

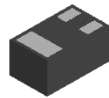
## Features

- 25 Watts Peak Pulse Power ( $t_p = 8 \times 20\mu s$ )
- IEC 61000-4-2 (ESD): Air - 15kV, Contact - 8kV
- IEC61000-4-4 (EFT): 40A 5/50ns
- Dual TVS for Protection of up to two Data Lines
- Low Capacitance (9pF typ), Suitable for USB2.0 Dataline Protection
- Subminiature, Low-Profile Package Suitable for Portable Applications—Case Outline of only 1.0mm  $\times$  0.6mm  $\times$  0.5mm
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**

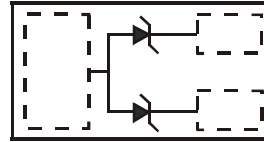
## Mechanical Data

- Case: X1-DFN1006-3
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminal Connections Indicator: Cathode Bar
- Terminals: Finish—NiPdAu over Copper Leadframe. Solderable per MIL-STD-202, Method 208 **(e4)**
- Weight: 0.0009 grams

X1-DFN1006-3



Bottom View



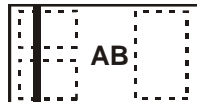
Device Schematic

## Ordering Information (Note 4)

Part Number	Case	Packaging
T5V0DLP-7B	X1-DFN1006-3	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 <http://www.diodes.com/products/packages.html>.

## Marking Information



Bar Denotes Cathode Side

AB = Product Type Marking Code

## Thermal Characteristics

Characteristic	Symbol	Value	Unit
Peak Pulse Power (tp = 8 x 20µs) (Note 5) TA = +25°C	P <sub>pk</sub>	25	W
Power dissipation (Note 5) TA = +25°C	P <sub>D</sub>	385	mW
Thermal Resistance, Junction to Ambient (Note 5) TA = +25°C	R <sub>θJA</sub>	325	°C/W
Operating and Storage Temperature Range	T <sub>J</sub> , T <sub>STG</sub>	-55 to +150	°C

## Electrical Characteristics (@TA = +25°C, unless otherwise specified.)

Reverse Standoff Voltage	Breakdown Voltage V <sub>BR</sub> @ I <sub>T</sub>		Test Current I <sub>T</sub> (mA)	Max. Reverse Leakage @ V <sub>RWM</sub> (Note 6) I <sub>R</sub> (µA)	Max. Clamping Voltage V <sub>C</sub> @ I <sub>PP</sub> (Note 7)		Max Total Capacitance C <sub>T</sub> (Note 8) V <sub>R</sub> = 1V (pF)	Typical Total Capacitance C <sub>T</sub> (Note 8) V <sub>R</sub> = 3.3V (pF)
	Min (V)	Max (V)			V <sub>C</sub> (V)	I <sub>PP</sub> (A)		
V <sub>RWM</sub> (V)	6.1	8	1.0	0.25	12.5	2	9	5.4

- Notes:
5. Device mounted on FR-4 PC board with suggested pad layout, which can be found on our website at <http://www.diodes.com/datasheets/ap02001.pdf>.
  6. Short duration pulse test used to minimize self-heating effect.
  7. Clamping voltage value is based on an 8 x 20µs peak pulse current (I<sub>pp</sub>) waveform.
  8. f = 1MHz

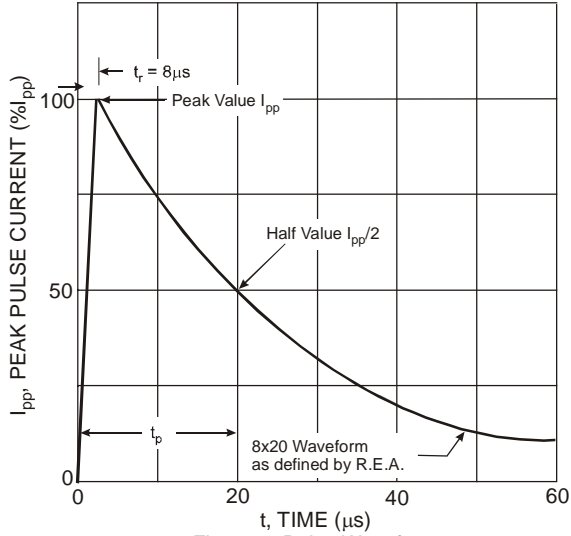


Figure 1 Pulse Waveform

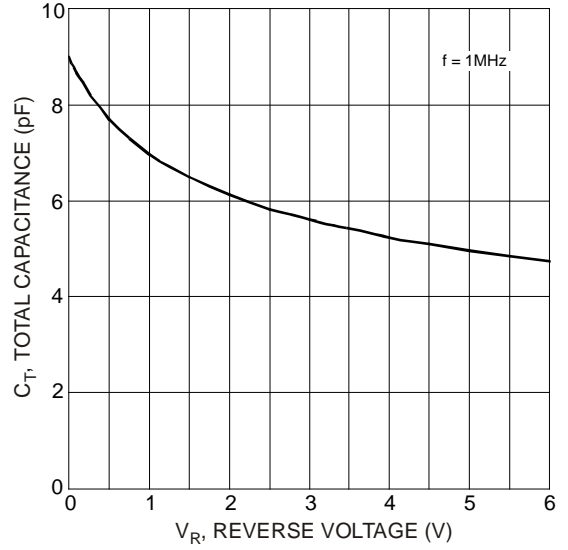


Figure 2 Total Capacitance

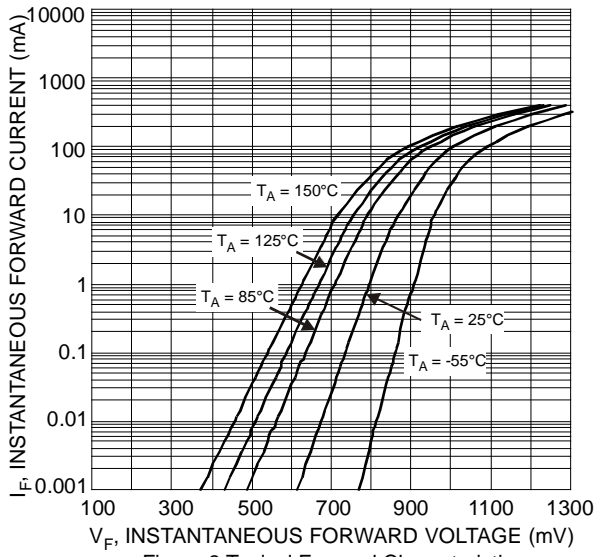


Figure 3 Typical Forward Characteristics

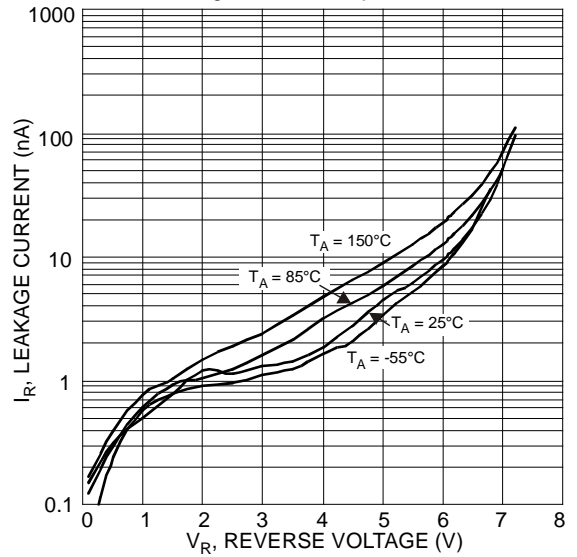


Figure 4 Typical Reverse Characteristics

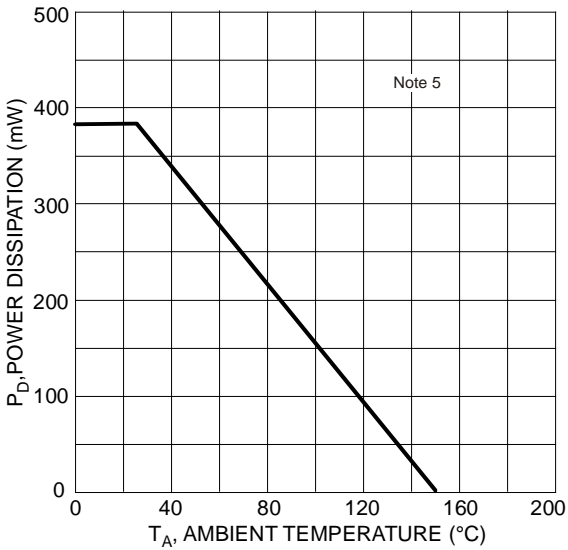
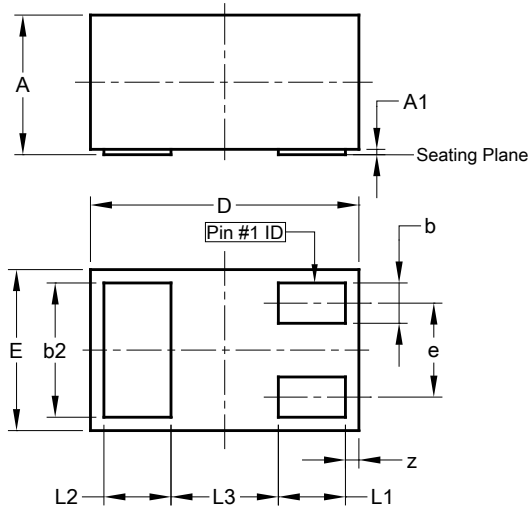


Figure 5 Power Derating Curve

## Package Outline Dimensions

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

**X1-DFN1006-3**

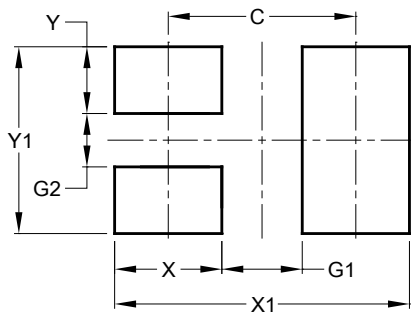


X1-DFN1006-3			
Dim	Min	Max	Typ
A	0.47	0.53	0.50
A1	0.00	0.05	0.03
b	0.10	0.20	0.15
b2	0.45	0.55	0.50
D	0.95	1.075	1.00
E	0.55	0.675	0.60
e	—	—	0.35
L1	0.20	0.30	0.25
L2	0.20	0.30	0.25
L3	—	—	0.40
z	0.02	0.08	0.05
All Dimensions in mm			

## Suggested Pad Layout

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

**X1-DFN1006-3**



Dimensions	Value (in mm)
C	0.70
G1	0.30
G2	0.20
X	0.40
X1	1.10
Y	0.25
Y1	0.70

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