



1 CHANNEL BIDIRECTIONAL TVS DIODE

Product Summary

V _{BR (min)}	IPP (max)	I _{R (max)}
5.8V and 11V	9A	25nA

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.

Applications

- Cellular Handsets
- Portable Electronics
- Computers and Peripheral

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)

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 (e4)
- Weight: 0.001 grams (approximate)

X1-DFN1006-2

Bottom View



Device Schematic

Ordering Information (Note 4)

Product	Compliance	Marking	Reel Size (inches)	Tape Width (mm)	Quantity per Reel	
DESDALC5LP-7B	Standard	Q3	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



Q3 = Product Type Marking Code Line Denotes Pin 1



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

Characteristic	Symbol	Value	Unit	Conditions
Peak Pulse Power Dissipation	P _{PP}	150	W	8/20µs
Peak Pulse Current	I _{PP}	9	А	8/20µs
ESD Protection – Contact Discharge	V _{ESD_Contact}	±30	kV	IEC 61000-4-2 Standard
ESD Protection – Air Discharge	V _{ESD_Air}	±30	kV	IEC 61000-4-2 Standard

Thermal Characteristics

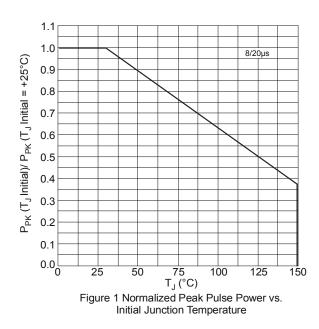
Characteristic	Symbol	Value	Unit
Package Power Dissipation (Note 5)	PD	250	mW
Thermal Resistance, Junction to Ambient (Note 5)	$R_{ ext{ heta}JA}$	500	°C/W
Operating and Storage Temperature Range	T _J , T _{STG}	-65 to +150	٥C

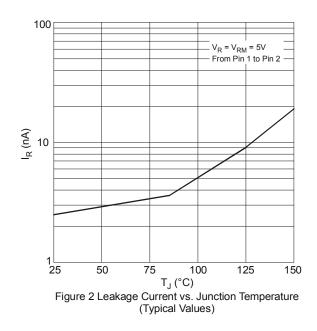
Electrical Characteristics (@T_A = +25°C unless otherwise specified)

Characteristic	Symbol	Min	Тур	Max	Unit	Test Conditions
	N	11	13	17	V	I_R = 1mA, pin1 to pin2
Reverse Breakdown Voltage	V _{BR}	5.8	8	11	v	I _R = 1mA, pin2 to pin1
Reverse Current (Note 6)	I _R	—	—	25	nA	V _R = 5V
Dynamic Resistance, from Pin 1 to Pin 2	R _{DYN}	_	0.19	_	Ω	I_{TLP} = 1A to 20A, t _P = 100ns
Dynamic Resistance, from Pin 2 to Pin 1	R _{DYN}	_	0.19	_	Ω	I_{TLP} = 1A to 20A, t _P = 100ns
Capacitance	CT	_	26	30	pF	V _R = 0V, f = 1MHz
Clamping Voltage, from Pin 1 to Pin 2	V _{CL}	_	21	_	V	8kV contact discharge after 30ns IEC61000-4-2
Clamping Voltage, from Pin 2 to Pin 1	V _{CL}	_	12	_	V	8kV contact discharge after 30ns IEC61000-4-2

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.

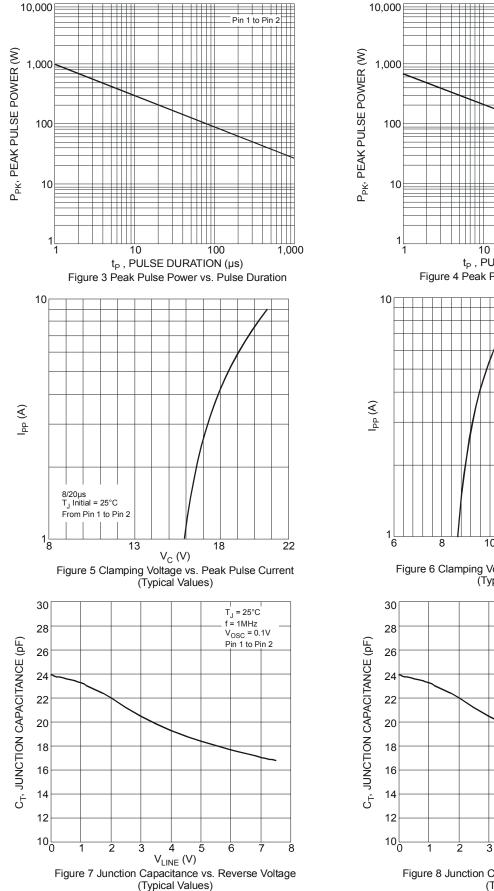


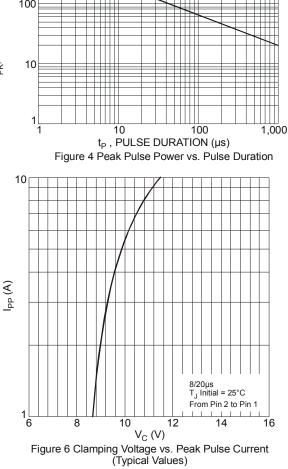


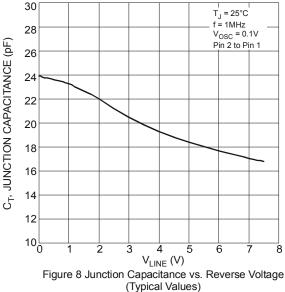


DESDALC5LP

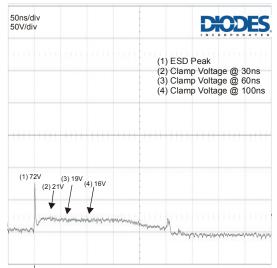
Pin 2 to Pin 1

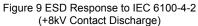


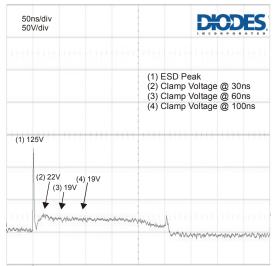


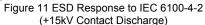


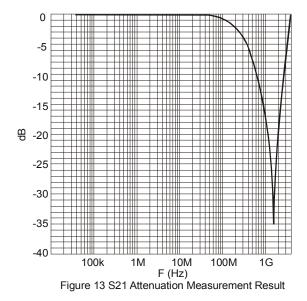


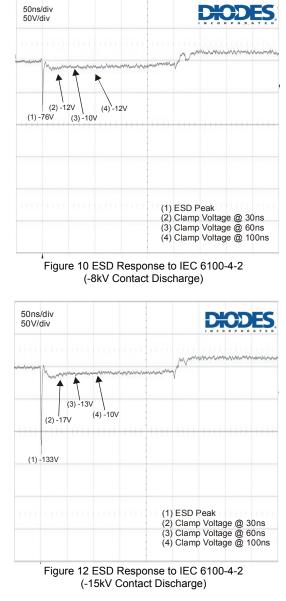


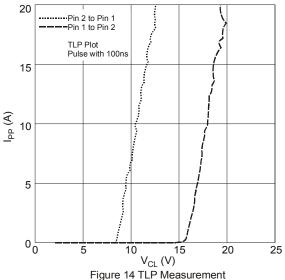








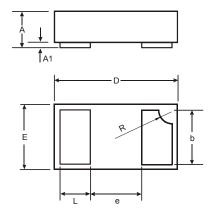






Package Outline Dimensions

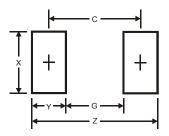
Please see AP02002 at http://www.diodes.com/datasheets/ap02002.pdf for latest version.



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			
ш	0.55	0.675	0.60			
e	-	-	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 latest version.



Dimensions	Value (in mm)
Z	1.1
G	0.3
Х	0.7
Y	0.4
C	0.7



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