

Product Summary

V_{BR} (MIN)	I_{PP} (MAX)	C_T (TYP)
4.7V	4.0A	0.25pF

Description

D3V3Z1B2LPQ 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

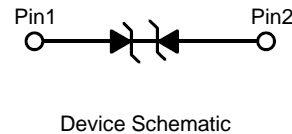
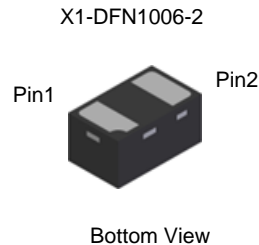
- Wearable devices
- Portable electronics
- Handheld portables
- Antenna protections

Features

- Low Profile Package (0.50mm Typical) and Ultra-Small PCB Footprint Area (1.1mm x 0.7mm Max) Suitable for Compact Portable Electronics
- Provides ESD Protection per IEC 61000-4-2 Standard: Air ±25kV, Contact ±25kV
- 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 D3V3Z1B2LPQ 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: X1-DFN1006-2
- Package 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)

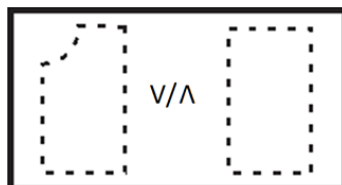


Ordering Information (Notes 4 and 5)

Part Number	Package	Marking	Reel Size (inches)	Tape Width (mm)	Packing	
					Qty.	Carrier
D3V3Z1B2LPQ-7B	X1-DFN1006-2	V/V(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



V/Λ = 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.

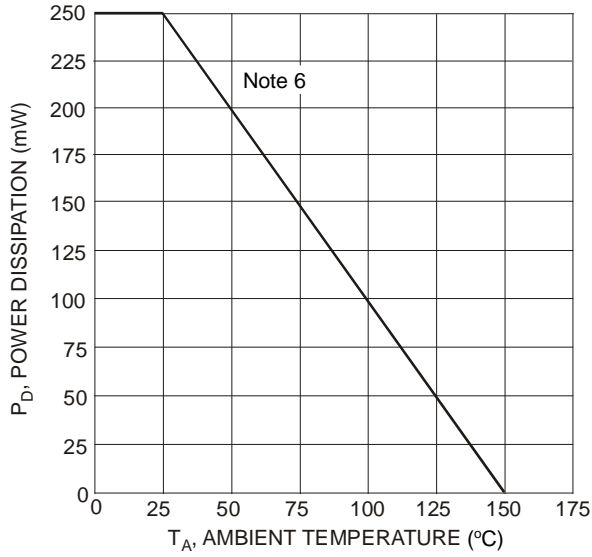


Figure 1 Power Derating Curve

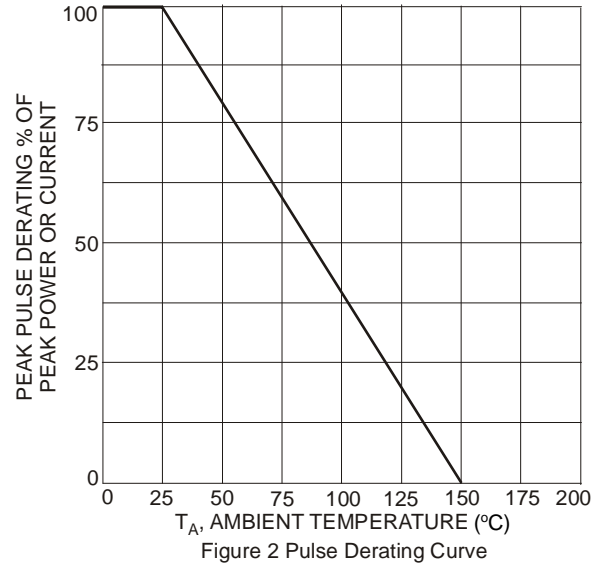


Figure 2 Pulse Derating Curve

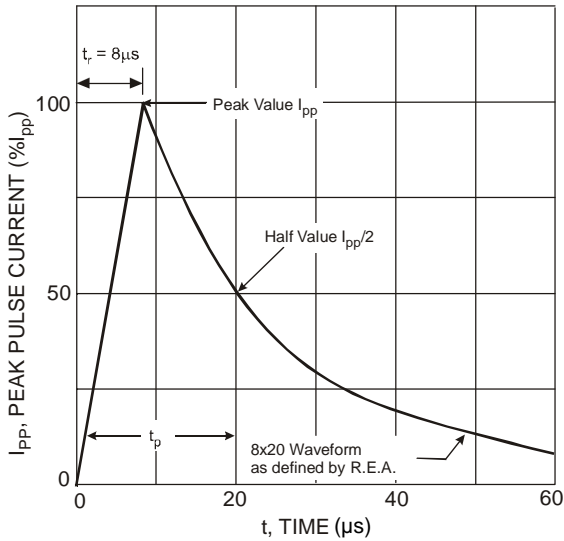


Figure 3 Pulse Waveform

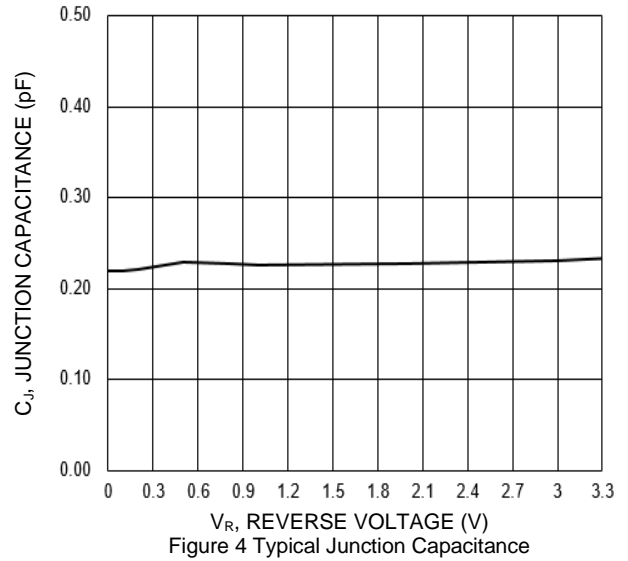


Figure 4 Typical Junction Capacitance

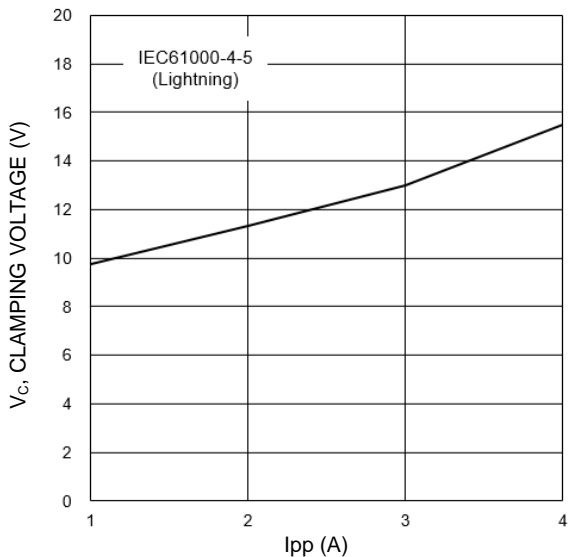


Figure 5 Clamping Voltage Characteristics ($t_p=8/20\mu s$)

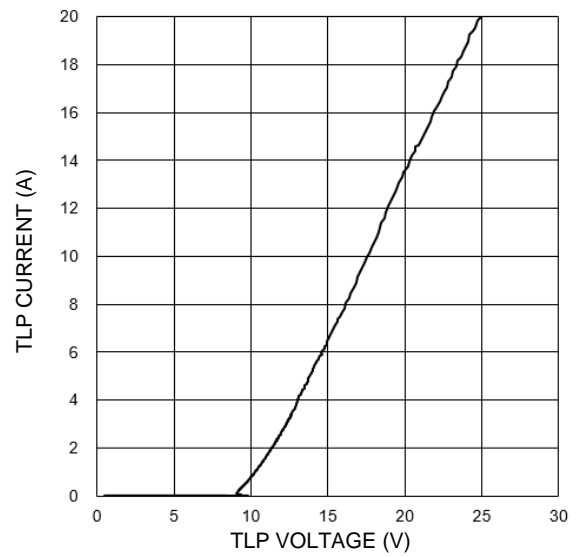
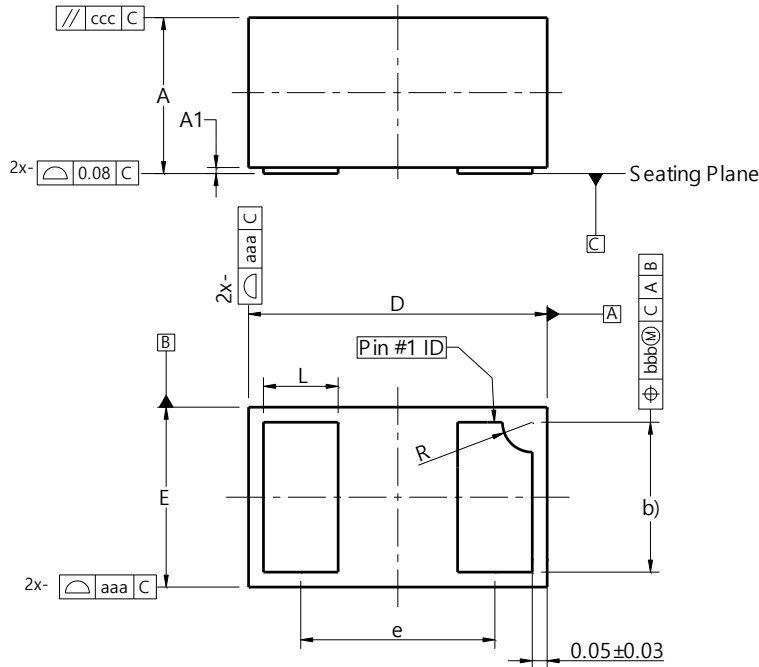


Figure 6 TLP Curve ($t_p = 100ns$)

Package Outline Dimensions

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

X1-DFN1006-2

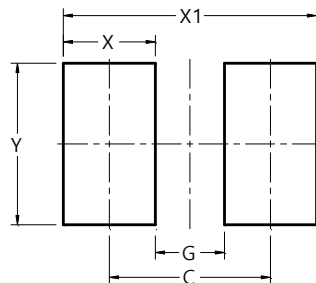


X1-DFN1006-2			
Dim	Min	Max	Typ
A	0.47	0.53	0.50
A1	0.00	0.05	0.03
b	0.45	0.55	0.50
D	0.95	1.075	1.00
E	0.55	0.675	0.60
e	--	--	0.65
L	0.20	0.30	0.25
R	0.05	0.15	0.10
aaa	0.15		
bbb	0.05		
ccc	0.05		
All Dimensions in mm			

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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