LOW CAPACITANCE BI-DIRECTIONAL TVS DIODE

Features

- Provides ESD Protection per IEC 61000-4-2 Standard: Air ±30kV, Contact ±30kV
- 1 Channel of ESD Protection
- Low Channel Input Capacitance
- Typically Used in Cellular Handsets, Portable Electronics, Communication Systems, Computers and Peripherals
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **For automotive applications requiring specific change control (i.e. parts qualified to AEC-Q100/101/104/200, PPAP capable, and manufactured in IATF 16949 certified facilities), please contact us or your local Diodes representative. https://www.diodes.com/quality/product-definitions/**

Mechanical Data

- Package: X1-DFN1006-2
- Package 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



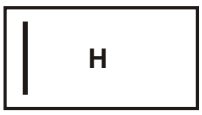
Device Schematic

Ordering Information (Note 4)

Orderable Part Number	Package	Packing	
		Qty.	Carrier
D5V0L1B2LP-7B	X1-DFN1006-2	10,000	Tape & Reel

Notes:
1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant.
2. See https://www.diodes.com/quality/lead-free/ 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 https://www.diodes.com/design/support/packaging/diodes-packaging/.

Marking Information



H or $\overline{H}$ = Product Type Marking Code
Bar Denotes Pin 1

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

Characteristic	Symbol	Value	Unit	Conditions
Peak Pulse Power Dissipation	P_{PP}	84	W	8/20µs, per Figure 1
Peak Pulse Current	I_{PP}	6	A	8/20µs, per Figure 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	°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	Typ	Max	Unit	Test Conditions
Reverse Standoff Voltage	V_{RWM}	—	—	5	V	—
Channel Leakage Current (Note 6)	I_{RM}	—	10	100	nA	V_{RWM} = 5V
Clamping Voltage, Positive Transients	V_{CL}	—	7.0	9.0	V	I_{PP} = 1A, t_P = 8/20µs
		—	8.7	10.7		I_{PP} = 3A, t_P = 8/20µs
		—	10.5	12.0		I_{PP} = 5A, t_P = 8/20µs
		—	11.5	14.0		I_{PP} = 6A, t_P = 8/20µs
Breakdown Voltage	V_{BR}	6	7	8	V	I_R = 1mA
Differential Resistance	R_{DIF}	—	0.2	—	Ω	I_R = 1A, t_P = 8/20µs
Channel Input Capacitance	C_{IN}	—	15	20	pF	V_R = 0V, f = 1MHz

Notes: 5. Device mounted on FR-4 PCB pad layout (2oz copper) as shown on Diodes Incorporated's suggested pad layout, which can be found on our website at http://www.diodes.com/package-outlines.html.
6. Short duration pulse test used to minimize self-heating effect.

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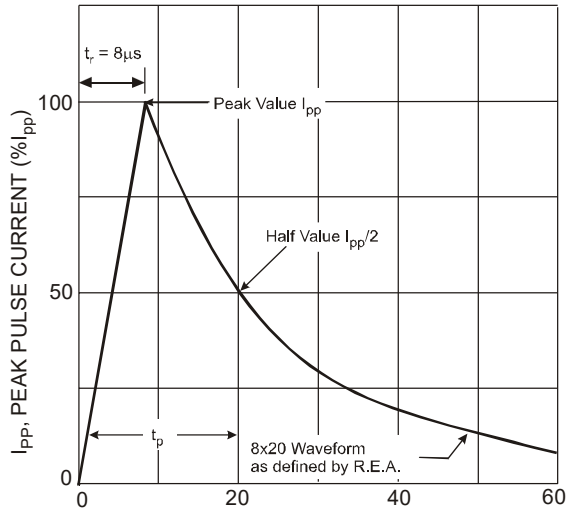


Fig. 1 Pulse Waveform

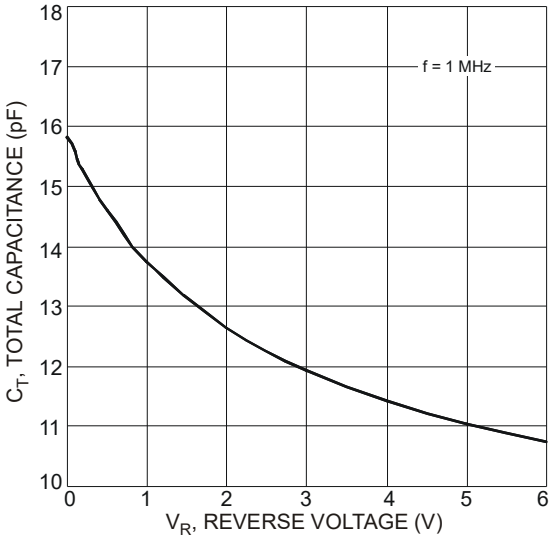


Fig. 2 Typical Total Capacitance vs. Reverse Voltage

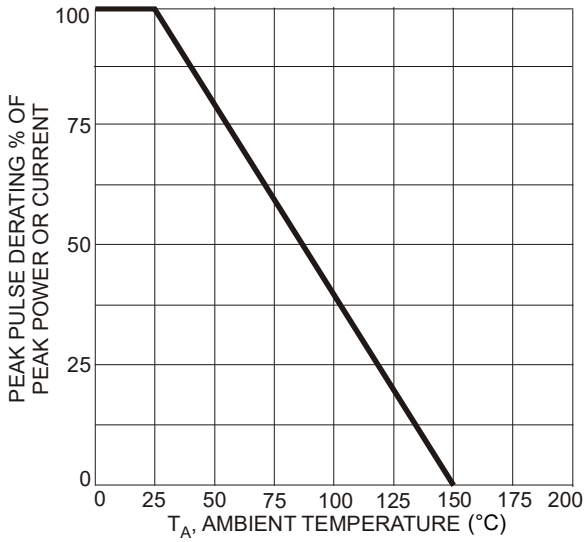


Fig. 3 Pulse Derating Curve

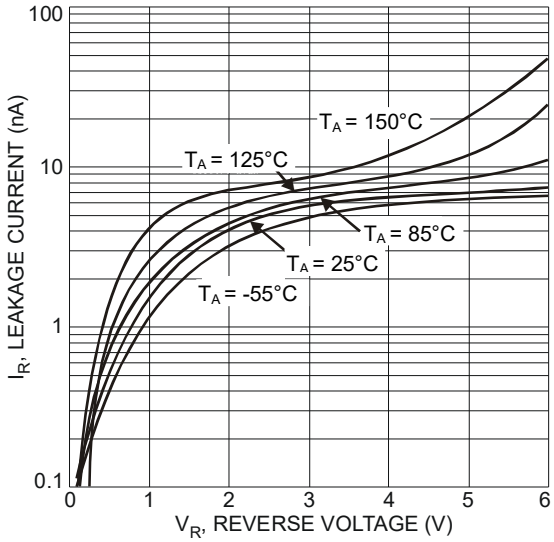


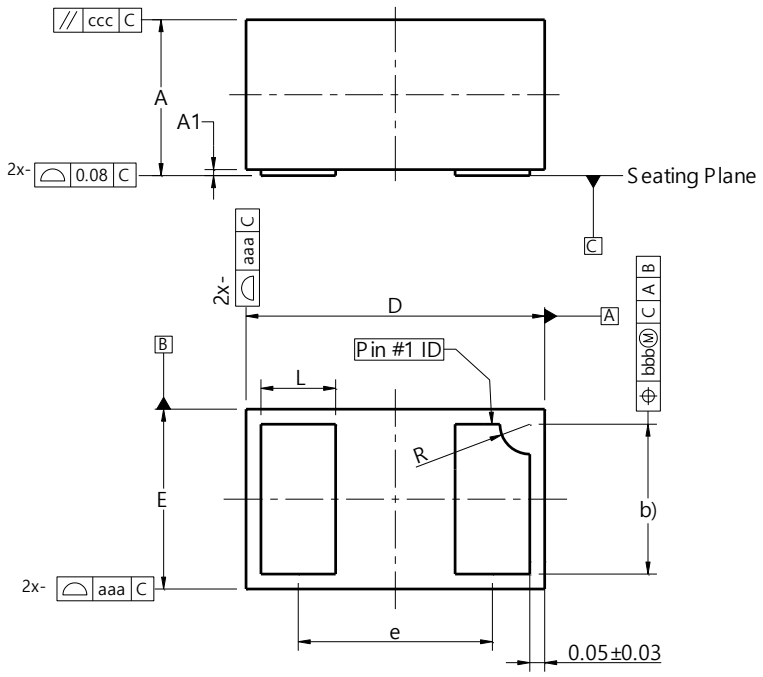
Fig. 4 Typical Reverse Characteristics

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Package Outline Dimensions

Please see http://www.diodes.com/package-outlines.html for the latest version.

X1-DFN1006-2

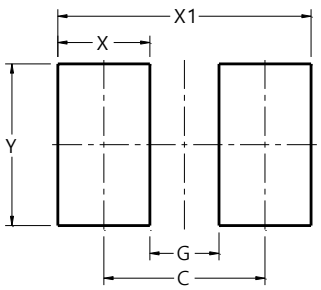


X1-DFN1006-2			
Dim	**Min**	**Max**	**Typ**
A	0.47	0.53	0.50
A1	0.00	0.05	0.03
b	0.45	0.55	0.50
D	0.95	1.075	1.00
E	0.55	0.675	0.60
e	--	--	0.65
L	0.20	0.30	0.25
R	0.05	0.15	0.10
aaa	0.15		
bbb	0.05		
ccc	0.05		
All Dimensions in mm			

Suggested Pad Layout

Please see http://www.diodes.com/package-outlines.html for the latest version.

X1-DFN1006-2



Dimensions	Value (in mm)
C	0.70
G	0.30
X	0.40
X1	1.10
Y	0.70

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