

## Product Summary

VBR (Min)	IPP (Max)	CT (Typ)
4.0V	35A	280pF

## Description

This new generation TVS is designed to protect sensitive electronics from damage caused by ESD. It comes in an ultra-small X1-DFN1006-2 SMD package and is intended to protect a single line against high surge currents and other transients.

## Applications

- USB protection
- Audio/video interface protection
- Communication interface protection

## Features

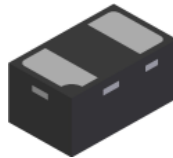
- Low Profile Package (0.53mm max) and Ultra-Small PCB Footprint Area (1.08 × 0.68mm max) Suitable for Compact Portable Electronics
- Provides ESD Protection per IEC 61000-4-2 Standard: Air ±30kV, Contact ±30kV
- 1 Channel of ESD Protection
- Low Channel Input Capacitance
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **The D3V3H1U2LPQ 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 @4
- Weight: 0.001 grams (Approximate)

X1-DFN1006-2



Bottom View



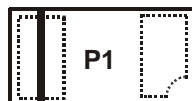
Device Schematic

## Ordering Information (Note 4)

Orderable Part Number	Package	Marking	Reel Size (inches)	Tape Width (mm)	Packing	
					Qty.	Carrier
D3V3H1U2LPQ-7B	X1-DFN1006-2	P1	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/>.

## Marking Information



P1 = Product Type Marking Code  
Line Denotes Pin 1 or Cathode Side

**Maximum Ratings** (@T<sub>A</sub> = +25°C, unless otherwise specified.)

Characteristic	Symbol	Value	Unit	Condition
Peak Pulse Power Dissipation	P <sub>PP</sub>	350	W	8/20μs, Per Figure 3
Peak Pulse Current	I <sub>PP</sub>	35	A	8/20μs, Per Figure 3
ESD Protection – Contact Discharge	V <sub>ESD_CONTACT</sub>	±30	kV	IEC61000-4-2 Standard
ESD Protection – Air Discharge	V <sub>ESD_AIR</sub>	±30	kV	IEC61000-4-2 Standard

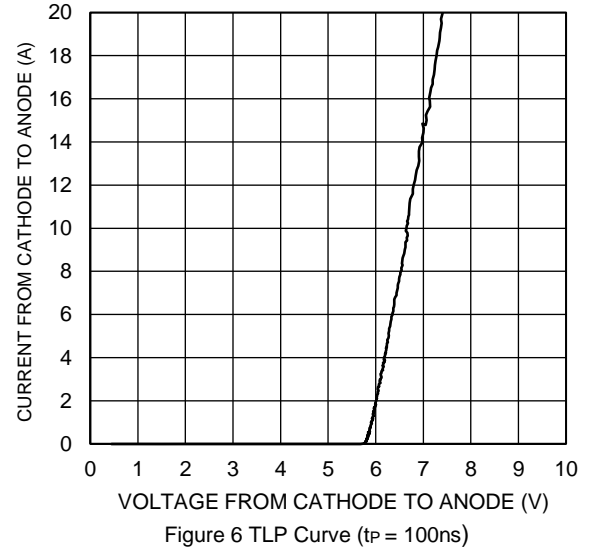
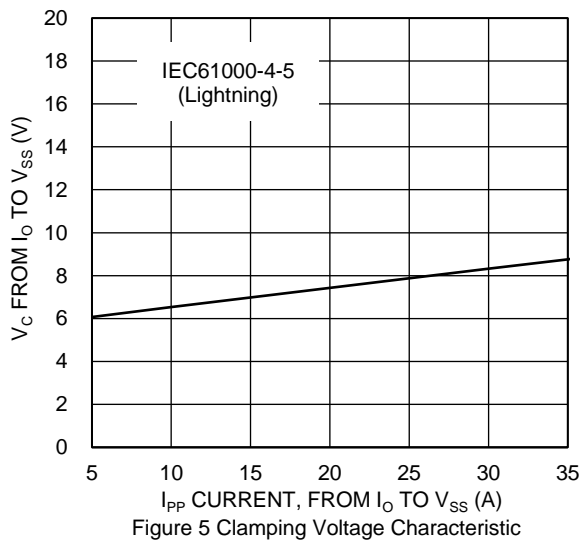
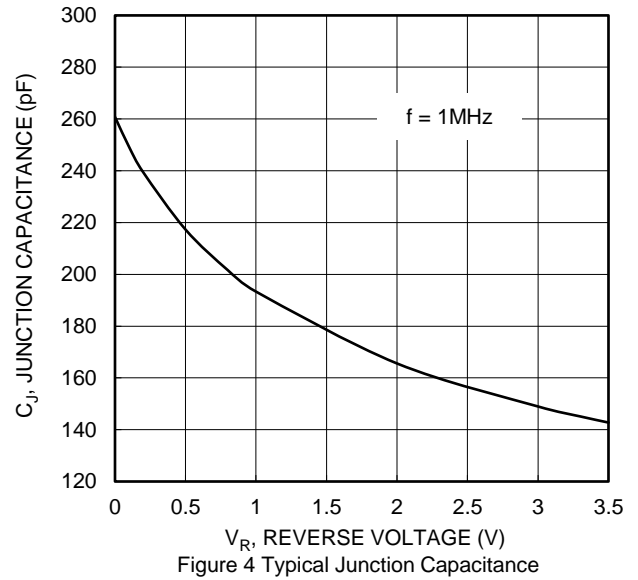
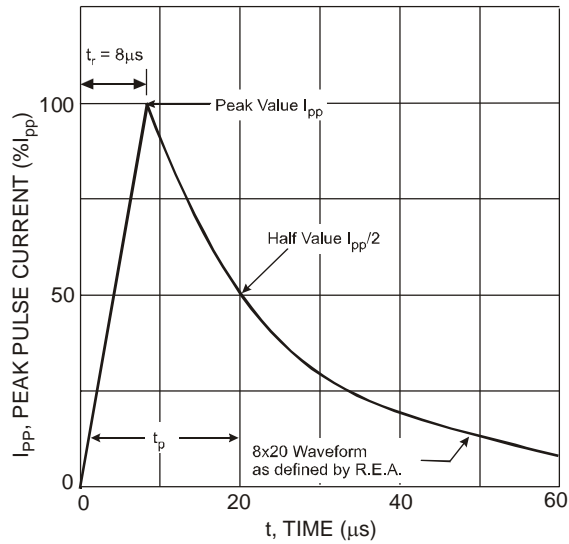
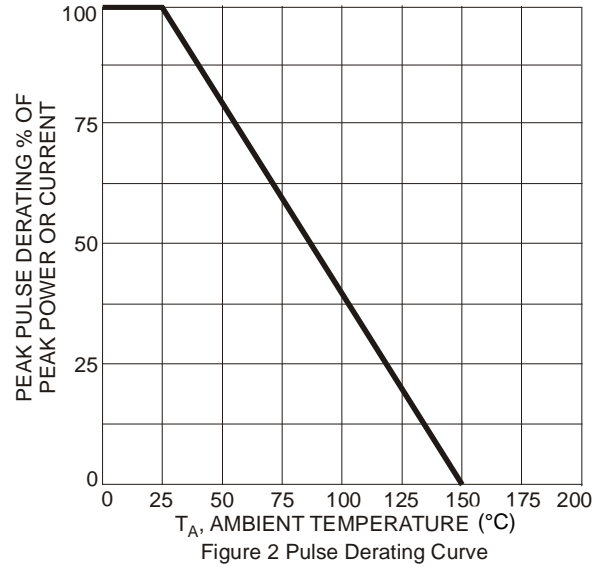
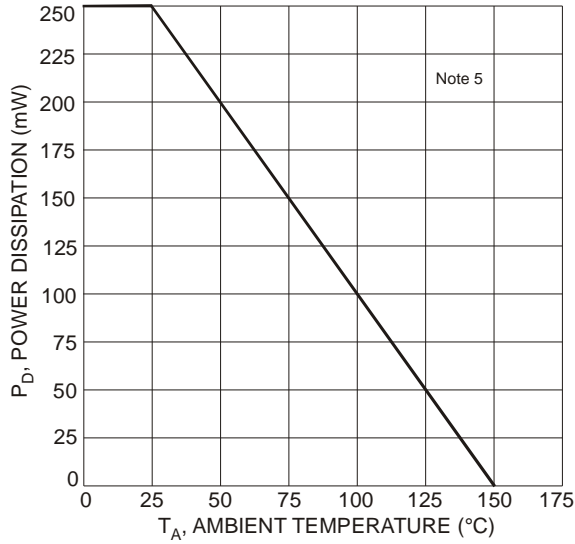
**Thermal Characteristics**

Characteristic	Symbol	Value	Unit
Package Power Dissipation (Note 5)	P <sub>D</sub>	250	mW
Thermal Resistance, Junction to Ambient (Note 5)	R <sub>θJA</sub>	500	°C/W
Operating and Storage Temperature Range	T <sub>J</sub> , T <sub>STG</sub>	-55 to +150	°C

**Electrical Characteristics** (@T<sub>A</sub> = +25°C, unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Working Voltage	V <sub>RWM</sub>	—	—	3.3	V	—
Reverse Current (Note 6)	I <sub>R</sub>	—	—	5	μA	V <sub>R</sub> = V <sub>RWM</sub> = 3.3V
Reverse Breakdown Voltage	V <sub>BR</sub>	4.0	—	—	V	I <sub>R</sub> = 1mA
Reverse Clamping Voltage	V <sub>CL</sub>	—	—	7.5	V	I <sub>PP</sub> = 5A, t <sub>p</sub> = 8/20μs
		—	—	10		I <sub>PP</sub> = 35A, t <sub>p</sub> = 8/20μs
ESD Clamping Voltage (Note 7)	V <sub>C</sub>	—	6.0	—	V	I <sub>PP</sub> = 4A, t <sub>p</sub> = 10/100ns
		—	7.0	—		I <sub>PP</sub> = 16A, t <sub>p</sub> = 10/100ns
Capacitance	C <sub>T</sub>	—	280	—	pF	V <sub>R</sub> = 0, 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.
  - Transmission Line Pulse (TLP) Test settings: t<sub>p</sub> = 100ns, t<sub>R</sub> = 10ns, I<sub>TLP</sub> and V<sub>TLP</sub> averaging window is from 70ns to 90ns.

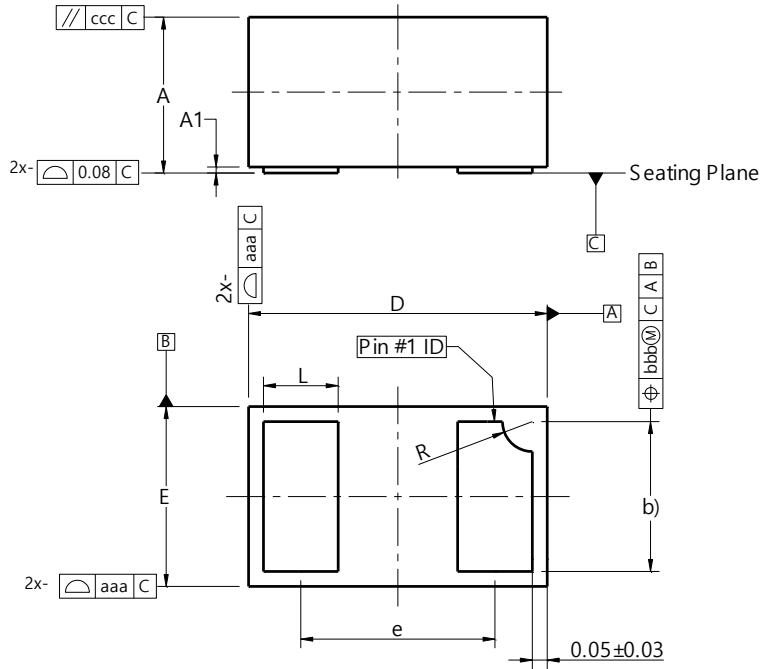


Note: 5. Device mounted on FR-4 PCB pad layout (2oz copper) as shown on Diodes Incorporated's suggested pad layout, which can be found on our website at <http://www.diodes.com/package-outlines.html>.

## Package Outline Dimensions

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

### X1-DFN1006-2

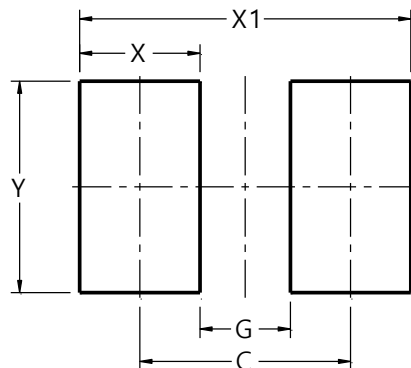


X1-DFN1006-2			
Dim	Min	Max	Typ
A	0.47	0.53	0.50
A1	0.00	0.05	0.03
b	0.45	0.55	0.50
D	0.95	1.075	1.00
E	0.55	0.675	0.60
e	--	--	0.65
L	0.20	0.30	0.25
R	0.05	0.15	0.10
aaa	0.15		
bbb	0.05		
ccc	0.05		
All Dimensions in mm			

## 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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