

## Product Summary

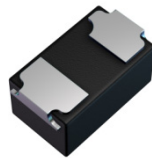
<b>V<sub>BR</sub> (min)</b>	<b>I<sub>PP</sub> (max)</b>	<b>C<sub>T</sub> (typ)</b>
6V	6A	15pF

## Description

This new generation TVS is designed to protect sensitive electronics from the damage due to ESD. The combination of small size and high ESD surge capability makes it ideal for use in portable applications such as cellular phones, digital cameras, and MP3 players. The sidewall plating option of this package allows optical inspection after soldering reflow for easy and reliable quality control.

## Applications

- Cellular Handsets
- Portable Electronics
- Computers and Peripheral



Bottom View

## Features

- Low Profile Package (0.53mm max) and Ultra-small PCB Footprint Area (1.08 \* 0.68mm max) Suitable for Compact Portable Electronics
- Provides ESD Protection per IEC 61000-4-2 Standard: Air ±30kV, Contact ±30kV
- 1 Channel of ESD Protection
- Low Channel Input Capacitance
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **PPAP Capable**

## Mechanical Data

- Case: U-DFN1006-2/SWP with sidewall plating
- 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 <sup>(e4)</sup>
- Weight: 0.001 grams (approximate)



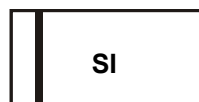
Device Schematic

## Ordering Information (Note 4)

Product	Compliance	Marking	Reel Size (inches)	Tape Width (mm)	Quantity per Reel
D5V0L1B2LPS-7B	AEC-Q101	SI	7	8	10,000/Tape & Reel
D5V0L1B2LPSQ-7B	Automotive	SI	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](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



SI = Product Type Marking Code

**Maximum Ratings** (@T<sub>A</sub> = +25°C, unless otherwise specified.)

Characteristic	Symbol	Value	Unit	Conditions
Peak Pulse Power Dissipation	P <sub>PP</sub>	84	W	8/20μs, Per Fig. 1
Peak Pulse Current	I <sub>PP</sub>	6	A	8/20μs, Per Fig. 1
ESD Protection – Contact Discharge	V <sub>ESD_Contact</sub>	±30	kV	IEC 61000-4-2 Standard
ESD Protection – Air Discharge	V <sub>ESD_Air</sub>	±30	kV	IEC 61000-4-2 Standard

**Thermal Characteristics**

Characteristic	Symbol	Value	Unit
Package Power Dissipation (Note 5)	P <sub>D</sub>	250	mW
Thermal Resistance, Junction to Ambient (Note 5)	R <sub>θJA</sub>	500	°C/W
Operating and Storage Temperature Range	T <sub>J</sub> , T <sub>STG</sub>	-65 to +150	°C

**Electrical Characteristics** (@T<sub>A</sub> = +25°C, unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Conditions
Reverse Standoff Voltage	V <sub>RWM</sub>	—	—	5	V	—
Channel Leakage Current (Note 6)	I <sub>RM</sub>	—	10	100	nA	V <sub>RWM</sub> = 5V
Clamping Voltage, Positive Transients	V <sub>CL</sub>	—	7.0	9.0	V	I <sub>PP</sub> = 1A, t <sub>p</sub> = 8/20μs
		—	8.7	10.7		I <sub>PP</sub> = 3A, t <sub>p</sub> = 8/20μs
		—	10.5	12.0		I <sub>PP</sub> = 5A, t <sub>p</sub> = 8/20μs
		—	11.5	14.0		I <sub>PP</sub> = 6A, t <sub>p</sub> = 8/20μs
Breakdown Voltage	V <sub>BR</sub>	6	7	8	V	I <sub>R</sub> = 1mA
Differential Resistance	R <sub>DIF</sub>	—	0.2	—	Ω	I <sub>R</sub> = 1A, t <sub>p</sub> = 8/20μs
Channel Input Capacitance	C <sub>IN</sub>	—	15	20	pF	V <sub>R</sub> = 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.

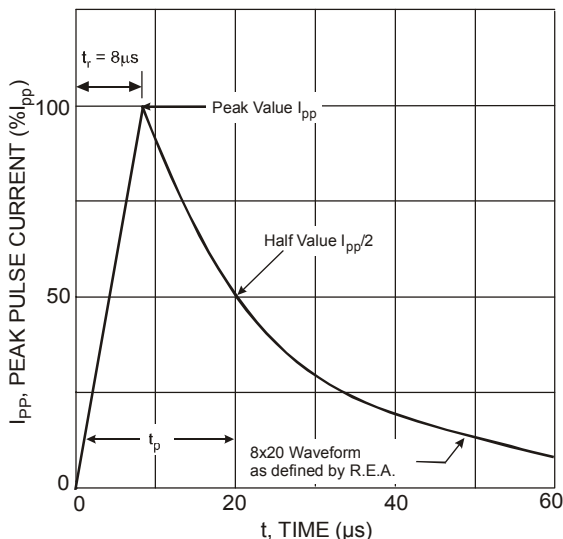


Figure 1 Pulse Waveform

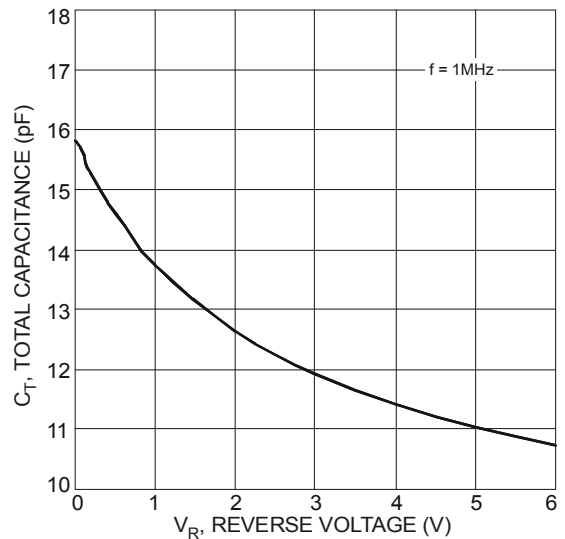


Figure 2 Typical Total Capacitance vs. Reverse Voltage

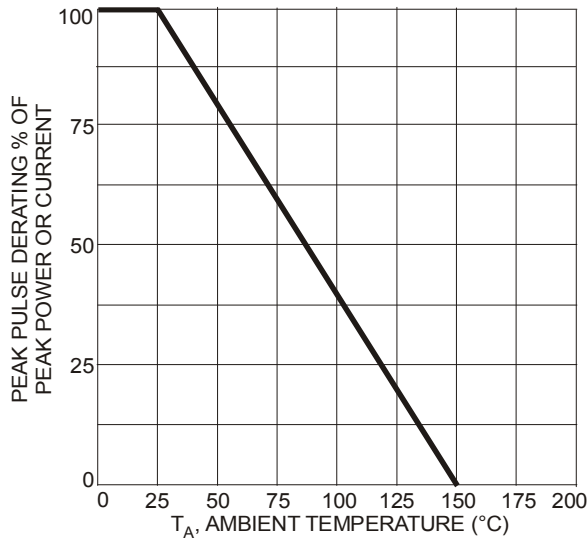


Figure 3 Pulse Derating Curve

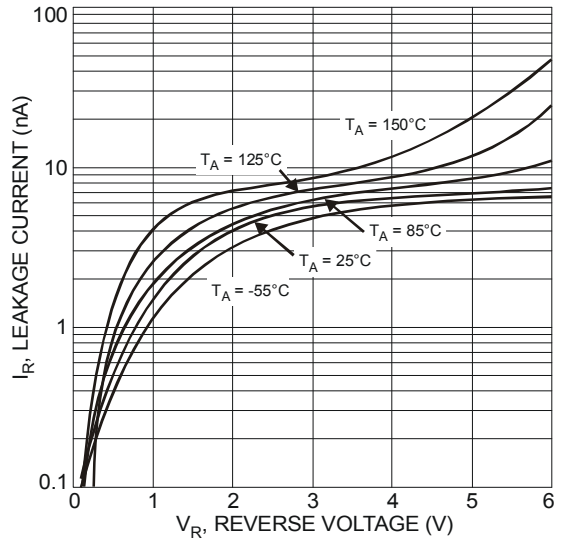


Figure 4 Typical Reverse Characteristics

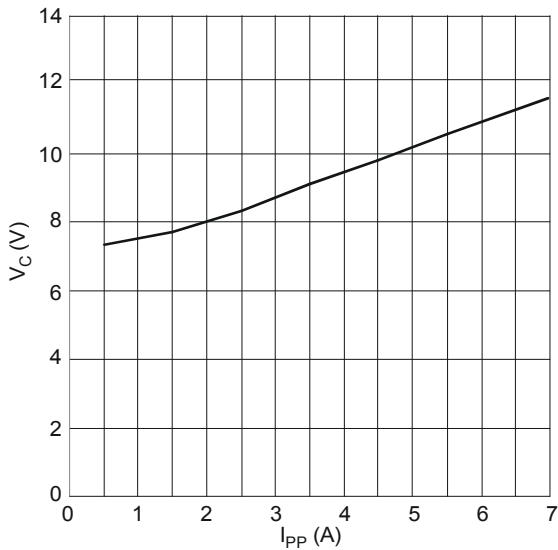


Figure 5 Typical Peak Clamping Voltage V<sub>C</sub> vs. Peak Pulse Current I<sub>PP</sub>

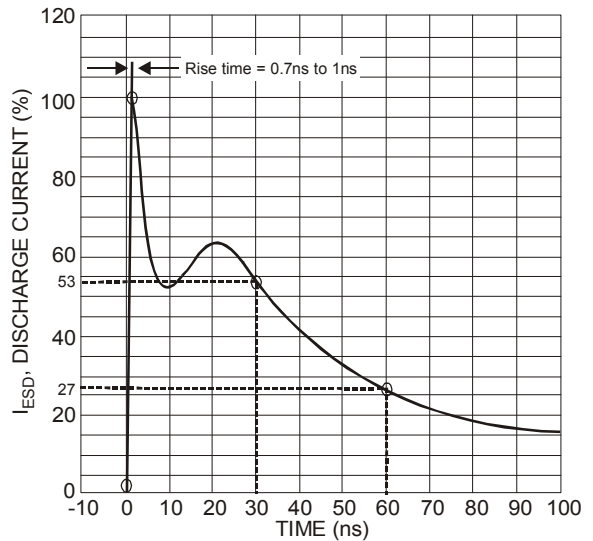


Figure 6 ESD Discharge Current Wave Form IEC 6100-4-2 (330Ω/150pF)

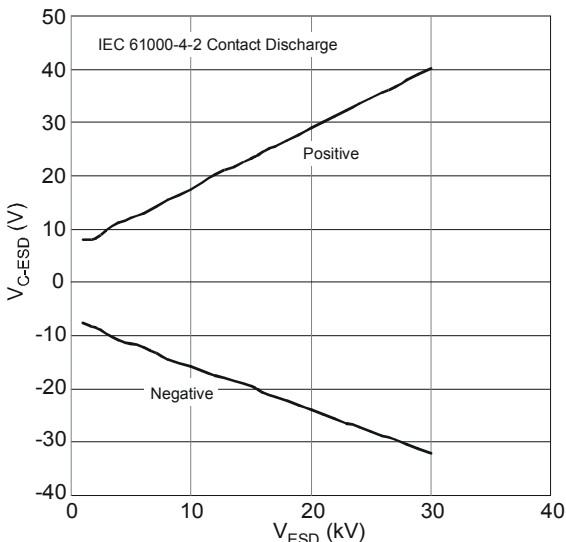


Figure 7 Typical Clamping Voltage vs. Contact Discharge Voltage

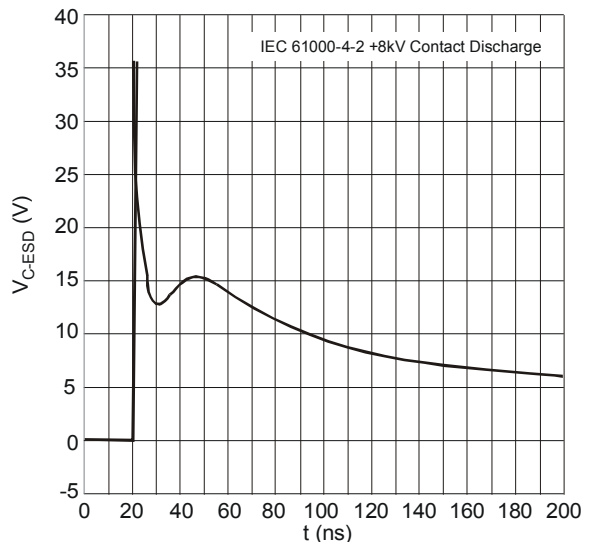


Figure 8 Typical Clamping Performance @ 8kV Contact Discharge

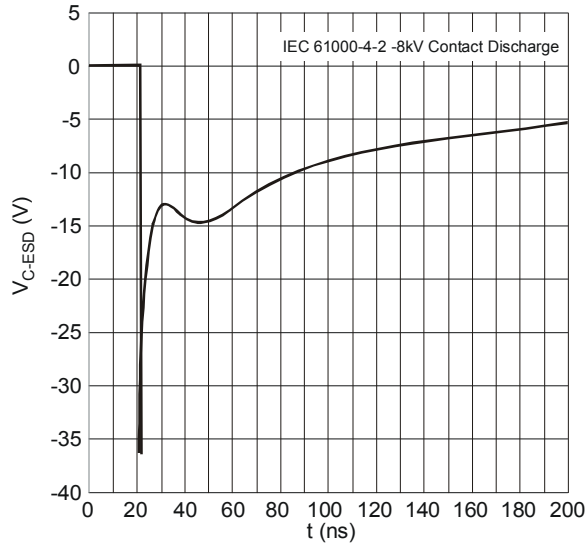
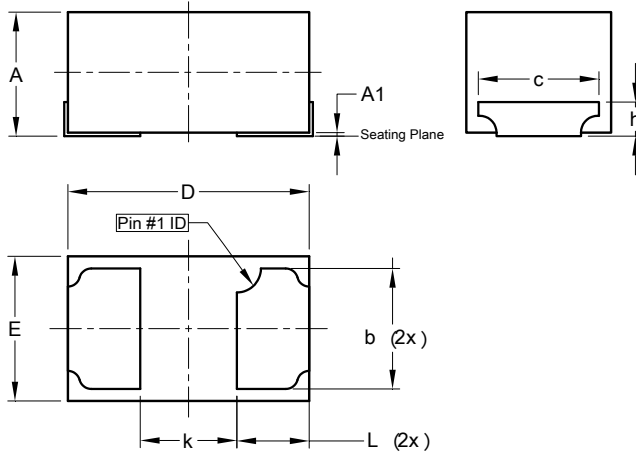


Figure 9 Typical Clamping Performance @ -8kV Contact Discharge

### Package Outline Dimensions

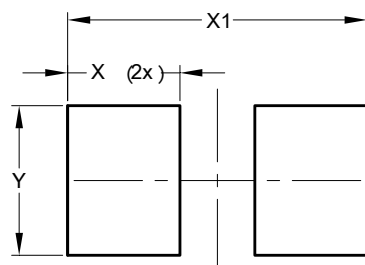
Please see AP02002 at <http://www.diodes.com/datasheets/ap02002.pdf> for the latest version.



U-DFN1006-2/SWP			
Dim	Min	Max	Typ
A	0.47	0.53	0.50
A1	0.0	0.05	0.03
b	0.45	0.55	0.50
c	0.55 REF		
D	0.95	1.05	1.00
E	0.55	0.65	0.60
h	0.17 REF		
k	0.37 REF		
L	0.25	0.35	0.30
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)
X	0.45
X1	1.20
Y	0.60

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