

Product Summary

V _{BR} Min	I _{PP} Max	C _T Typ
21V	2A	7pF

Description

This new generation TVS is designed to protect sensitive electronics from 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 Peripherals

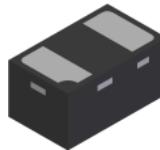
Features

- Low Profile Package (0.53mm Max) and Ultra-Small PCB Footprint Area (1.08 x 0.68mm Max) Suitable for Compact Portable Electronics
- Provides ESD Protection per IEC 61000-4-2 Standard: Air $\pm 20kV$, Contact $\pm 15kV$
- One 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)**
- **Qualified to AEC-Q101 Standards for High Reliability**

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

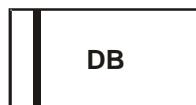
Ordering Information (Note 4)

Product	Compliance	Marking	Reel Size (inches)	Tape Width (mm)	Quantity per Reel
D20V0L1B2LP-7B	Commercial	DB	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



DB = 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}	68	W	8/20 μs , See Figure 3
Peak Pulse Current	I_{PP}	2.0	A	8/20 μs , See Figure 3
ESD Protection – Contact Discharge	$V_{ESD_CONTACT}$	± 15	kV	IEC 61000-4-2 Standard
ESD Protection – Air Discharge	V_{ESD_AIR}	± 20	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 (@ $T_A = +25^\circ\text{C}$, unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Conditions
Reverse Standoff Voltage	V_{RWM}	—	—	20	V	—
Channel Leakage Current (Note 6)	I_{RM}	—	—	100	nA	$V_{RWM} = 20\text{V}$
Clamping Voltage, Positive Transients	V_{CL}	—	27	30	V	$I_{PP} = 1\text{A}, t_p = 8/20\mu\text{s}$
		—	30	34	V	$I_{PP} = 2\text{A}, t_p = 8/20\mu\text{s}$
Breakdown Voltage	V_{BR}	21	—	25	V	$I_R = 1\text{mA}$
Differential Resistance	R_{DIF}	—	2.2	—	Ω	$I_R = 1\text{A}, t_p = 8/20\mu\text{s}$
Channel Input Capacitance	C_T	—	7.0	12	pF	$V_R = 0\text{V}, f = 1\text{MHz}$

Notes: 5. Device mounted on FR-4 PCB pad layout (2oz copper) as shown on Diodes, Inc. website at <http://www.diodes.com/package-outlines.html>.
 6. Short duration pulse test used to minimize self-heating effect.

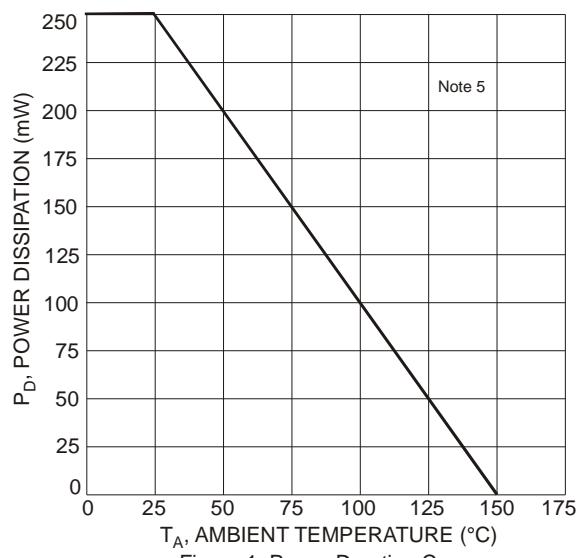


Figure 1 Power Derating Curve

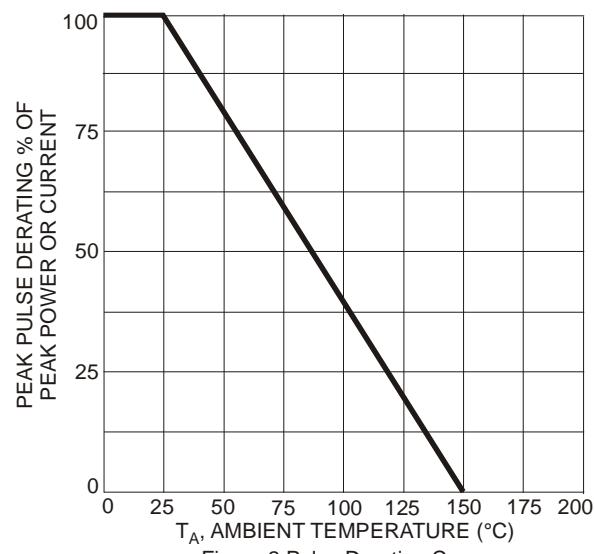
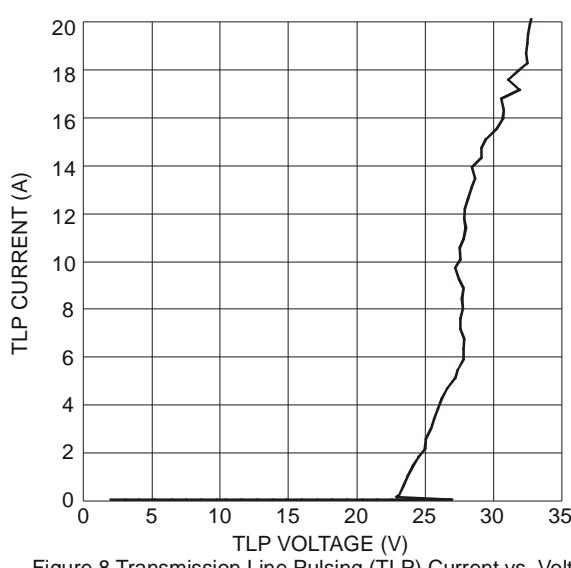
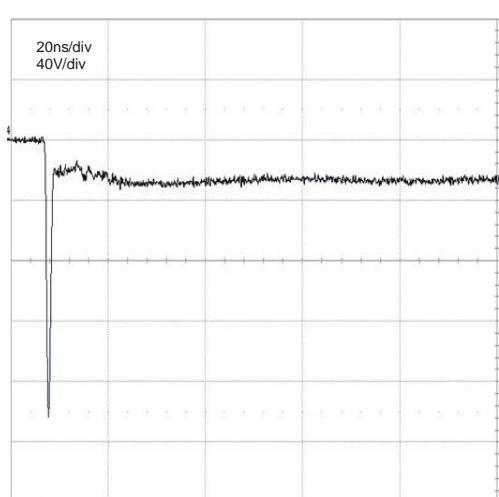
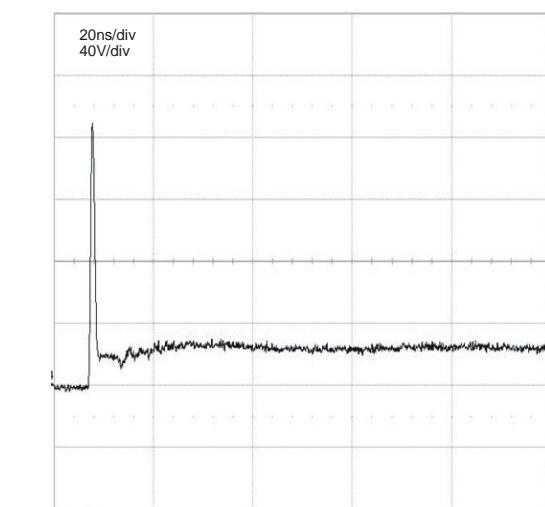
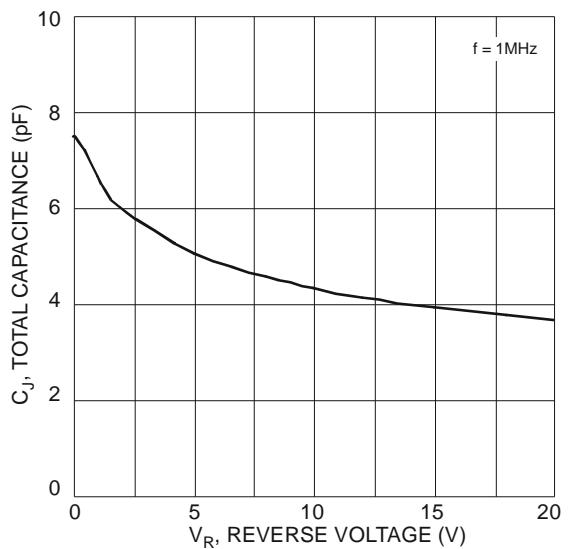
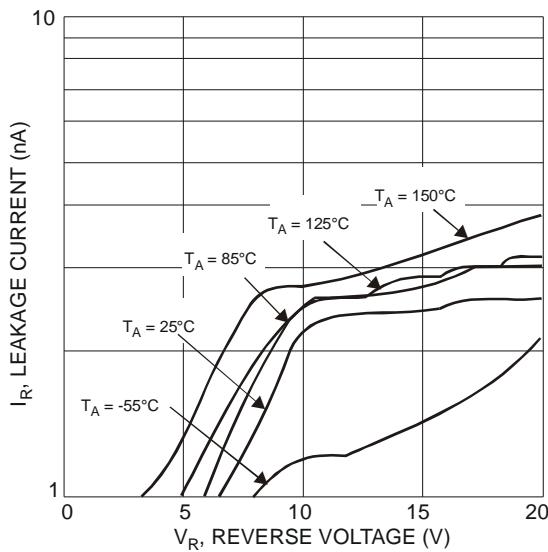
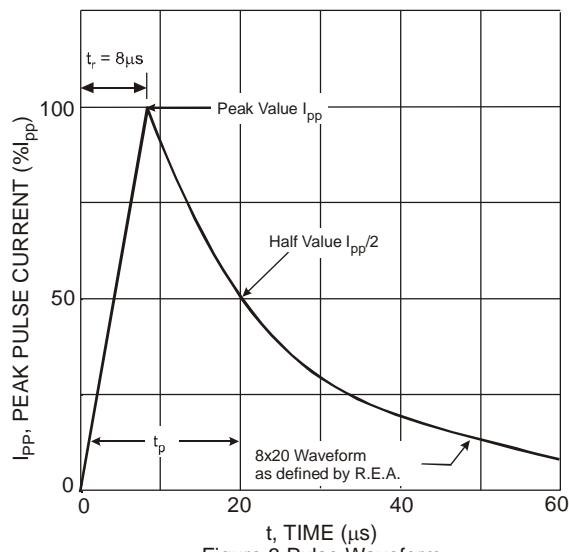


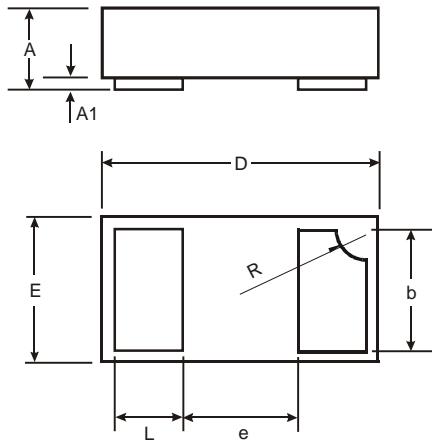
Figure 2 Pulse Derating Curve



Package Outline Dimensions

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

X1-DFN1006-2



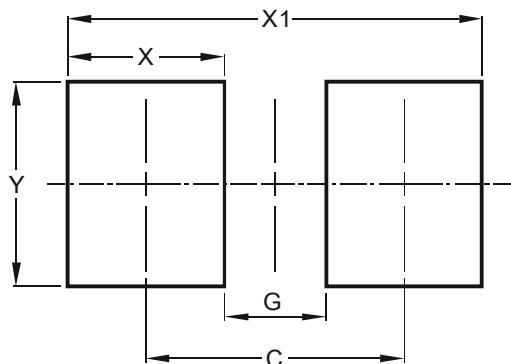
X1-DFN1006-2			
Dim	Min	Max	Typ
A	0.47	0.53	0.50
A1	0	0.05	0.03
b	0.45	0.55	0.50
D	0.95	1.075	1.00
E	0.55	0.675	0.60
e	—	—	0.40
L	0.20	0.30	0.25
R	0.05	0.15	0.10

All Dimensions in mm

Suggested Pad Layout

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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