

Product Summary

V _{BR} (Min)	I _{PP} (Max)	C _T (Typ)
4.7V	4.0A	0.25pF

Description

D3V3Z1B2LP3 is a new generation TVS, which is designed to protect sensitive electronics from the damage due to ESD and includes a bi-directional ESD related clamping cell to protect high-speed data interface in an electronic system.

Applications

- Wearable devices
- Portable electronics
- Hand-held portables
- Antenna protections

X2-DFN0603-2



Top View

Features

- Low-Profile Package (0.30mm Typical) and Ultra-Small PCB Footprint Area (0.61mm × 0.3mm max) Suitable for Compact Portable Electronics
- One Channel of ESD and Surge Protection
- Provides ESD Protection per IEC 61000-4-2 Standard: Air ±25kV, Contact ±25kV
- Provides Surge and Lightning Protection per IEC 61000-4-5 Standard: I_{PP} max 4.0A
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **For automotive applications requiring specific change control (i.e. parts qualified to AEC-Q100/101/104/200, PPAP capable, and manufactured in IATF 16949 certified facilities), please [contact us](mailto:contact@diodes.com) or your local Diodes representative. <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 [Ⓔ]₃
- Weight: 0.0002 grams (Approximate)



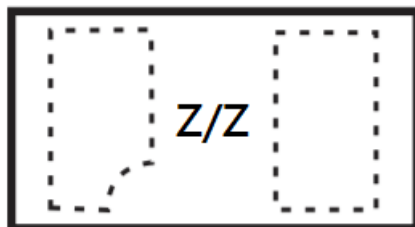
Device Schematic

Ordering Information (Notes 4 & 5)

Part Number	Package	Marking	Reel Size (inches)	Tape Width (mm)	Packing	
					Qty.	Carrier
D3V3Z1B2LP3-7	X2-DFN0603-2	Z/Z (Reversed)	7	8	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 <https://www.diodes.com/design/support/packaging/diodes-packaging/>.
 5. Package is non-polarized. Parts may be on reel in orientation as illustrated, 180° rotated, or mixed (both ways).

Marking Information



Z/Z = Product Type Marking Code

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

Characteristic	Symbol	Value	Unit	Conditions
Peak Pulse Current	I _{PP}	4.0	A	8/20μs, per Figure 3
ESD Protection – Contact Discharge	V _{ESD_CONTACT}	±25	kV	IEC 61000-4-2 Standard
ESD Protection – Air Discharge	V _{ESD_AIR}	±25	kV	IEC 61000-4-2 Standard

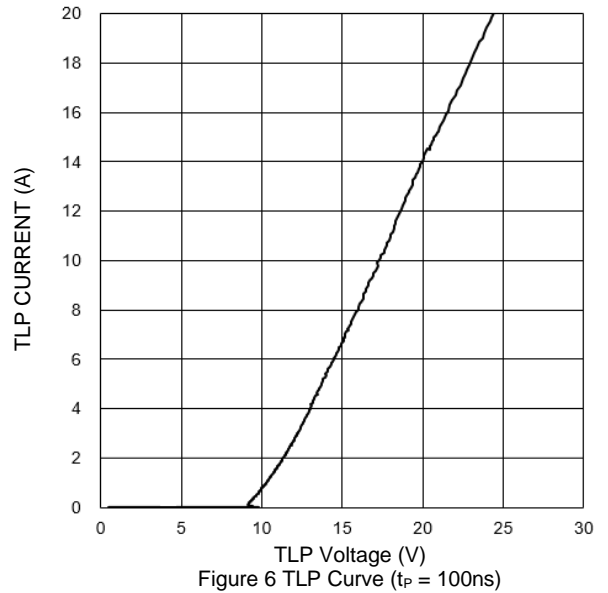
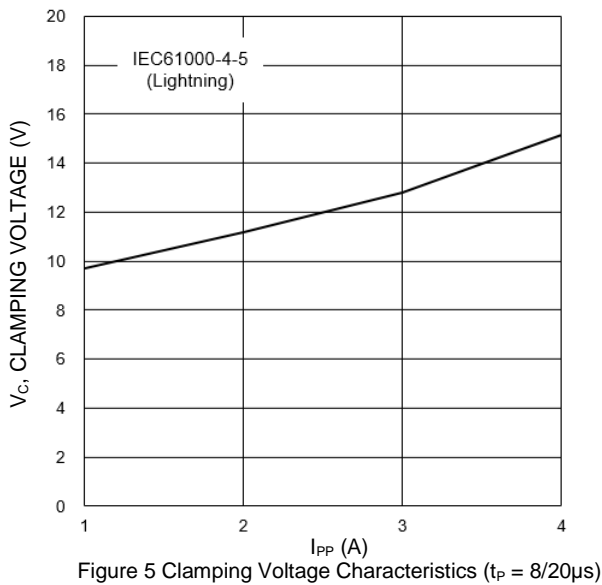
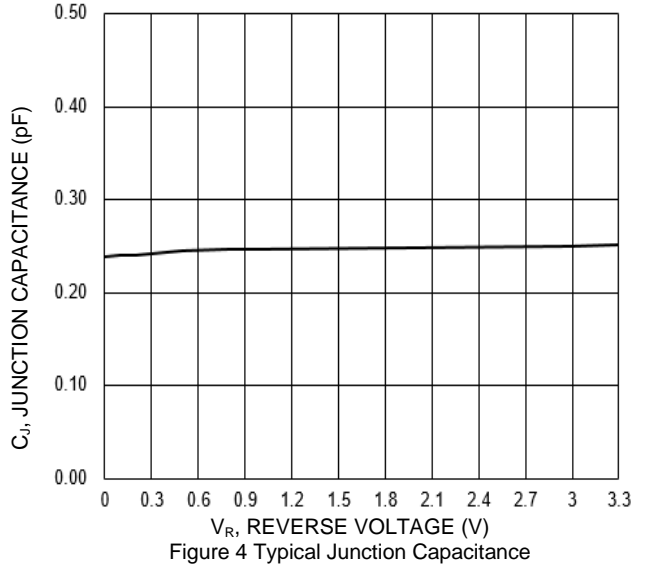
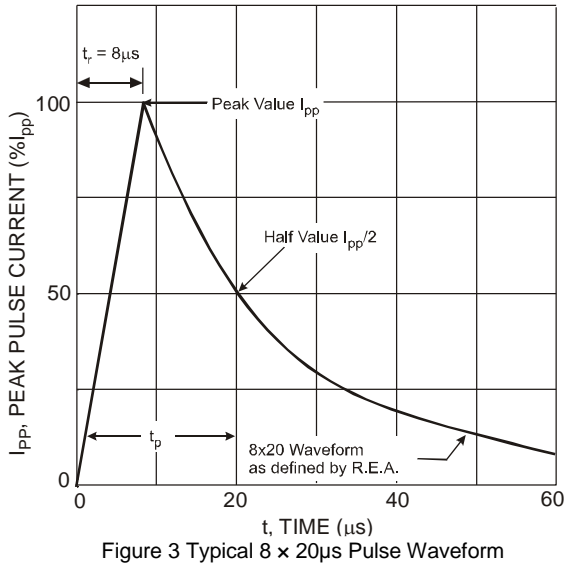
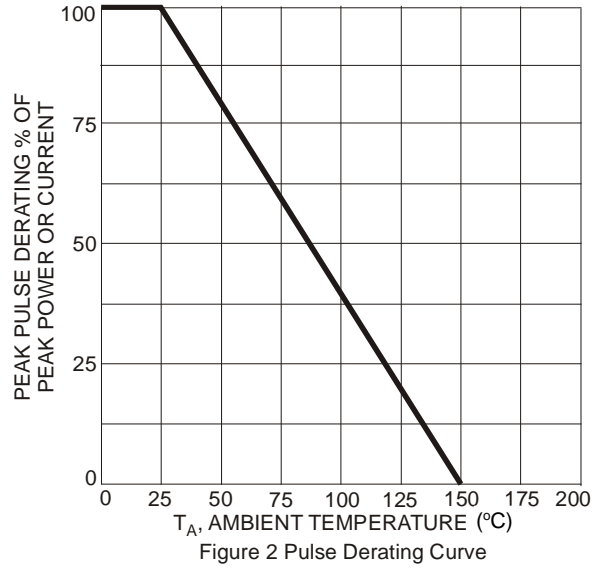
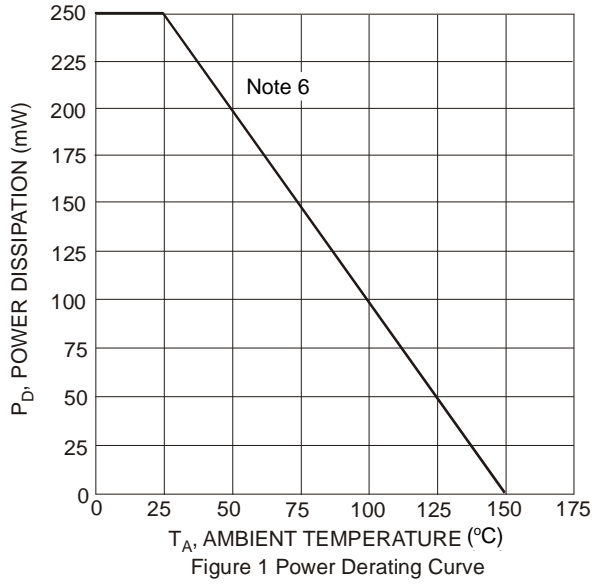
Thermal Characteristics

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}	-55 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}	—	—	3.3	V	—
Channel Leakage Current (Note 7)	I _{RM}	—	—	100	nA	V _{RWM} = 3.3V
Breakdown Voltage	V _{BR}	4.7	—	7.8	V	I _R = 1mA
Dynamic Resistance (Note 8)	R _{DYN}	—	0.7	—	Ω	TLP, t _P = 100ns
Clamping Voltage	V _{CL}	—	—	11.0	V	I _{PP} = 1A, t _P = 8/20μs
		—	—	17.0	V	I _{PP} = 4A, t _P = 8/20μs
Channel Input Capacitance	C _T	—	0.25	0.30	pF	V _R = 0V, f = 1MHz

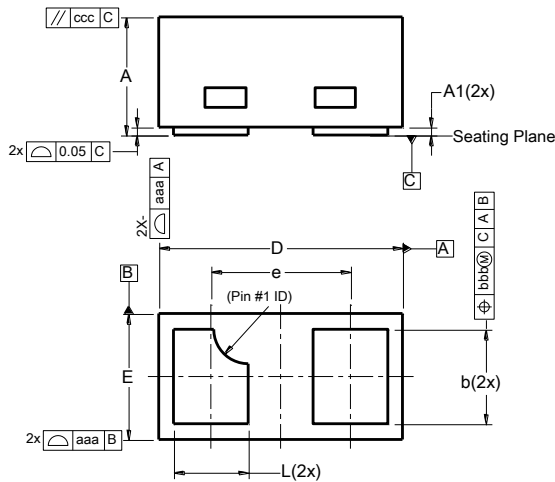
- Notes:
6. Device mounted on FR-4 PCB pad layout (2oz copper) as shown on Diodes Incorporated's suggested pad layout, which can be found on our website at <http://www.diodes.com/package-outlines.html>.
 7. Short duration pulse test used to minimize self-heating effect.
 8. Transmission Line Pulse Test (TLP) settings: t_P = 100ns, t_R = 10ns, I_{TLP} and V_{TLP} averaging window is from 70ns to 90ns.



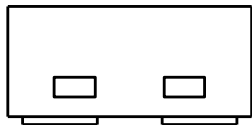
Package Outline Dimensions

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

X2-DFN0603-2



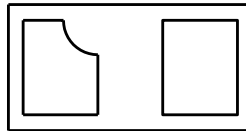
X2-DFN0603-2			
Dim	Min	Max	Typ
A	0.27	0.35	0.30
A1	0.00	0.03	0.02
b	0.19	0.29	0.24
D	0.595	0.645	0.620
E	0.295	0.345	0.320
e	--	--	0.355
L	0.14	0.24	0.19
aaa	0.08		
bbb	0.07		
ccc	0.05		
All Dimensions in mm			



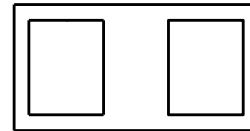
OPTION A
(SIDE VIEW)



OPTION B
(SIDE VIEW)



OPTION A
(BOTTOM VIEW)

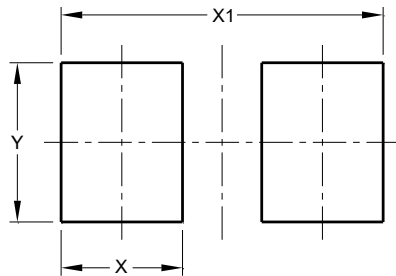


OPTION B
(BOTTOM VIEW)

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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