

Product Summary

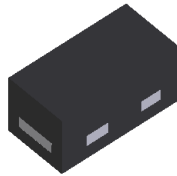
V_{BR} (Min)	I_{PP} (Max)	C_T (Typ)
7V	1.5A	0.23pF

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 peripherals



Top View



Device Schematic

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)**
- The DIODES™ D5V0X1B2LP3Q is suitable for automotive applications requiring specific change control; this part is AEC-Q101 qualified, PPAP capable, and manufactured in IATF 16949 certified facilities.**
<https://www.diodes.com/quality/product-definitions/>

Mechanical Data

- Package: X2-DFN0603-2
- Package 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
- Weight: 0.0002 grams (Approximate)

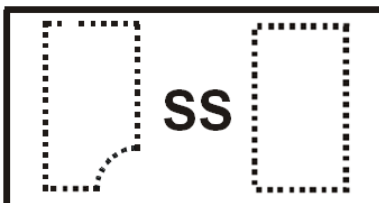
Ordering Information (Notes 4 and 5)

Part Number	Package	Marking	Reel Size (inches)	Tape Width (mm)	Packing	
					Qty.	Carrier
D5V0X1B2LP3Q-7	X2-DFN0603-2	SS or -SS-	7	8	10,000	Tape & Reel

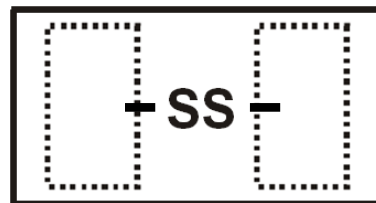
- Notes:
- No purposely added lead. Fully EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant.
 - See <https://www.diodes.com/quality/lead-free/> for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "Green" and Lead-free.
 - Halogen- and Antimony-free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
 - For packaging details, go to our website at <https://www.diodes.com/design/support/packaging/diodes-packaging/>.
 - Package is non-polarized. Parts may be on reel in orientation as illustrated, 180° rotated, or mixed (both ways).

Marking Information

Option A:



Option B:



"SS" or "-SS-" = Product Type Marking Code

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 6)	P _D	250	mW
Thermal Resistance, Junction to Ambient (Note 6)	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}	—	—	5.5	V	—
Channel Leakage Current (Note 7)	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} = 1.5A, 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:
- 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>.
 - Short duration pulse test used to minimize self-heating effect.

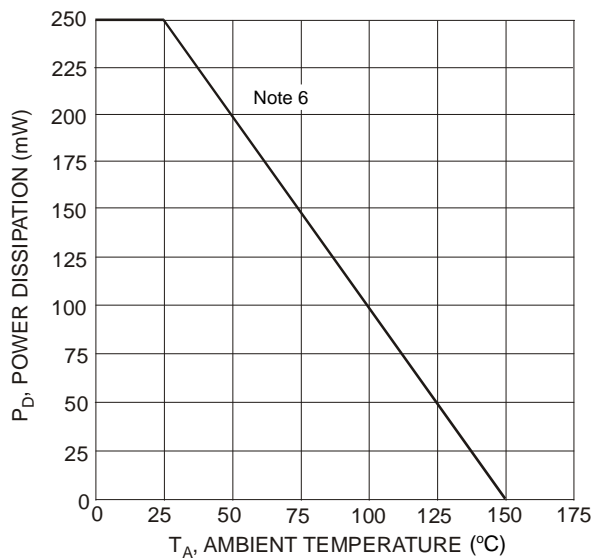


Figure 1 Power Derating Curve

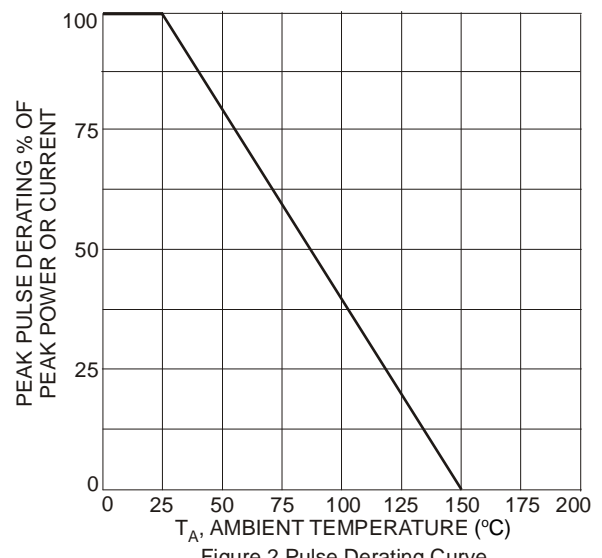


Figure 2 Pulse Derating Curve

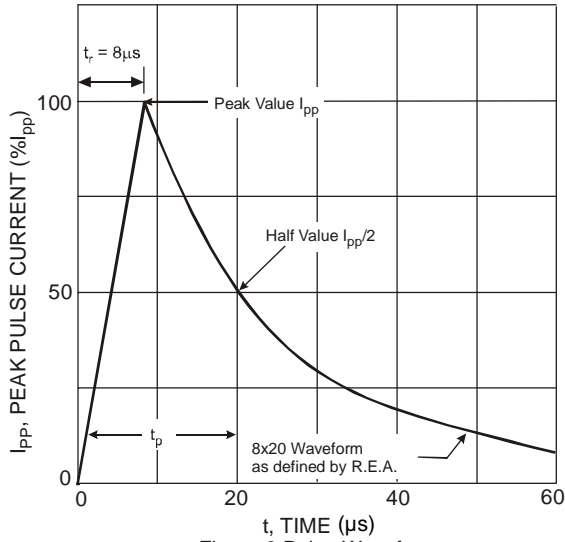


Figure 3 Pulse Waveform

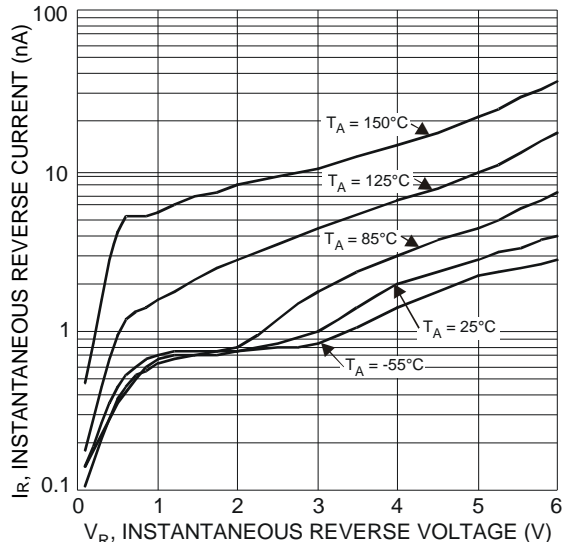


Figure 4 Typical Reverse Characteristics

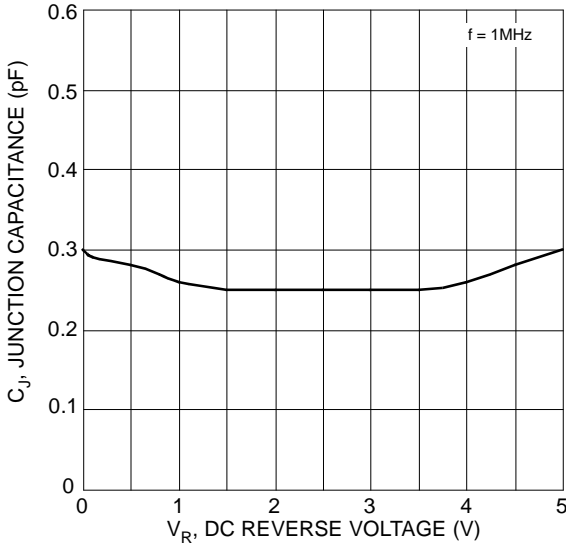


Figure 5 Total Capacitance vs. Reverse Voltage

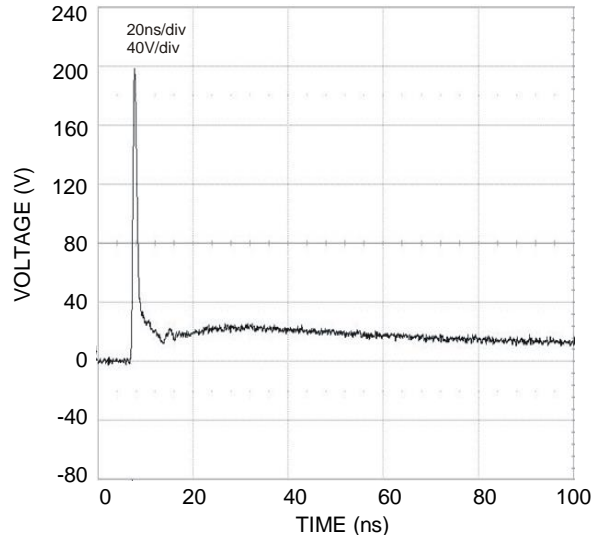


Figure 6 ESD Response to IEC 61000-4-2 (+8kV Contact Discharge)

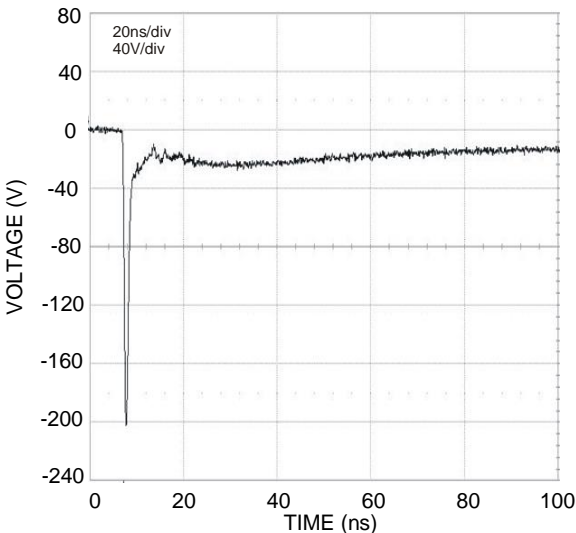


Figure 7 ESD Response to IEC 61000-4-2 (-8kV Contact Discharge)

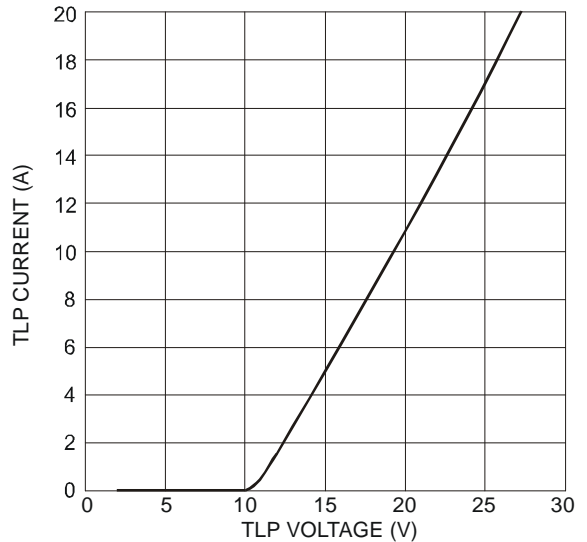
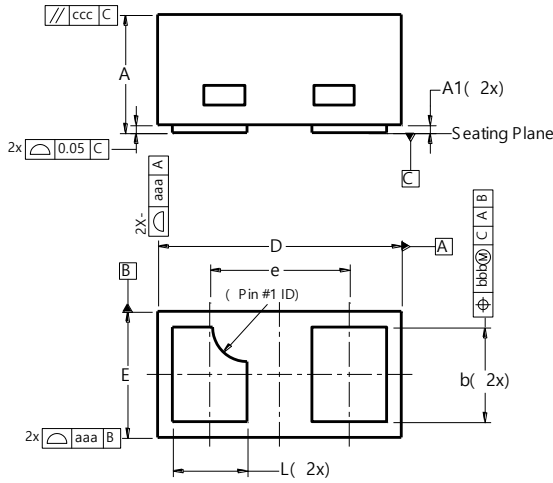


Figure 8 Transmission Line Pulsing (TLP) Current vs. Voltage

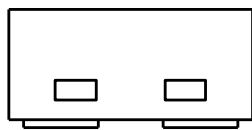
Package Outline Dimensions

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

X2-DFN0603-2



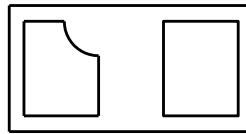
X2-DFN0603-2			
Dim	Min	Max	Typ
A	0.27	0.35	0.30
A1	0.00	0.03	0.02
b	0.19	0.29	0.24
D	0.595	0.645	0.620
E	0.295	0.345	0.320
e	--	--	0.355
L3	0.14	0.24	0.19
aaa	0.08		
bbb	0.07		
ccc	0.05		
All Dimensions in mm			



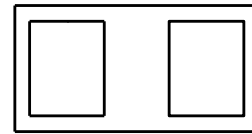
OPTION A
(SIDE VIEW)



OPTION B
(SIDE VIEW)



OPTION A
(BOTTOM VIEW)

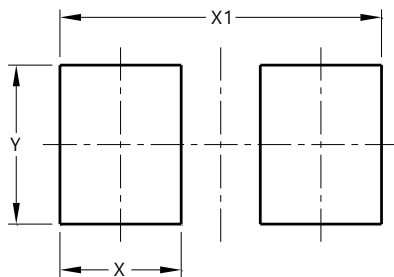


OPTION B
(BOTTOM VIEW)

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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