



DRTR5V0U1LP

LOW CAPACITANCE SINGLE ESD PROTECTION TVS DIODE

Features

- IEC 61000-4-2 (ESD): Air ±15kV, Contact ±8kV
- 1 Channel of ESD Protection
- Low Channel Input Capacitance of 1.0pF Typical
- Low Profile Package (0.53mm max) and Ultra-small PCB Footprint Area (1.08 * 0.68mm max) Suitable for Compact Portable Electronics
- 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)
- Qualified to AEC-Q101 Standards for High Reliability

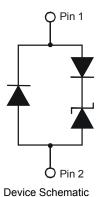
Mechanical Data

- Case: X1-DFN1006-2
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: NiPdAu over Copper leadframe. Solderable per MIL-STD-202, Method 208 4
- Weight: 0.001 grams (Approximate)





Bottom View



Ordering Information (Note 4)

Product	Compliance	Marking	Reel size(inches)	Tape width(mm)	Quantity per reel
DRTR5V0U1LP-7B	AEC-Q101	U6	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.htmlfor 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



U6 = Product Type Marking Code Line Denotes Pin 1 or Cathode Side



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

Characteristic	Symbol	Value	Unit	Conditions
Peak Pulse Current	I _{PP}	5	Α	8/20µs, Per Figure 3
ESD Protection – Contact Discharge	V _{ESD_Contact}	±8	kV	Standard IEC 61000-4-2
ESD Protection – Air Discharge	V _{ESD_Air}	±15	kV	Standard IEC 61000-4-2

Thermal Characteristics

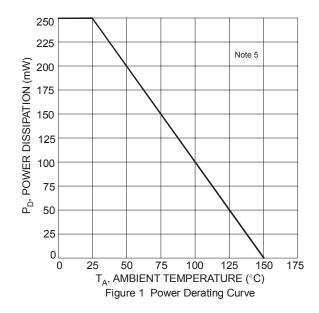
Characteristic	Symbol	Value	Unit
Package Power Dissipation (Note 5)	P_{D}	250	mW
Thermal Resistance, Junction to Ambient (Note 5)	$R_{ heta JA}$	500	°C/W
Operating and Storage Temperature Range	T _J , T _{STG}	-65 to +150	°C

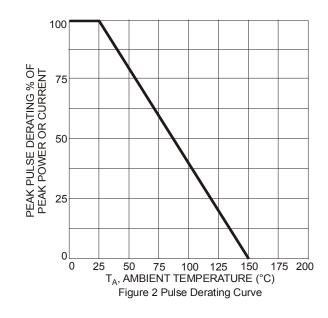
Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)

Characteristic	Symbol	Min	Тур	Max	Unit	Test Conditions
Reverse Working Voltage	V _{RWM}	_	_	5.5	V	
Reverse Current (Note 6)	I_R	_	1	100	nA	$V_{R} = 3.0V$
Reverse Breakdown Voltage	V _{BR}	6.0	_	_	V	I _R = 1mA
Forward Voltage	VF	_	0.8	_	V	I _F = 1mA
Reverse Clamping Voltage, Positive Transients	V _{CL1}	_	10.0	_	V	$I_{PP} = 1A, t_p = 8/20 \mu s$
Reverse Clamping Voltage, Negative Transients	V _{CL2}	_	-1.7	_	V	$I_{PP} = -1A, t_p = 8/20 \mu s$
Dynamic Resistance	R_{DYN}	_	0.9	_	Ω	$I_R = 1A$, $t_p = 8/20 \mu s$
Capacitance	C _T	_	1.0	1.5	pF	$V_R = 0V$, $f = 1MHz$

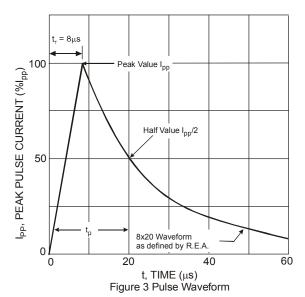
Notes:

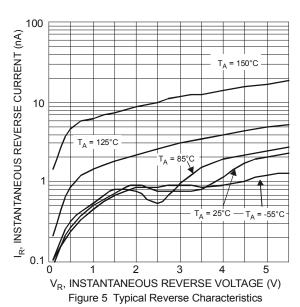
- 5. Device mounted on FR-4 PCB pad layout (2oz copper) as shown on Diodes, Inc. suggested pad layout AP02001, which can be found on our website at http://www.diodes.com.
- 6. Short duration pulse test used to minimize self-heating effect.
 7. For information on the impact of Diodes' USB 2.0 compatible ESD protectors on signal integrity including eye diagram plots, please refer to AN77 at the following URL: http://www.diodes.com/destools/appnote_dnote.html.

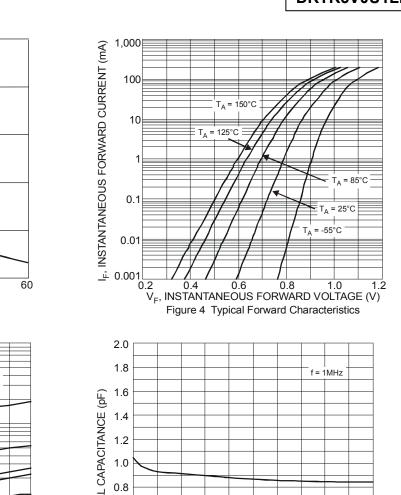












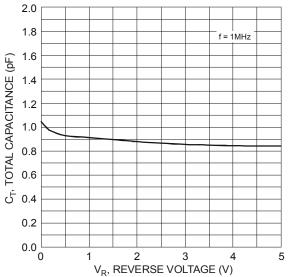
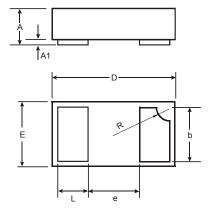


Figure 6 Typical Total Capacitance vs. Reverse Voltage



Package Outline Dimensions

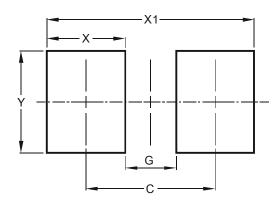
Please see AP02002 at http://www.diodes.com/datasheets/ap02002.pdf for latest version.



X1-DFN1006-2					
Dim	Min	Max	Тур		
Α	0.47	0.53	0.50		
A1	0	0.05	0.03		
b	0.45	0.55	0.50		
D	0.95	1.075	1.00		
Е	0.55	0.675	0.60		
е	-	-	0.40		
L	0.20	0.30	0.25		
R	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)
С	0.70
G	0.30
Х	0.40
X1	1.10
Υ	0.70



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