ULTRA LOW CAPACITANCE BIDIRECTIONAL TVS DIODE

Product Summary

V_{BR} (Min)	I_{PP} (Max)	C_T (Typ)
7V	1.5A	0.23pF

Description

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

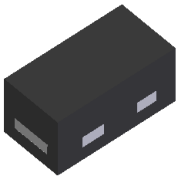
- Cellular Handsets
- Portable Electronics
- Computers and Peripheral

Features

- Ultra-Small, Low Profile Leadless Surface Mount Package (0.6mm*0.3mm*0.3mm)
- Provides ESD Protection per IEC 61000-4-2 Standard: Air ±15kV, Contact ±15kV
- 1 Channel of ESD Protection
- Ultra Low Channel Input Capacitance
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**

Mechanical Data

- Case: X2-DFN0603-2
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish – Matte Tin over Copper Leadframe, Solderable per MIL-STD-202, Method 208 e3
- Weight: 0.0002 grams (Approximate)



Top View

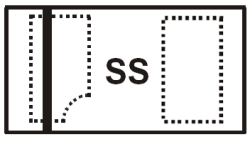
Device Schematic

Ordering Information (Note 4)

Product	Compliance	Marking	Reel Size (inches)	Tape Width (mm)	Quantity per Reel
D5V0X1B2LP3-7	Standard	SS	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



SS = Product Type Marking Code
Bar Denotes Pin 1

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

Characteristic	Symbol	Value	Unit	Conditions
Peak Pulse Current	I_{PP}	1.5	A	8/20µs, per Figure 3
ESD Protection – Contact Discharge	$V_{ESD\_CONTACT}$	±15	kV	IEC 61000-4-2 Standard
ESD Protection – Air Discharge	V_{ESD_AIR}	±15	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}	—	—	5.5	V	—
Channel Leakage Current (Note 6)	I_{RM}	—	—	100	nA	V_{RWM} = 5.0V
Breakdown Voltage	V_{BR}	7.0	—	—	V	I_R = 1mA
Clamping Voltage	V_{CL}	—	—	14	V	I_{PP} = 1A, t_p = 8/20µs
Channel Input Capacitance	C_T	—	0.23	0.4	pF	V_R = 2.5V, f = 1MHz
		—	0.3	—	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.

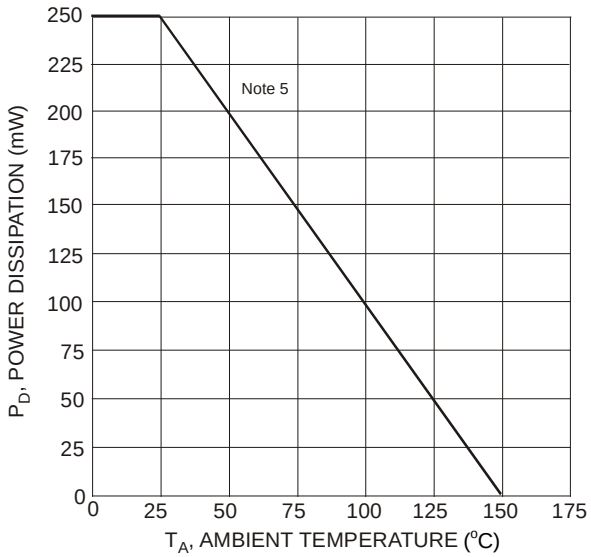


Figure 1 Power Derating Curve

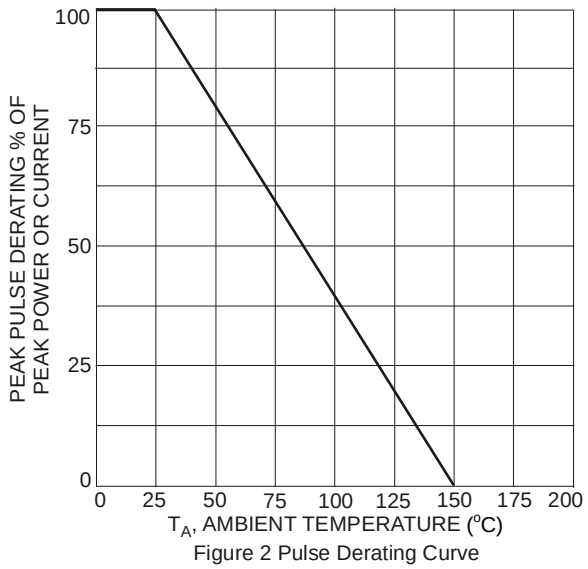


Figure 2 Pulse Derating Curve

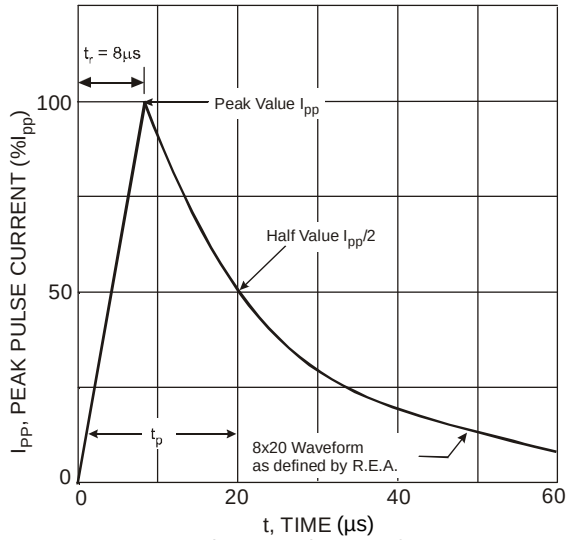


Figure 3 Pulse Waveform

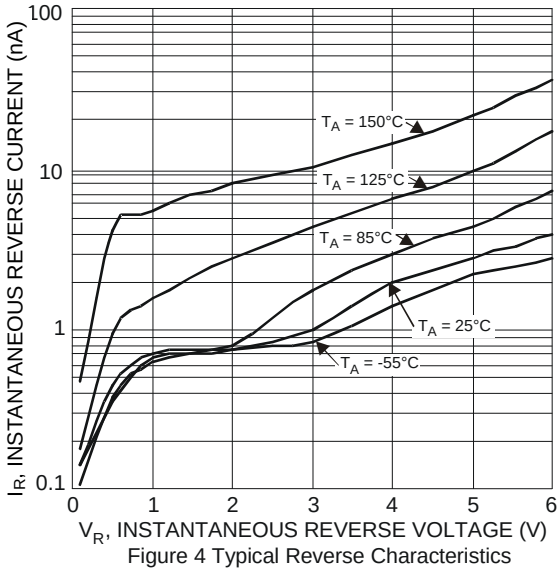


Figure 4 Typical Reverse Characteristics

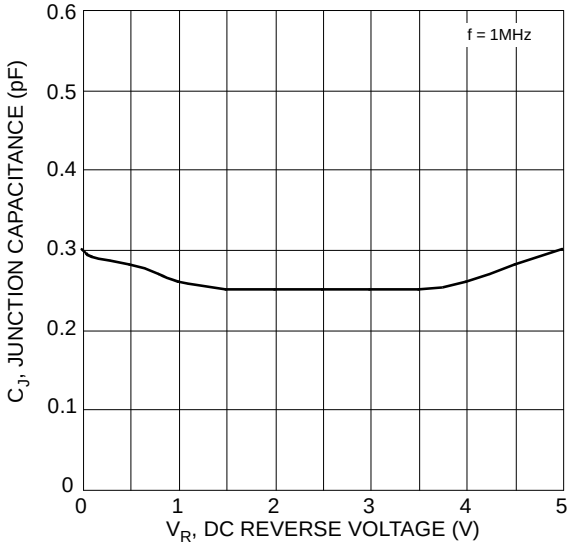


Figure 5 Total Capacitance vs. Reverse Voltage

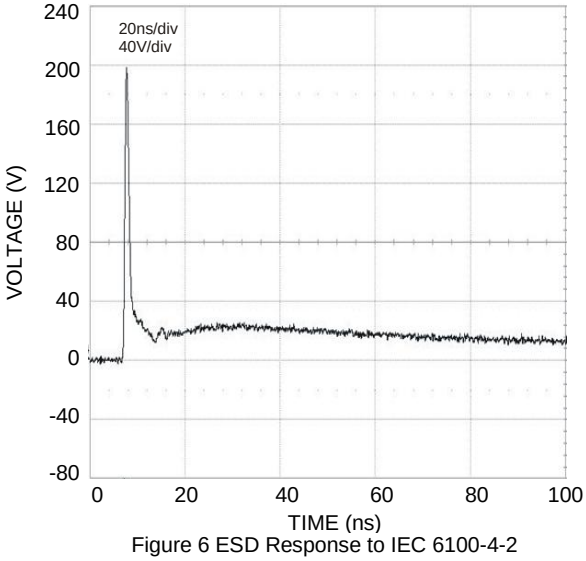


Figure 6 ESD Response to IEC 6100-4-2
(+8kV Contact Discharge)

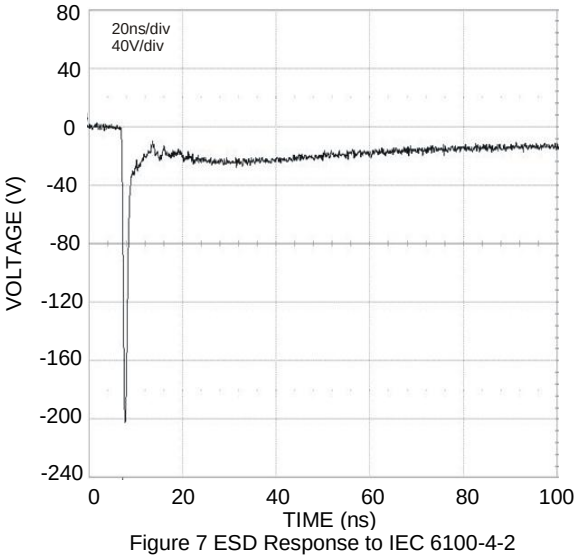


Figure 7 ESD Response to IEC 6100-4-2
(-8kV Contact Discharge)

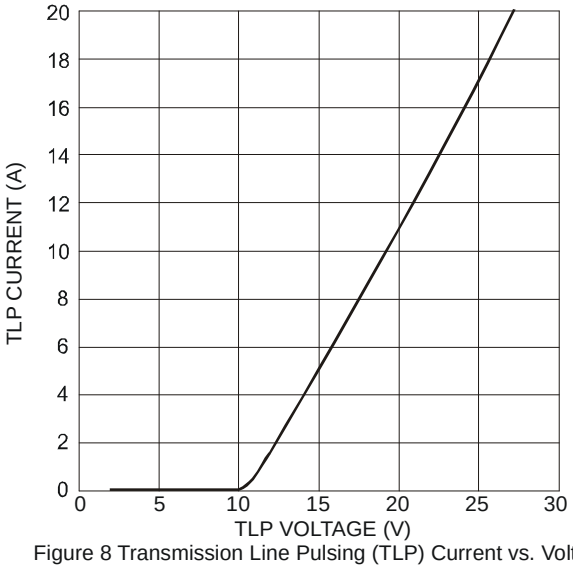
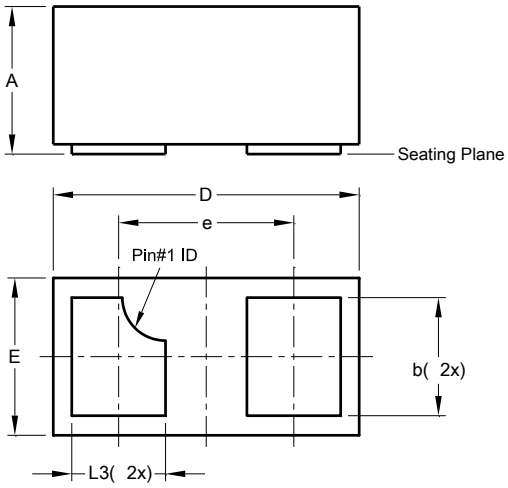


Figure 8 Transmission Line Pulsing (TLP) Current vs. Voltage

Package Outline Dimensions

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

X2-DFN0603-2

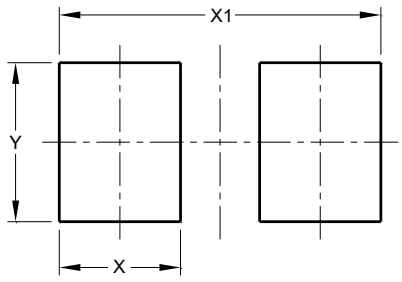


X2-DFN0603-2			
Dim	**Min**	**Max**	**Typ**
A	0.27	0.35	0.30
A1	0.00	0.03	0.02
b	0.19	0.29	0.24
D	0.595	0.645	0.62
E	0.295	0.345	0.32
e	-	-	0.355
L3	0.14	0.24	0.19
All Dimensions in mm			

Suggested Pad Layout

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

X2-DFN0603-2



Dimensions	Value (in mm)
X	0.230
X1	0.610
Y	0.300

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