

Product Summary

V _{BR} (MIN)	I _{PP} (MAX)	C _T (TYP)
7V to 19.7V	3A to 4A	0.5pF

Features and Benefits

- Low Profile Package (0.53mm max) and Ultra-Small PCB Footprint Area (1.08mm x 0.68mm max)
- Provides ESD Protection per IEC 61000-4-2 Standard: Air ±20kV, Contact ±20kV
- 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 DxV0X1Bx2LP4Q - DxxV0X1Bx2LP4Q SERIES are suitable for automotive applications requiring specific change control; these parts are AEC-Q101 qualified, PPAP capable, and manufactured in IATF 16949 certified facilities.**
<https://www.diodes.com/quality/product-definitions/>

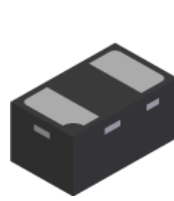
Description and Applications

These new generations TVS are designed to protect sensitive automotive 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:

- USB modules
- HDMI™ ports
- LVDs

Mechanical Data

- Package: X2-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)



Bottom View

X2-DFN1006-2



Device Schematic

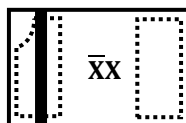
Ordering Information (Note 4)

Orderable Part Number	Package	Marking Code	Reel Size (inches)	Tape Width (mm)	Packing	
					Qty.	Carrier
DxV0X1Bx2LP4Q-7B	X2-DFN1006-2	xx	7	8	3,000	Tape & Reel
DxxV0X1Bx2LP4Q-7B	X2-DFN1006-2	xx	7	8	3,000	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

X2-DFN1006-2



xx = Product Type Marking Code (See Electrical Characteristics Table)
Bar Denotes Pin 1

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

Characteristic	Symbol	Value	Unit	Condition
Peak Pulse Power Dissipation	PPP	60 to 120	W	8/20μs, per Figure 1
ESD Protection – Contact Discharge	V _{ESD_Contact}	±20	kV	IEC 61000-4-2 Standard
ESD Protection – Air Discharge	V _{ESD_Air}	±20	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}	345	°C/W
Operating and Storage Temperature Range	T _J , T _{STG}	-55 to +150	°C

Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)

Orderable Part Number	Reverse Standoff Voltage	Breakdown Voltage V _{BR} @ I _T (Note 6)		Test Current	Max Reverse Leakage @ V _{RWM}	Max Clamping Voltage @ I _{PP}	Max Peak Pulse Current I _{PP} (Note 5)	Max Channel Input Capacitance	Marking Code
	V _{RWM} (V)	Min (V)	Max (V)	I _T (mA)	I _R (μA)	V _C (V)	(A)	CT (pF)	
D5V0X1BA2LP4Q-7B	5.5	7.0	11.0	1	1	17	3.5	0.7	NA
D8V0X1B2LP4Q-7B	8	9.5	14.5	1	1	18.5	4	0.7	NB
D10V0X1B2LP4Q-7B	10	11.5	14.8	1	1	23	4	0.7	NC
D12V0X1B2LP4Q-7B	12	13	17.6	1	1	25	4	0.7	ND
D15V0X1B2LP4Q-7B	15	16.5	21.5	1	1	30	4	0.7	NE
D18V0X1B2LP4Q-7B	18	19.7	26.2	1	1	36	3	0.7	NF

- Notes
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>.
 6. Short duration pulse test used to minimize self-heating effect.

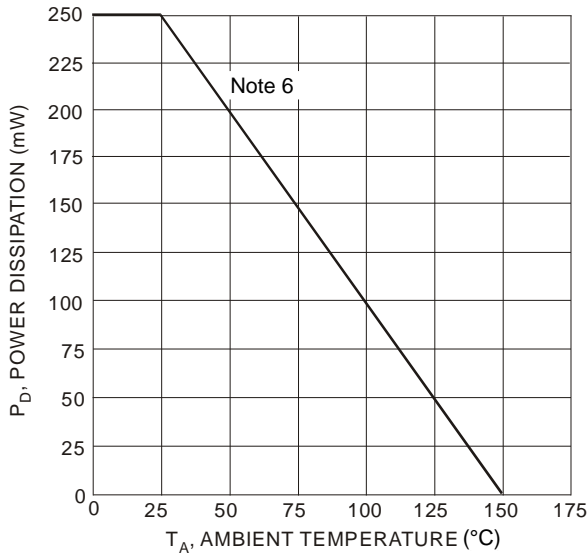


Figure 1 Power Derating Curve

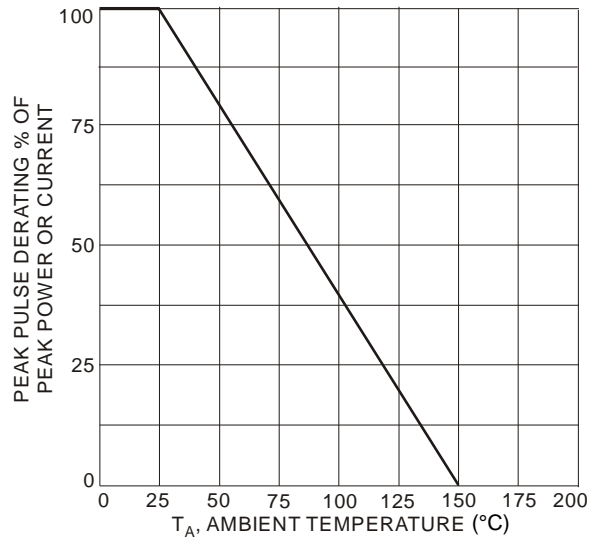


Figure 2 Pulse Derating Curve

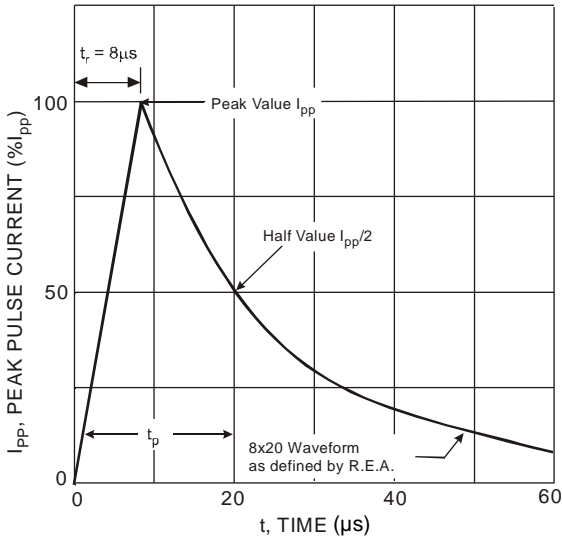


Figure 3 Pulse Waveform

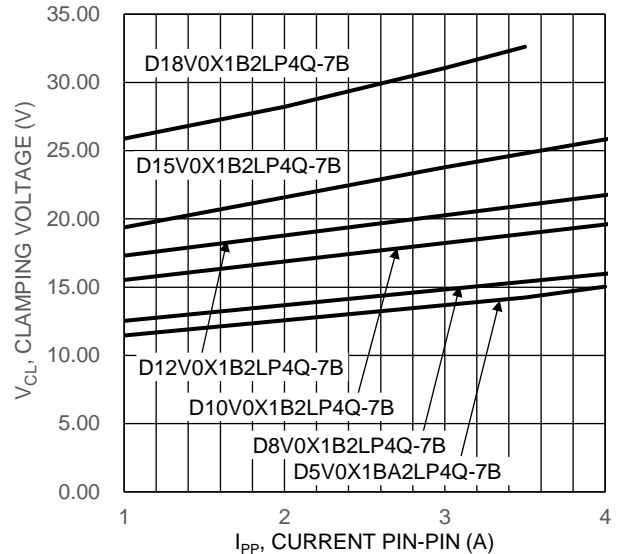


Figure 4 8*20μs Clamping Voltage Characteristic

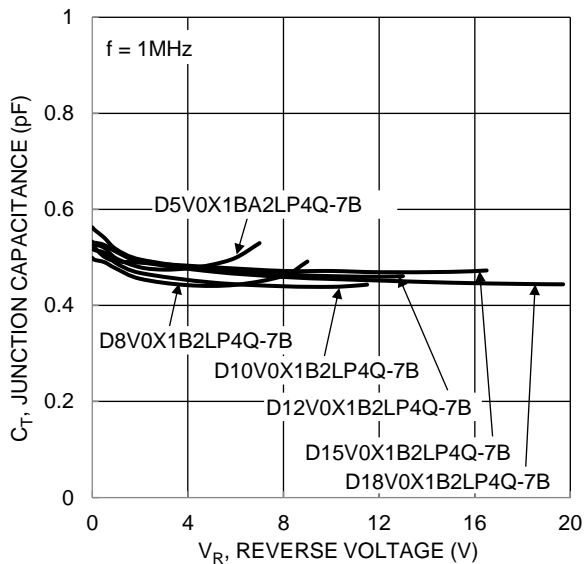


Figure 5 Typical Junction Capacitance

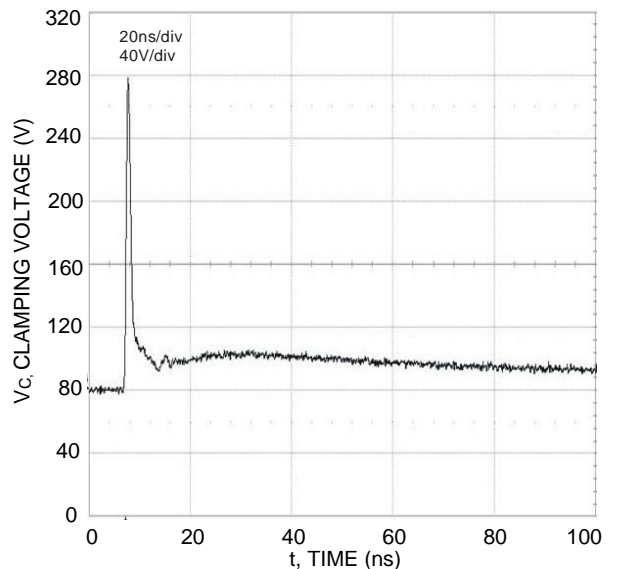


Figure 6 ESD Response to IEC 61000-4-2 (+8kV Contact Discharge)

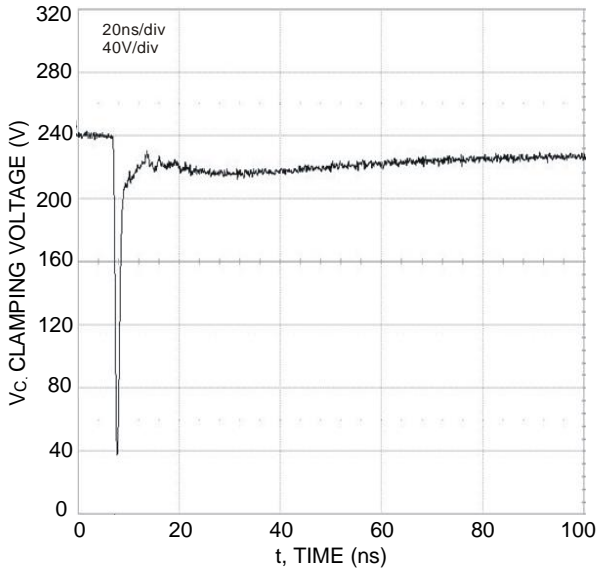


Figure 7 ESD Response to IEC 61000-4-2 (-8kV Contact Discharge)

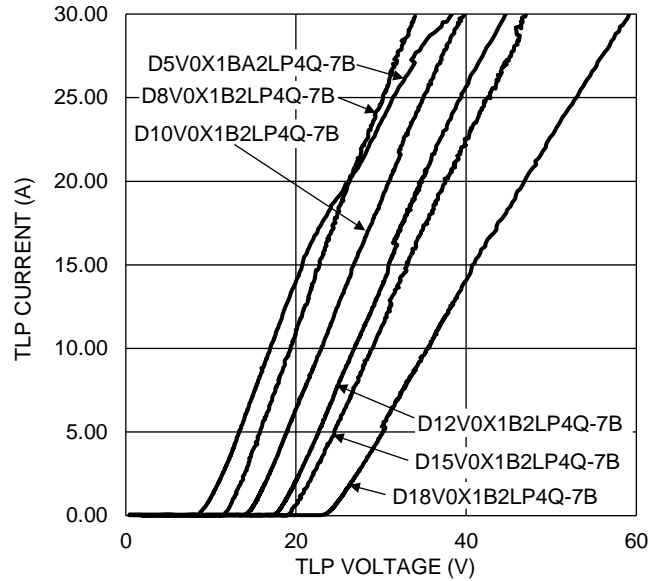
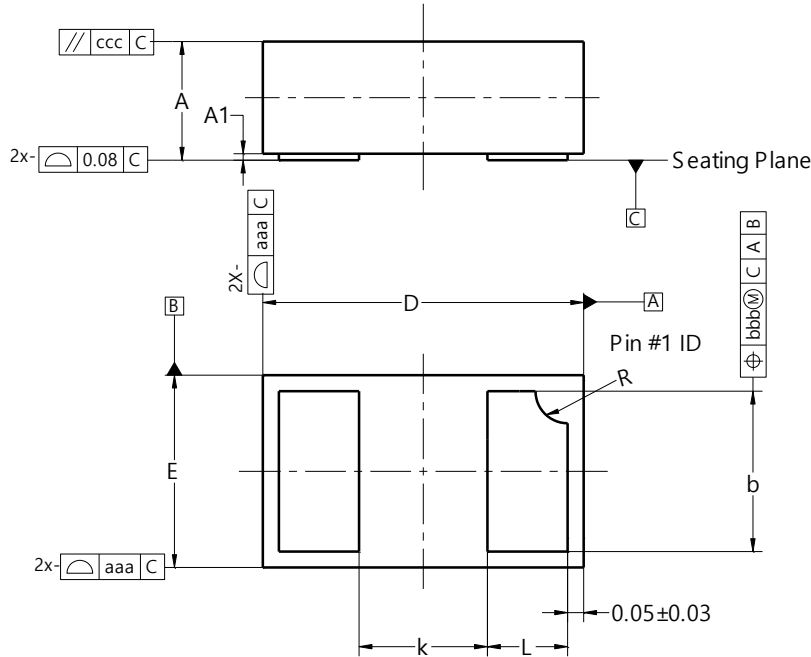


Figure 8 Transmission Line Pulse (TLP) Current vs. Voltage

Package Outline Dimensions

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

X2-DFN1006-2

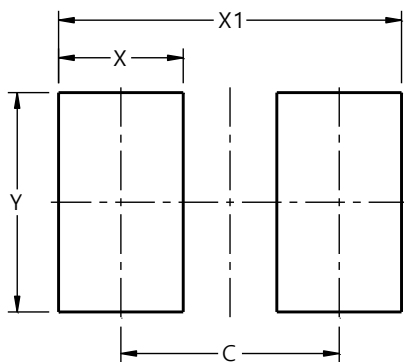


X2-DFN1006-2			
Dim	Min	Max	Typ
A	0.34	0.40	0.37
A1	0.00	0.05	0.03
b	0.45	0.55	0.50
D	0.95	1.075	1.00
E	0.55	0.675	0.60
k	—	—	0.40
L	0.20	0.30	0.25
R	—	—	0.10
aaa	0.15		
bbb	0.05		
ccc	0.05		
All Dimensions in mm			

Suggested Pad Layout

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

X2-DFN1006-2



Dimensions	Value (in mm)
C	0.70
X	0.40
X1	1.10
Y	0.70

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