

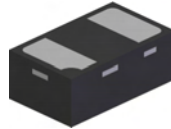
LOW CAPACITANCE BIDIRECTIONAL TVS DIODE
Features

- Provides ESD Protection per IEC 61000-4-2 Standard: Air $\pm 30\text{kV}$, Contact $\pm 30\text{kV}$
- Ultra Low Profile (0.4mm), Ideal for Thin Portable Electronics
- 1 Channel of ESD Protection
- High Peak Pulse Current per IEC 61000-4-5 Standard
- Low Channel Input Capacitance
- Typically Used in Cellular Handsets, Portable Electronics, Communication Systems, Computers and Peripherals
- **Lead Free/RoHS Compliant (Note 1)**
- **Halogen and Antimony Free "Green" Device (Notes 2 & 3)**

Mechanical Data

- Case: X2-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
- Weight: 0.001 grams (approximate)

X2-DFN1006-2



Bottom View

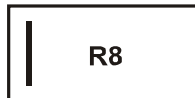


Device Schematic

Ordering Information (Note 4)

Part Number	Case	Packaging
DESD5V0S1BLD-7B	X2-DFN1006-2	10,000/Tape & Reel

- Notes:
1. EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant. No purposely added lead.
 2. Halogen and Antimony free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
 3. Diodes Inc.'s "Green" policy can be found on our website at <http://www.diodes.com>.
 4. For packaging details, go to our website at <http://www.diodes.com>.

Marking Information


R8 = Product Type Marking Code
Line Denotes Pin 1

Maximum Ratings @ $T_A = 25^\circ\text{C}$ unless otherwise specified

Characteristic	Symbol	Value	Unit	Conditions
Peak Pulse Power Dissipation	P_{PP}	130	W	8/20 μs , Per Fig. 1
Peak Pulse Current	I_{PP}	12	A	8/20 μs , Per Fig. 1
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)	P_D	250	mW
Thermal Resistance, Junction to Ambient (Note 5)	$R_{\theta JA}$	500	$^\circ\text{C/W}$
Operating and Storage Temperature Range	T_J, T_{STG}	-65 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	V	-
Channel Leakage Current (Note 6)	I_{RM}	-	5	100	nA	$V_{RWM} = 5\text{V}$
Clamping Voltage	V_{CL}	-	-	10 14	V	$I_{PP} = 1\text{A}, t_p = 8/20\mu\text{S}$ $I_{PP} = 12\text{A}, t_p = 8/20\mu\text{S}$
Breakdown Voltage	V_{BR}	5.5	-	9.5	V	$I_R = 1\text{mA}$
Differential Resistance	R_{DIF}	-	0.4	-	Ω	$I_R = 10\text{A}, t_p = 8/20\mu\text{S}$
Channel Input Capacitance	C_T	-	35	45	pF	$V_R = 0\text{V}, f = 1\text{MHz}$

- Notes:
- 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>.
 - Short duration pulse test used to minimize self-heating effect.

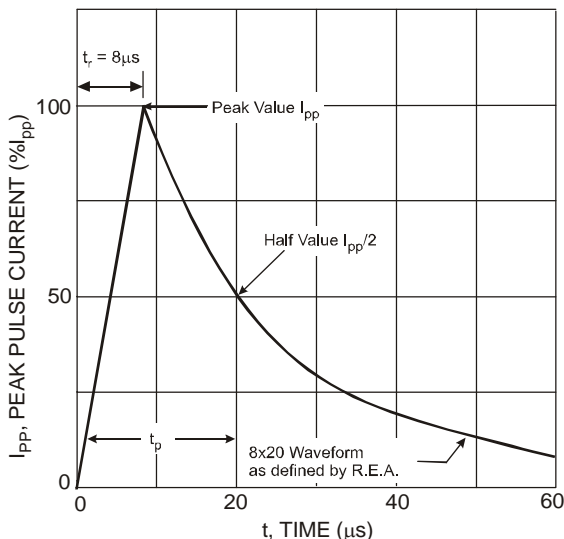


Fig. 1 Pulse Waveform

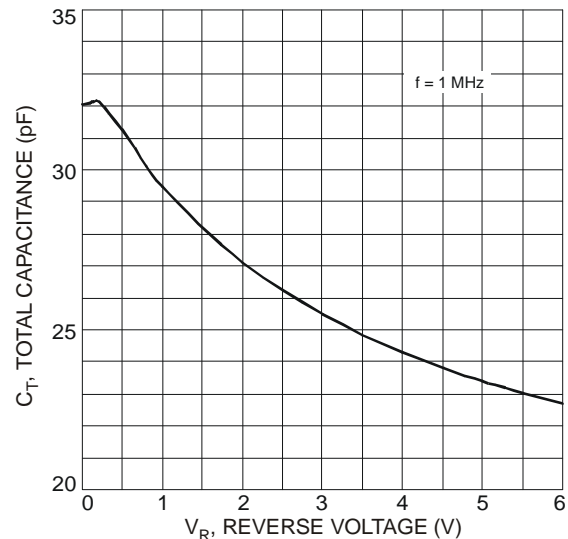


Fig. 2 Typical Total Capacitance vs. Reverse Voltage

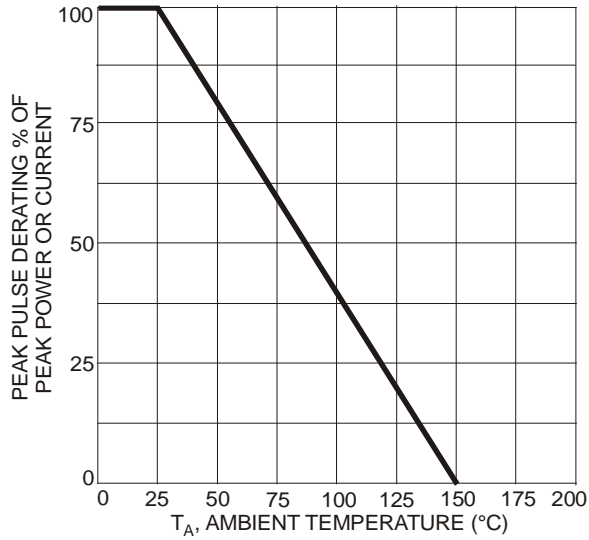


Fig. 3 Power Dissipation vs. Ambient Temperature

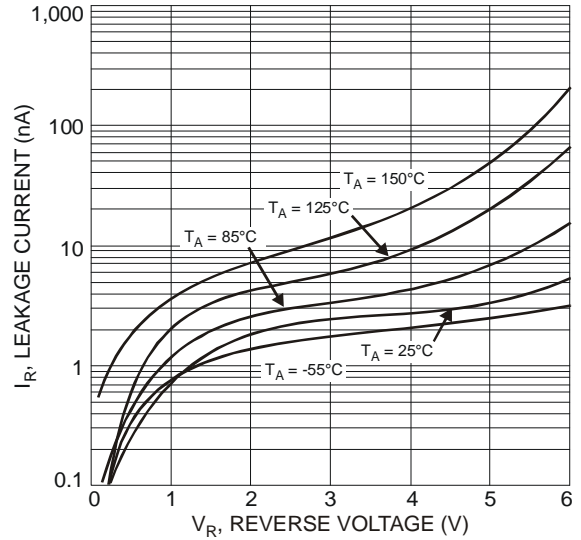
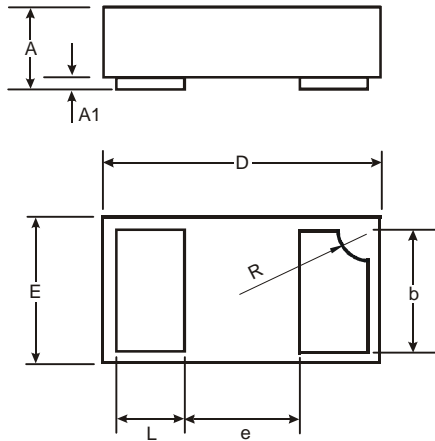


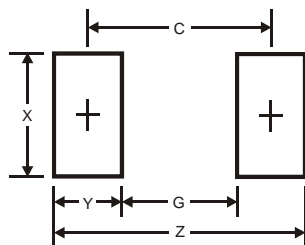
Fig. 4 Typical Reverse Characteristics

Package Outline Dimensions



X2-DFN1006-2			
Dim	Min	Max	Typ
A	0.34	0.4	0.37
A1	0	0.05	0.03
b	0.45	0.55	0.50
D	0.95	1.075	1.00
E	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



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

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