Q101 | V3 | 7 | 8 | 10,000/Tape & Reel |

- Notes:
1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant.
 2. See http://www.diodes.com/quality/lead_free.html for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "Green" and Lead-free.
 3. Halogen- and Antimony-free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
 4. For packaging details, go to our website at <http://www.diodes.com/products/packages.html>.

Marking Information



V3 = Product type marking code

Maximum Ratings (@T_A = +25°C, unless otherwise specified.)

| Characteristic | Symbol | Value | Unit | Conditions |
|------------------------------------|--------------------------|-------|------|------------------------|
| Peak Pulse Current | I _{PP} | 2.0 | A | 8/20μs (Note 7) |
| ESD Protection – Contact Discharge | V _{ESD_Contact} | ±12 | kV | Standard IEC 61000-4-2 |
| ESD Protection – Air Discharge | V _{ESD_Air} | ±15 | kV | Standard IEC 61000-4-2 |

Thermal Characteristics

| Characteristic | Symbol | Value | Unit |
|--|-----------------------------------|-------------|------|
| Power Dissipation (Note 5) | P _D | 300 | mW |
| Thermal Resistance, Junction to Ambient T _A = +25°C | R _{θJA} | 417 | °C/W |
| Operating and Storage Temperature Range | T _J , T _{STG} | -55 to +150 | °C |

Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)

| Characteristic | Symbol | Min | Typ | Max | Unit | Test Conditions |
|--|------------------|-----|------|------|------|---|
| Reverse Standoff Voltage | V _{RWM} | — | — | 5.5 | V | — |
| Channel Leakage Current (Note 6) | I _R | — | — | 100 | nA | V _R = 5V, Any I/O to GND |
| Reverse breakdown voltage | V _{BR} | 6.0 | — | — | V | I _R = 1mA |
| Forward voltage | V _F | — | 0.85 | — | V | I _F = 4mA |
| Clamping Voltage, Positive Transients (Note 7) | V _C | — | 9.5 | 11.5 | V | I _{PP} = 1A, t _p = 8/20μs |
| | | — | 10.5 | 12.5 | | I _{PP} = 2A, t _p = 8/20μs |
| Channel Input Capacitance (Note 8) | C _T | — | 0.5 | — | pF | V _R = 0V, f = 1MHz, Any I/O to GND |
| | | — | 0.4 | 0.65 | | V _R = 2.5V, f = 1MHz, Any I/O to GND |
| Dynamic Resistance | R _{DYN} | — | 0.9 | — | Ω | I _{PP} = 1A, t _p = 8/20μs |

- Notes:
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.
 7. Clamping voltage value is based on an 8x20μs peak pulse current (I_{pp}) waveform.
 8. Measured from any I/O to GND.
 9. For information on the impact of Diodes' USB 2.0 compatible ESD protectors on signal integrity including eye diagram plots, please refer to AN77 at the following URL: http://www.diodes.com/destdtools/appnote_dnote.html.

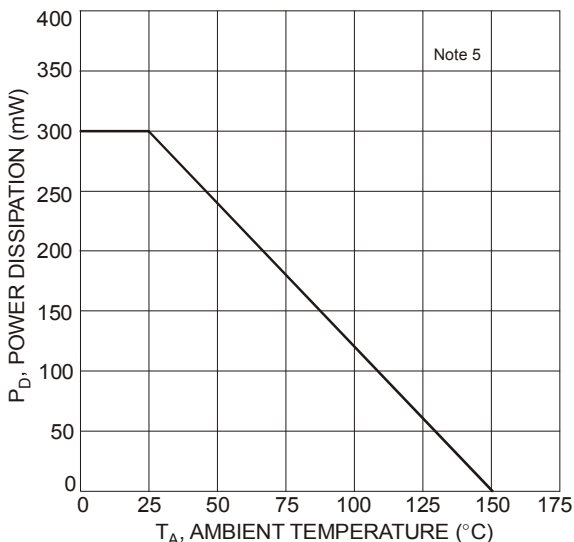


Figure 1 Power Derating Curve

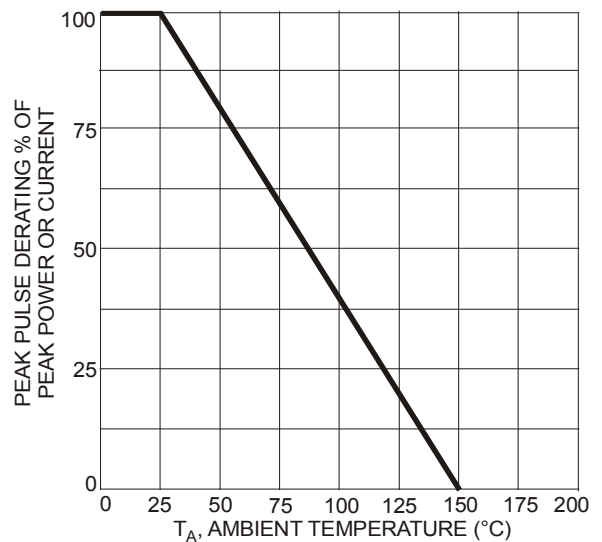


Figure 2 Pulse Derating Curve

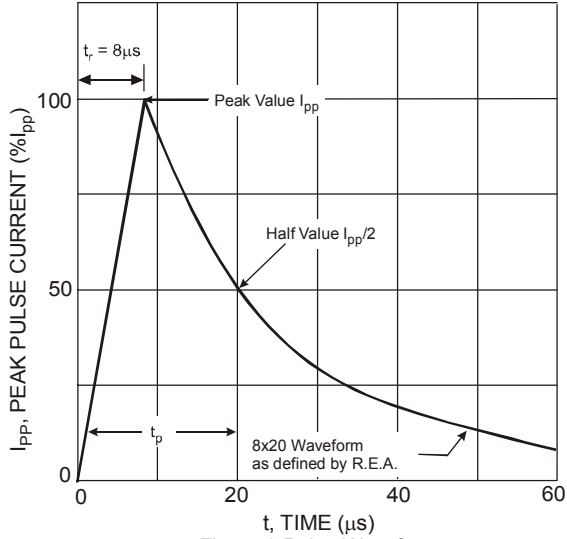


Figure 3 Pulse Waveform

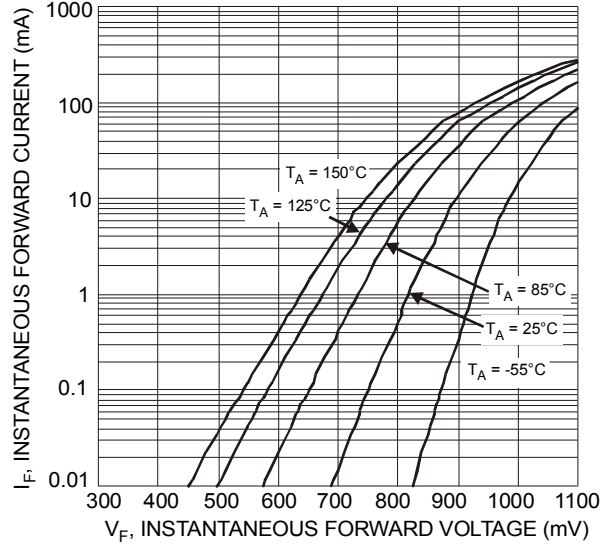


Figure 4 Typical Forward Characteristics

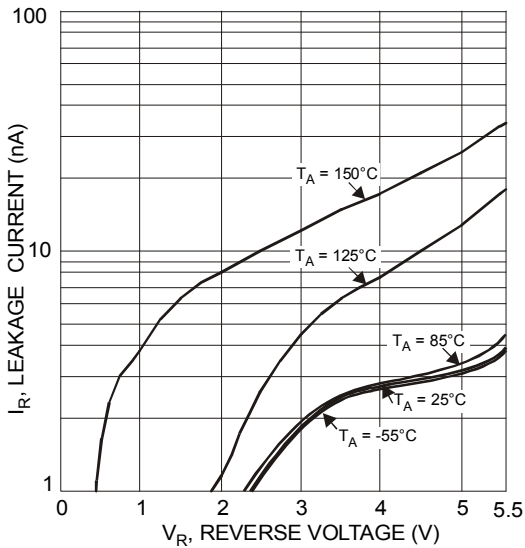


Figure 5 Typical Reverse Characteristics

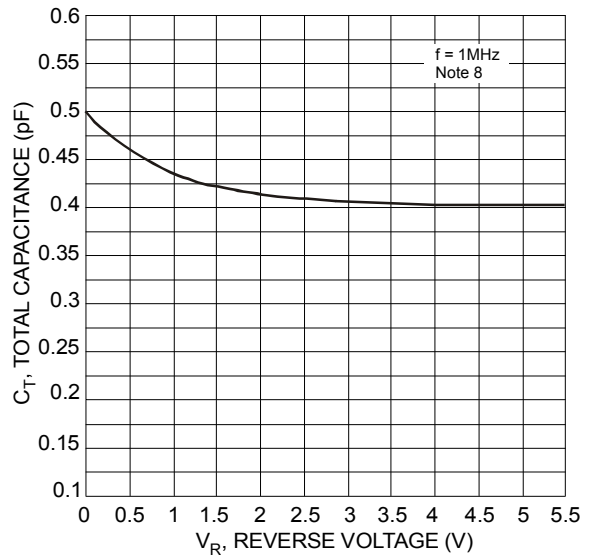
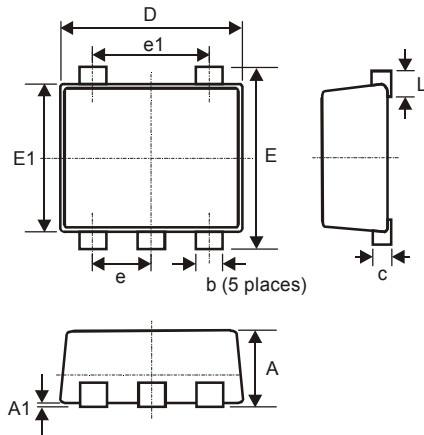


Figure 6 Total Capacitance vs. Reverse Voltage

Package Outline Dimensions

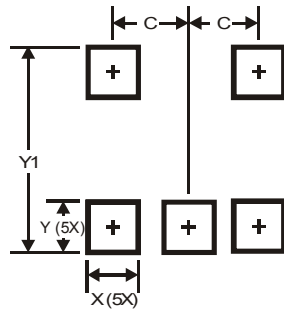
Please see AP02002 at <http://www.diodes.com/datasheets/ap02002.pdf> for latest version.



| SOT953 | | | |
|----------------------|------|------|------|
| Dim | Min | Max | Typ |
| A | 0.40 | 0.50 | 0.45 |
| A1 | 0 | 0.05 | — |
| b | 0.10 | 0.20 | 0.15 |
| c | 0.12 | 0.18 | 0.15 |
| D | 0.95 | 1.05 | 1.00 |
| E | 0.95 | 1.05 | 1.00 |
| E1 | 0.75 | 0.85 | 0.80 |
| e | — | — | 0.35 |
| e1 | — | — | 0.70 |
| L | 0.05 | 0.15 | 0.10 |
| All Dimensions in mm | | | |

Suggested Pad Layout

Please see AP02001 at <http://www.diodes.com/datasheets/ap02001.pdf> for the latest version.



| Dimensions | Value (in mm) |
|------------|---------------|
| C | 0.350 |
| X | 0.200 |
| Y | 0.200 |
| Y1 | 1.100 |

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