

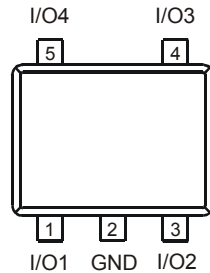
4 CHANNEL LOW CAPACITANCE TVS DIODE ARRAY

Features

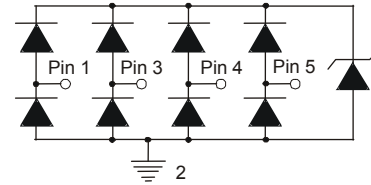
- IEC 61000-4-2 (ESD): Air – ±15kV, Contact – ±12kV
- 4 Channels of ESD Protection
- Low Channel Input Capacitance of 0.5pF Typical
- Typically Used at High Speed Ports such as USB 2.0, IEEE1394, Serial ATA, DVI, HDMI, PCI
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony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



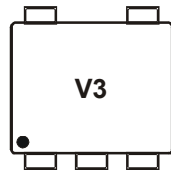
Device Schematic

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 (@ $T_A = +25^\circ\text{C}$, unless otherwise specified.)

Characteristic	Symbol	Value	Unit	Conditions
Peak Pulse Current	I_{PP}	2.0	A	8/20 μs (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 $T_A = +25^\circ\text{C}$	$R_{\theta JA}$	417	$^\circ\text{C}/\text{W}$
Operating and Storage Temperature Range	T_J, T_{STG}	-55 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 Standoff Voltage	V_{RWM}	—	—	5.5	V	—
Channel Leakage Current (Note 6)	I_R	—	—	100	nA	$V_R = 5\text{V}$, Any I/O to GND
Reverse breakdown voltage	V_{BR}	6.0	—	—	V	$I_R = 1\text{mA}$
Forward voltage	V_F	—	0.85	—	V	$I_F = 4\text{mA}$
Clamping Voltage, Positive Transients (Note 7)	V_C	—	9.5	11.5	V	$I_{PP} = 1\text{A}$, $t_p = 8/20\mu\text{s}$
		—	10.5	12.5		$I_{PP} = 2\text{A}$, $t_p = 8/20\mu\text{s}$
Channel Input Capacitance (Note 8)	C_T	—	0.5	—	pF	$V_R = 0\text{V}$, $f = 1\text{MHz}$, Any I/O to GND
		—	0.4	0.65		$V_R = 2.5\text{V}$, $f = 1\text{MHz}$, Any I/O to GND
Dynamic Resistance	R_{DYN}	—	0.9	—	Ω	$I_{PP} = 1\text{A}$, $t_p = 8/20\mu\text{s}$

- 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 8x20 μs 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.

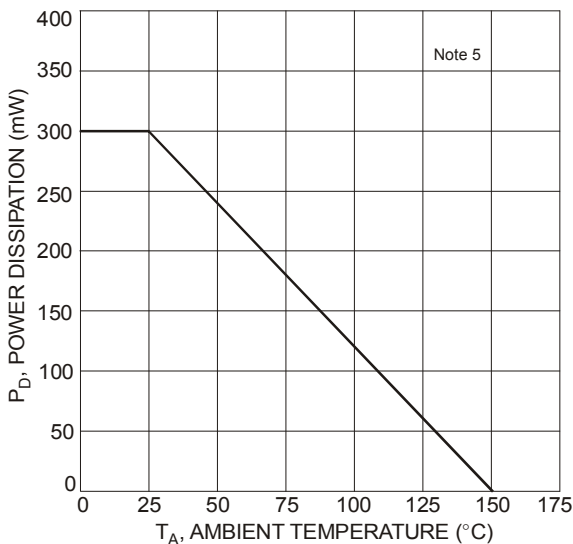


Figure 1 Power Derating Curve

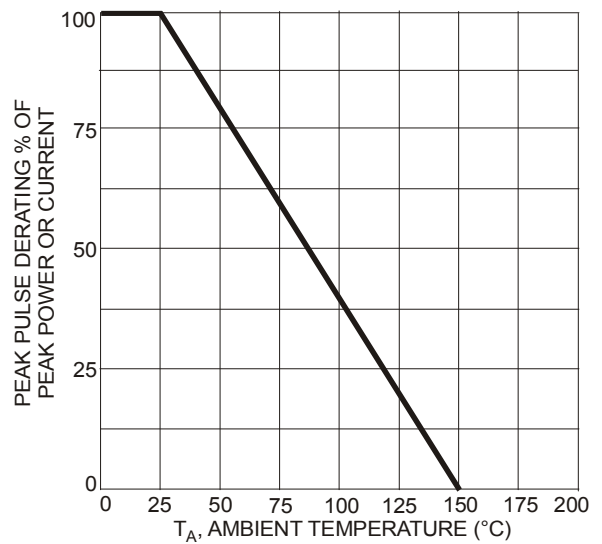


Figure 2 Pulse Derating Curve

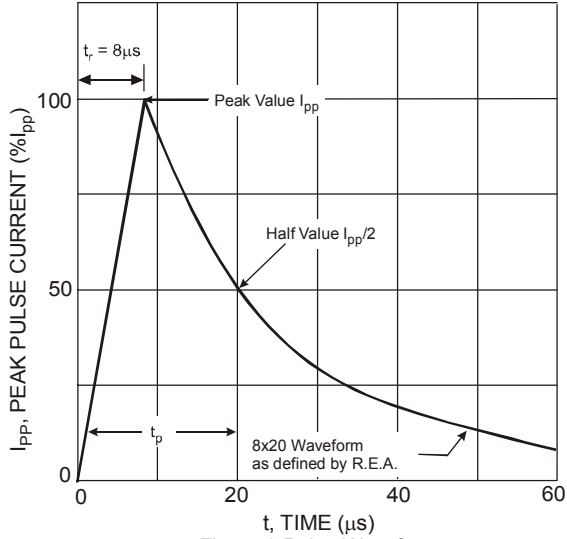


Figure 3 Pulse Waveform

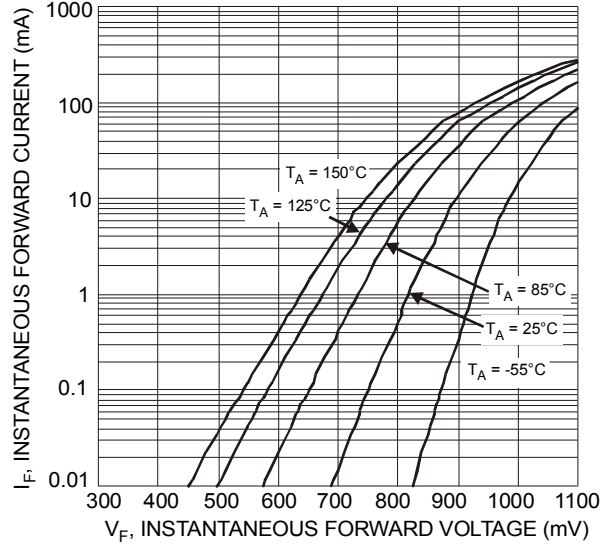


Figure 4 Typical Forward Characteristics

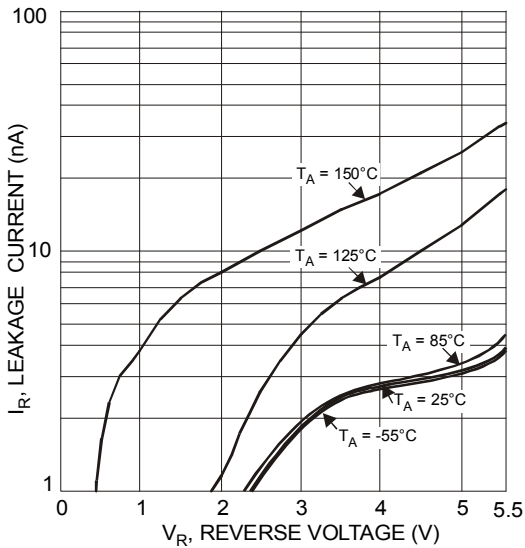


Figure 5 Typical Reverse Characteristics

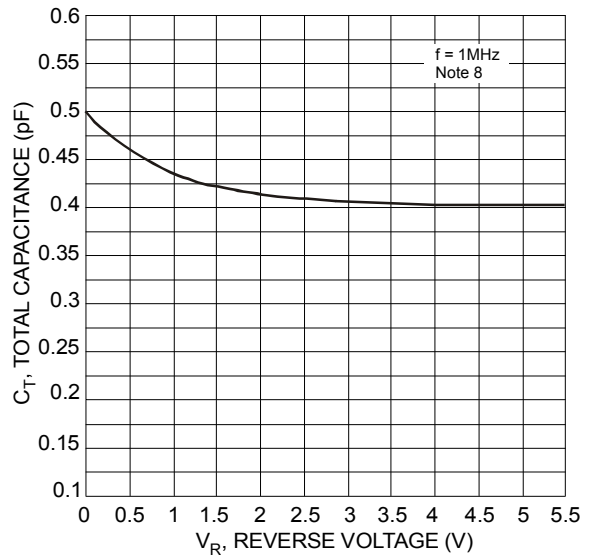
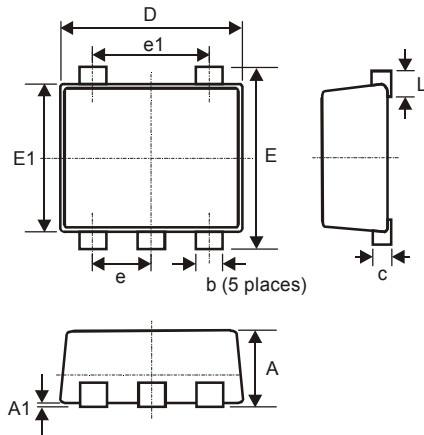


Figure 6 Total Capacitance vs. Reverse Voltage

Package Outline Dimensions

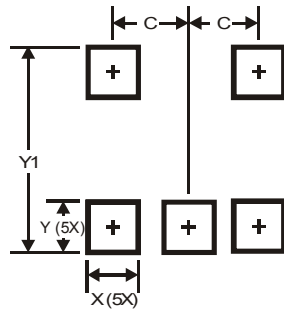
Please see AP02002 at <http://www.diodes.com/datasheets/ap02002.pdf> for latest version.



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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