

## Product Summary

VBR (MIN)	IPP (MAX)	CT (TYP)
8.5V	20A	55pF

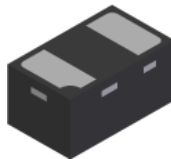
## Description

The DIODES D8V0H1B2LP is a bidirectional ESD protector, combination of small size and high ESD surge capability, used to protect a power line, a control line, or a low-speed data line of electronic systems, during transient conditions, the proprietary clamping prevents overvoltage on power or control, or data lines, protecting downstream components. It effectively single-line interfaces against 30kV electrostatic discharge (IEC61000-4-2 standard).

## Applications

- Power line protections
- Mobile device applications
- Touch panels
- Small panel modules
- Control signal lines protections

X1-DFN1006-2



Bottom View

## Features

- Small Package (1.00mm, 0.60mm, 0.50mm) Save Board Space
- Provides ESD Protection per IEC61000-4-2 Standard:  
Air  $\pm 30\text{kV}$ , Contact  $\pm 30\text{kV}$
- Bidirectional ESD Protection of One Line
- Low Clamping Voltage
- High Surge Robustness  $I_{PP} = 20\text{A}$  for  $8/20\mu\text{s}$  Pulse
- **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: 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)



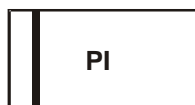
Device Schematic

## Ordering Information (Note 4)

Part Number	Package	Marking	Reel Size (inches)	Tape Width (mm)	Packing	
					Qty.	Carrier
D8V0H1B2LP-7B	X1-DFN1006-2	PI	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



PI = Product Type Marking Code  
Bar Denotes Pin 1

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

Characteristic	Symbol	Value	Unit	Conditions
Peak Pulse Power Dissipation	PPP	350	W	8/20μs, See Figure 3
Peak Pulse Current	I <sub>PP</sub>	20	A	8/20μs, See 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>	-65 to +150	°C

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

Characteristic	Symbol	Min	Typ	Max	Unit	Test Conditions
Reverse Standoff Voltage	V <sub>RWM</sub>	—	—	8.0	V	—
Channel Leakage Current (Note 6)	I <sub>RM</sub>	—	—	200	nA	V <sub>RWM</sub> = 8V
Breakdown Voltage	V <sub>BR</sub>	8.5	—	12	V	I <sub>R</sub> = 1mA
Clamping Voltage, IEC61000-4-5	V <sub>CL</sub>	—	—	12.0	V	I <sub>PP</sub> = 1A, t <sub>P</sub> = 8/20μs
		—	—	17.5		I <sub>PP</sub> = 20A, t <sub>P</sub> = 8/20μs
ESD Clamping Voltage (Note 7)	V <sub>C</sub>	—	11.5	—	V	I <sub>PP</sub> = 4A, t <sub>P</sub> = 10/100ns
		—	14.0	—		I <sub>PP</sub> = 16A, t <sub>P</sub> = 10/100ns
Channel Input Capacitance	C <sub>T</sub>	—	55	—	pF	V <sub>R</sub> = 0V, f = 1MHz

- Notes:
- Device mounted on FR-4 PCB pad layout (2oz copper) as shown on Diodes Incorporated's website at <http://www.diodes.com/package-outlines.html>.
  - Short duration pulse test used to minimize self-heating effect.
  - Transmission Line Pulse Test (TLP) 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.

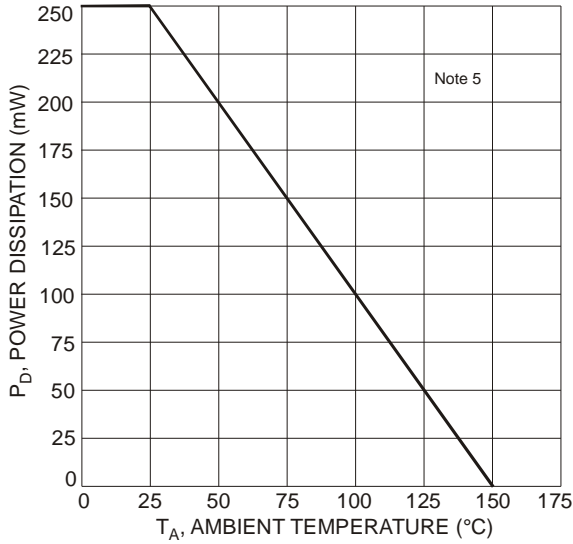


Figure 1 Power Derating Curve

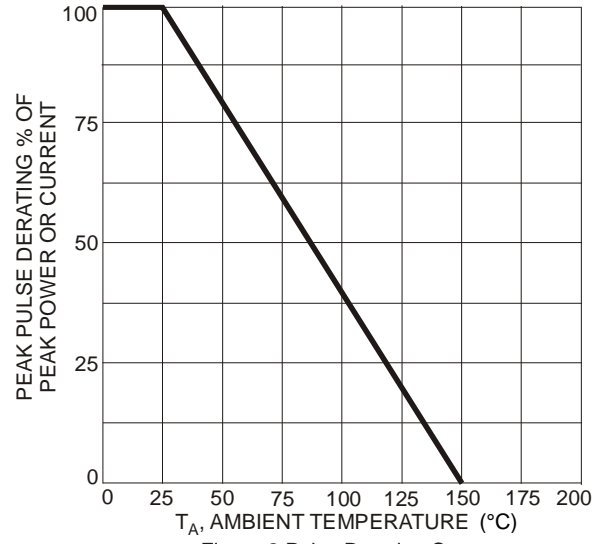


Figure 2 Pulse Derating Curve

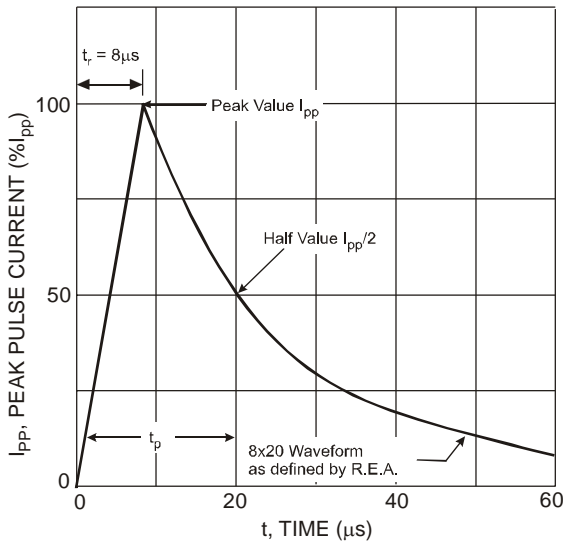


Figure 3 Pulse Waveform

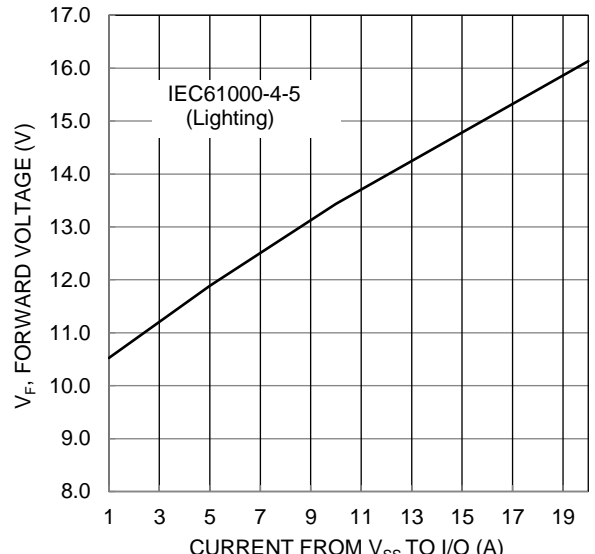


Figure 4. Forward Voltage Characteristic

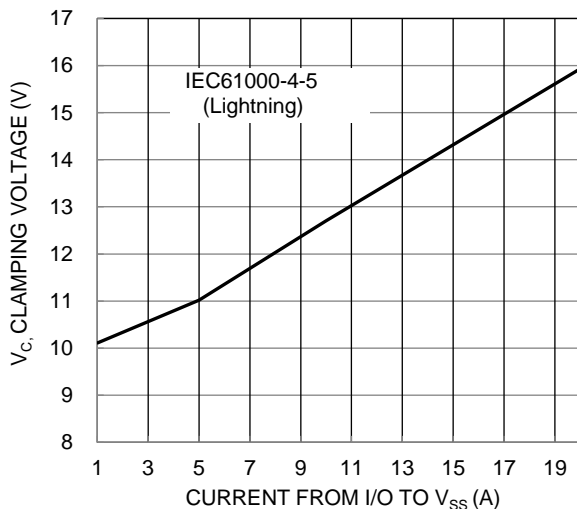


Figure 5 Clamping Voltage Characteristic

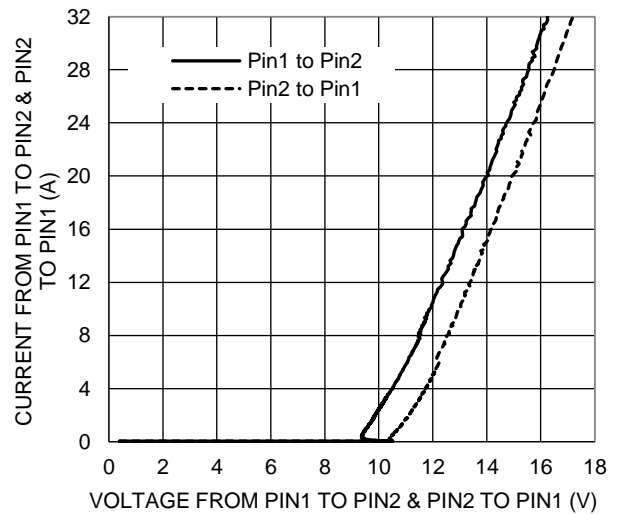
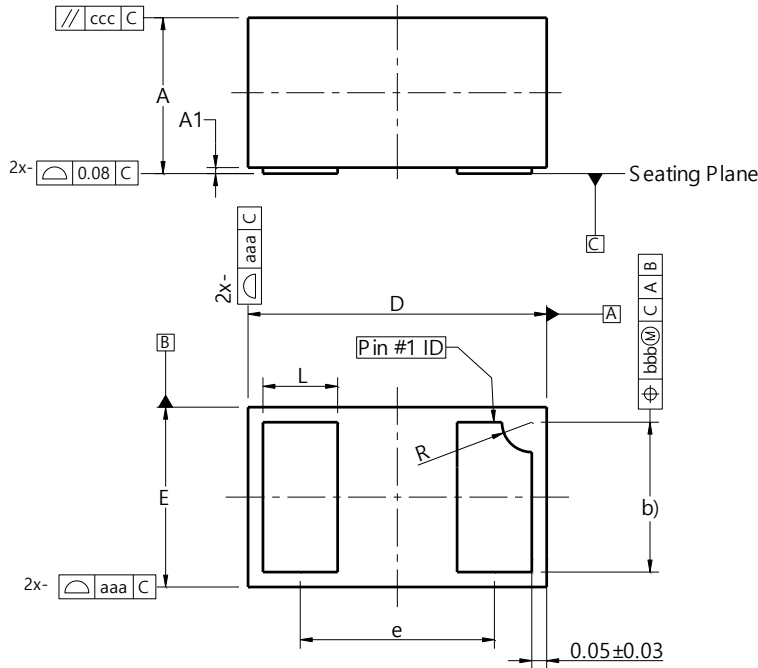


Figure 6 TLP Curve (tp=100ns)

**Package Outline Dimensions**

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

**X1-DFN1006-2**

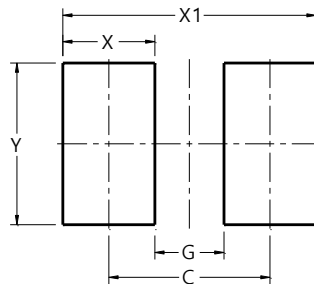


X1-DFN1006-2			
Dim	Min	Max	Typ
A	0.47	0.53	0.50
A1	0.00	0.05	0.03
b	0.45	0.55	0.50
D	0.95	1.075	1.00
E	0.55	0.675	0.60
e	--	--	0.65
L	0.20	0.30	0.25
R	0.05	0.15	0.10
aaa	0.15		
bbb	0.05		
ccc	0.05		
All Dimensions in mm			

**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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