

LOW CAPACITANCE BIDIRECTIONAL TVS DIODE

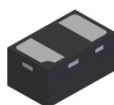
Features

- Provides ESD Protection per IEC 61000-4-2 Standard:
Air $\pm 30\text{kV}$, Contact $\pm 30\text{kV}$
- 1 Channel of ESD Protection
- Low Channel Input Capacitance
- Typically Used in Cellular Handsets, Portable Electronics, Communication Systems, Computers and Peripherals
- Lead Free/RoHS Compliant (Note 1)**
- "Green" Device (Note 2)**

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
- Weight: 0.001 grams (approximate)

X1-DFN1006-2



Bottom View



Device Schematic

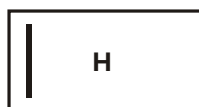
Ordering Information (Note 3)

D 5V0 L X B X XXX- XX						
Voltage	Capacitance	# of Channels	Polarity	# of Pins	Package	Packing
5V0: 5.0 Volts	X: Extremely Low ($<0.5\text{pF}$) F: Ultra Low ($0.5 \sim 1.0\text{pF}$) P: Very Low ($1.1 \sim 10\text{pF}$) L: Low ($10.1 \sim 20\text{pF}$) M: Medium ($>20\text{pF}$)	1: 1 Channel 2: 2 Channels 4: 4 Channels 6: 6 Channels	B: Bidirectional (Symmetrical) U: Unidirectional A: Bidirectional (Asymmetrical)	2: 2 Pins 3: 3 Pins 5: 5 Pins 6: 6 Pins 8: 8 Pins 10: 10 Pins	LP3: X3-DFN0603-2 LP: X1-DFN1006-2 LP4: X2-DFN1006-2 WS: SOD323 T: SOD523/SOT523 SO: SOT23/SOT25 W: SOD123/SOT323 TS: TSOT25/TSOT26 S: SOT353/SOT363 V: SOT553/SOT563	7: 7" reel (3K/reel) 7B: 7" reel (10K/reel) 13: 13" reel

Part Number	Case	Packaging
D5V0L1B2LP-7B	X1-DFN1006-2	10,000/Tape & Reel

- Notes:
- EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant. No purposely added lead. Halogen and Antimony free.
 - Diodes Inc.'s "Green" policy can be found on our website at <http://www.diodes.com>.
 - For packaging details, go to our website at <http://www.diodes.com>.

Marking Information



H = 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}	84	W	8/20μs, per Fig. 1
Peak Pulse Current	I _{PP}	6	A	8/20μs, 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 4)	P _D	250	mW
Thermal Resistance, Junction to Ambient (Note 4)	R _{θJA}	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 5)	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: 4. 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>.
 5. Short duration pulse test used to minimize self-heating effect.

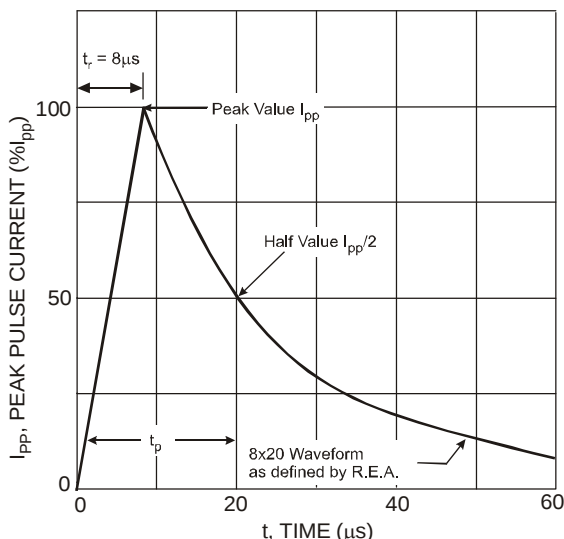


Fig. 1 Pulse Waveform

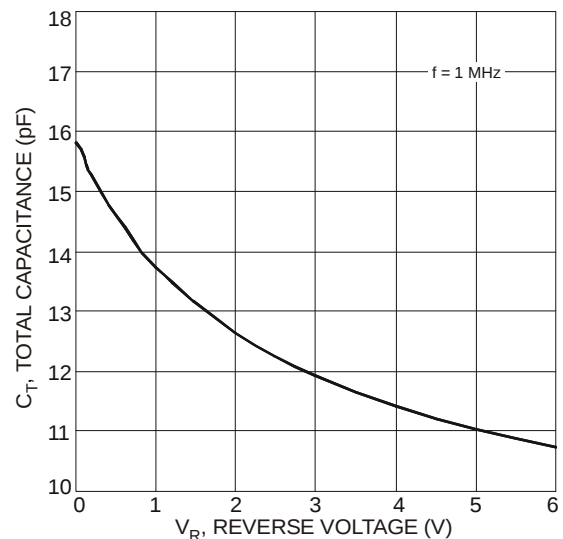
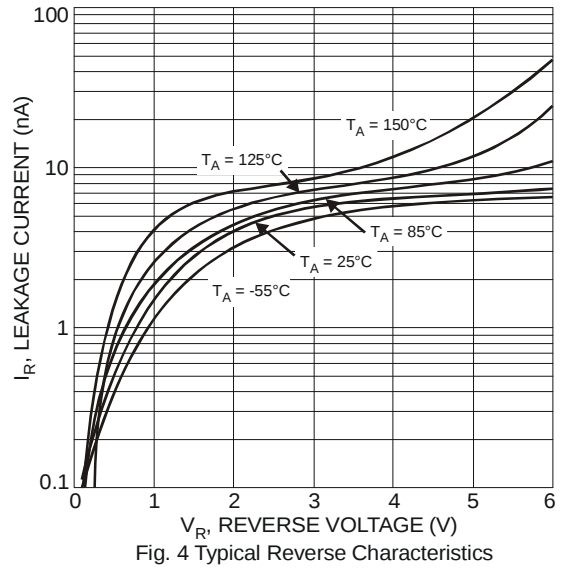
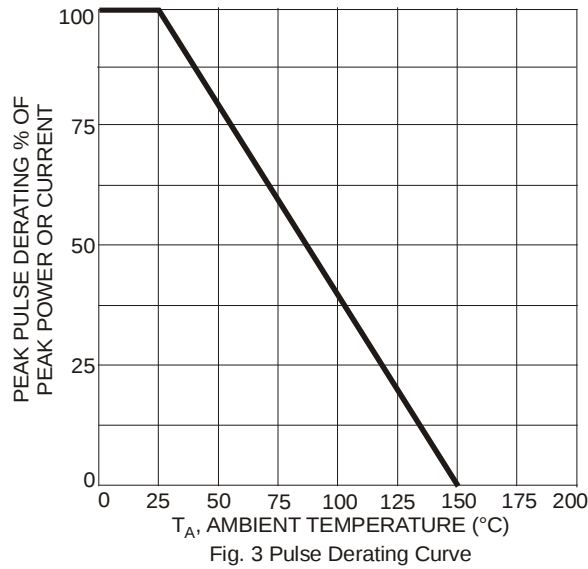
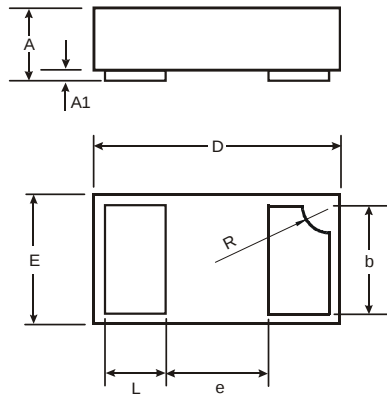


Fig. 2 Typical Total Capacitance vs. Reverse Voltage

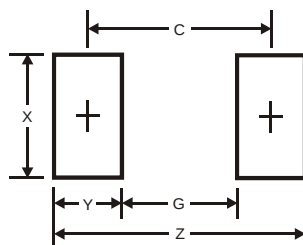


Package Outline Dimensions



X1-DFN1006-2			
Dim	Min	Max	Typ
A	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
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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