

## Product Summary

V <sub>BR</sub> (Min)	I <sub>PP</sub> (Max)	C <sub>T</sub> (Typ)
31V	1A	0.3pF

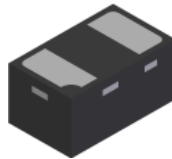
## Description

This new generation TVS is designed with ultra-low capacitance bidirectional to protect sensitive signal line from the damage caused by ESD and other transients.

## Applications

- NFC antennas
- High-speed data lines

X1-DFN1006-2



Bottom View

## Features

- Low Profile Package (0.53mm max) and Ultra-Small PCB Footprint Area (1.08mm x 0.68mm max) Suitable for Compact Portable Electronics
- Provides ESD Protection per IEC 61000-4-2 Standard
  - Air ±12kV, Contact ±12kV
- One 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 DESD30VF1BLQ 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 (64)
- Weight: 0.001 grams (Approximate)



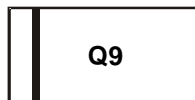
Device Schematic

## Ordering Information (Note 4)

Part Number	Package	Marking	Reel Size (inches)	Tape Width (mm)	Packing	
					Qty.	Carrier
DESD30VF1BLQ-7B	X1-DFN1006-2	Q9	7	8	10,000	Tape & Reel

- Notes:
- No purposely added lead. Fully EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant.
  - 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.
  - Halogen- and Antimony-free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
  - For packaging details, go to our website at <https://www.diodes.com/design/support/packaging/diodes-packaging/>.

## Marking Information



Q9 = 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 Current	I <sub>PP</sub>	1	A	8/20μs, per Figure 1
ESD Protection – Contact Discharge	V <sub>ESD_CONTACT</sub>	±12	kV	IEC 61000-4-2 Standard
ESD Protection – Air Discharge	V <sub>ESD_AIR</sub>	±12	kV	IEC 61000-4-2 Standard
ESD Protection – 1000 Contact Discharges (Open Alliance Spec)	V <sub>ESD_CONTACT1k</sub>	±12	kV	IEC 61000-4-2 Standard
ESD Protection – Contact Discharge (ISO Spec)	V <sub>ESD_CONTACT2</sub>	±12	kV	ISO 10605, 150pF, 330Ω
ESD Protection – Air Discharge (ISO Spec)	V <sub>ESD_AIR2</sub>	±12	kV	ISO 10605, 150pF, 330Ω
ESD Protection – Contact Discharge (ISO Spec)	V <sub>ESD_CONTACT3</sub>	±12	kV	ISO 10605, 330pF, 330Ω
ESD Protection – Air Discharge (ISO Spec)	V <sub>ESD_AIR3</sub>	±12	kV	IEC 10605, 330pF, 330Ω

**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 Conditions
Reverse Working Voltage	V <sub>RWM</sub>	—	—	30	V	—
Reverse Current (Note 6)	I <sub>R</sub>	—	0.1	50	nA	V <sub>R</sub> = 30V
Reverse Breakdown Voltage	V <sub>BR</sub>	31	34	39	V	I <sub>R</sub> = 1mA
Reverse Clamping Voltage	V <sub>CL1</sub>	—	23	—	V	I <sub>TLP</sub> = 16A, t <sub>P</sub> = 100ns
Reverse Clamping Voltage	V <sub>CL2</sub>	—	13	—	V	I <sub>PP</sub> = 1A, t <sub>P</sub> = 8/20μs
Dynamic Resistance	R <sub>DYN</sub>	—	0.7	—	Ω	TLP, 10A, t <sub>P</sub> = 100ns
Capacitance	C <sub>T</sub>	—	0.3	0.4	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 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.

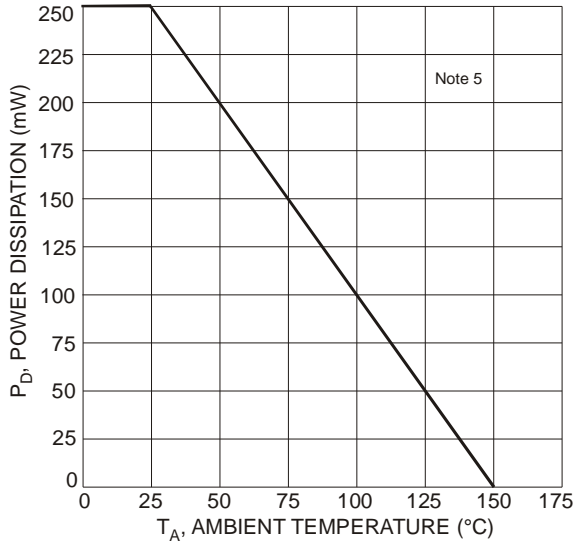


Figure 1 Power Derating Curve

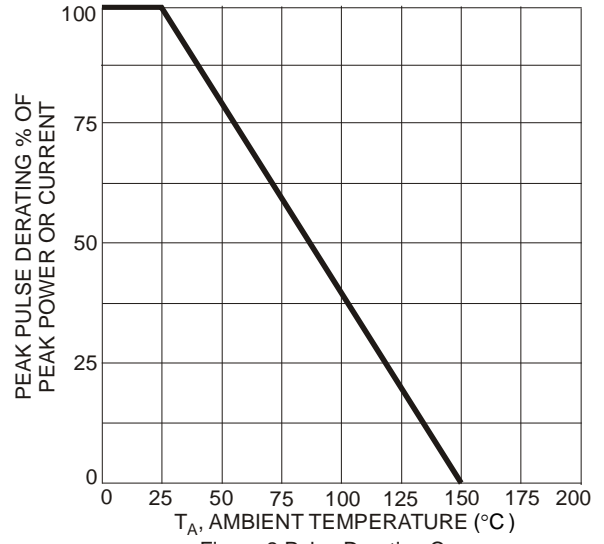


Figure 2 Pulse Derating Curve

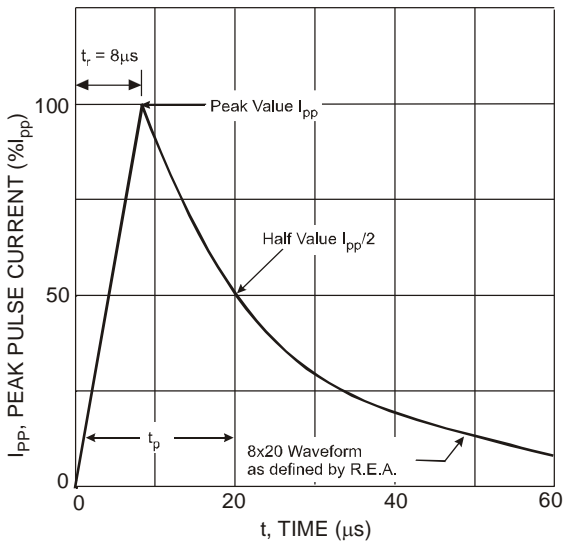


Figure 3 Pulse Waveform

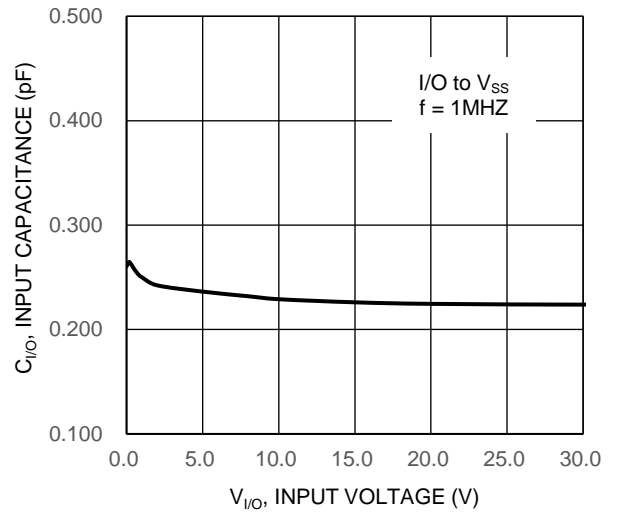


Figure 4 Input Capacitance vs. Input Voltage

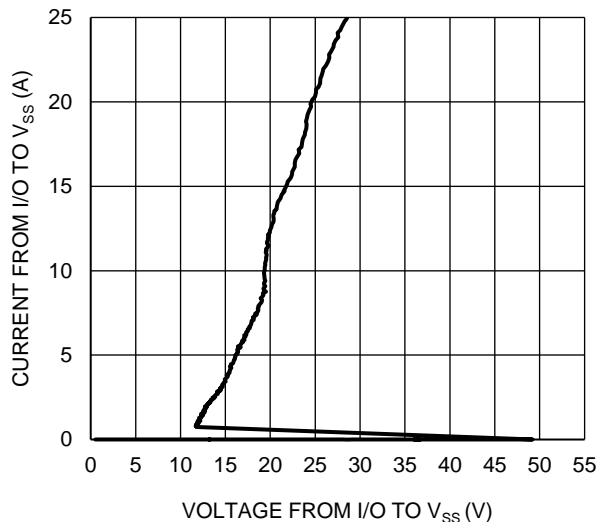


Figure 5 Current vs. Voltage (TLP = 100ns)

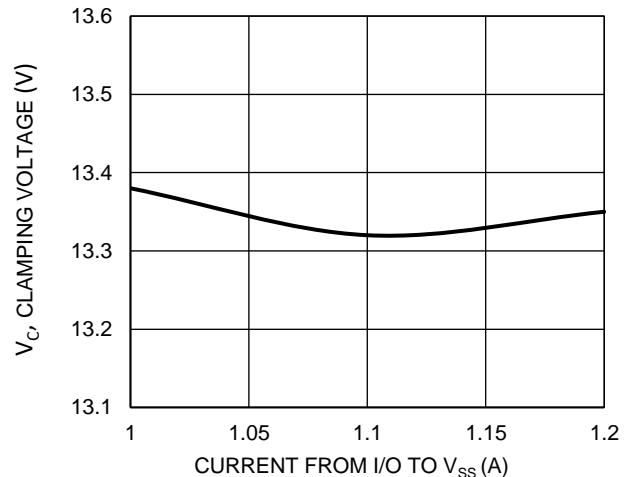
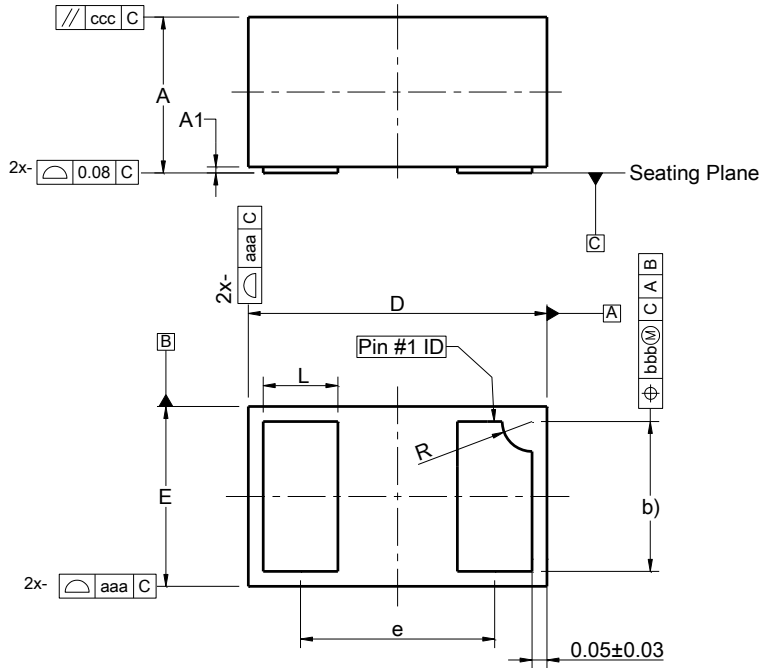


Figure 6 Clamping Voltage Characteristic (tp = 8/20µs)

**Package Outline Dimensions**

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

**X1-DFN1006-2**

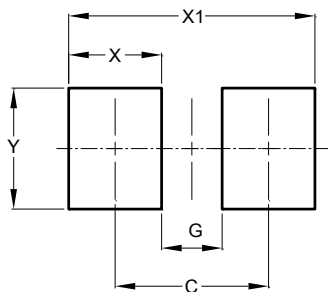


X1-DFN1006-2			
Dim	Min	Max	Typ
A	0.47	0.53	0.50
A1	0.00	0.05	0.03
b	0.45	0.55	0.50
D	0.95	1.075	1.00
E	0.55	0.675	0.60
e	--	--	0.65
L	0.20	0.30	0.25
R	0.05	0.15	0.10
aaa	0.15		
bbb	0.05		
ccc	0.05		
All Dimensions in mm			

**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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