

## Features

- Provides ESD Protection per IEC 61000-4-2 Standard: Air  $\pm 30\text{kV}$ , Contact  $\pm 30\text{kV}$
- One Channel of ESD Protection
- High Peak Pulse Current per IEC 61000-4-5 Standard
- Low Channel Input Capacitance
- **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)

## Applications

- Cellular handsets
- Portable electronics
- Communication systems
- Computers and peripherals

X1-DFN1006-2



Bottom View



Device Schematic

## Ordering Information (Note 4)

Orderable Part Number	Package	Packing	
		Qty.	Carrier
DESD5V0S1BL-7B	X1-DFN1006-2	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



R5 or  $\bar{R}5$  = Product Type Marking Code  
Line Denotes Pin 1

**Maximum Ratings** (@ $T_A = +25^\circ\text{C}$ , unless otherwise specified.)

Characteristic	Symbol	Value	Unit	Conditions
Peak Pulse Power Dissipation	PP <sub>P</sub>	130	W	8/20 $\mu\text{s}$ , Per Fig. 1
Peak Pulse Current	I <sub>PP</sub>	12	A	8/20 $\mu\text{s}$ , Per Fig. 1
ESD Protection – Contact Discharge	V <sub>ESD_Contact</sub>	$\pm 30$	kV	IEC 61000-4-2 Standard
ESD Protection – Air Discharge	V <sub>ESD_Air</sub>	$\pm 30$	kV	IEC 61000-4-2 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><math>\theta</math>JA</sub>	500	$^\circ\text{C}/\text{W}$
Operating and Storage Temperature Range	T <sub>J</sub> , T <sub>STG</sub>	-65 to +150	$^\circ\text{C}$

**Electrical Characteristics** (@ $T_A = +25^\circ\text{C}$ , unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Conditions
Reverse Standoff Voltage	V <sub>RWM</sub>	—	—	5	V	—
Channel Leakage Current (Note 6)	I <sub>RM</sub>	—	5	100	nA	V <sub>RWM</sub> = 5V
Clamping Voltage	V <sub>CL</sub>	—	—	10 14	V	I <sub>PP</sub> = 1A, t <sub>p</sub> = 8/20 $\mu\text{s}$ I <sub>PP</sub> = 12A, t <sub>p</sub> = 8/20 $\mu\text{s}$
Breakdown Voltage	V <sub>BR</sub>	5.5	—	9.5	V	I <sub>R</sub> = 1mA
Differential Resistance	R <sub>DIF</sub>	—	0.4	—	$\Omega$	I <sub>R</sub> = 10A, t <sub>p</sub> = 8/20 $\mu\text{s}$
Channel Input Capacitance	C <sub>T</sub>	—	35	45	pF	V <sub>R</sub> = 0, f = 1MHz

- 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.

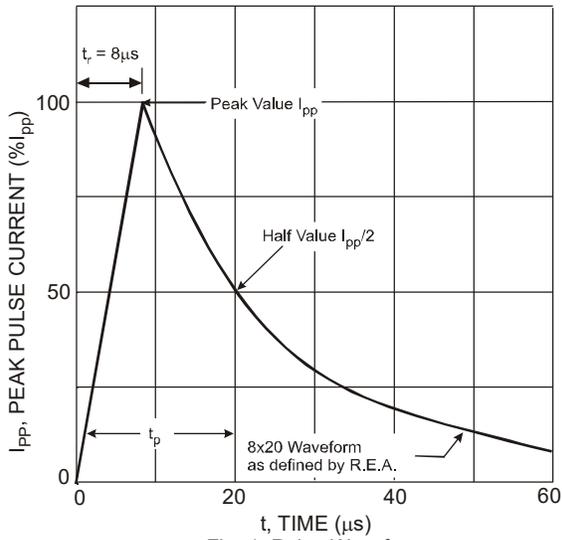


Fig. 1 Pulse Waveform

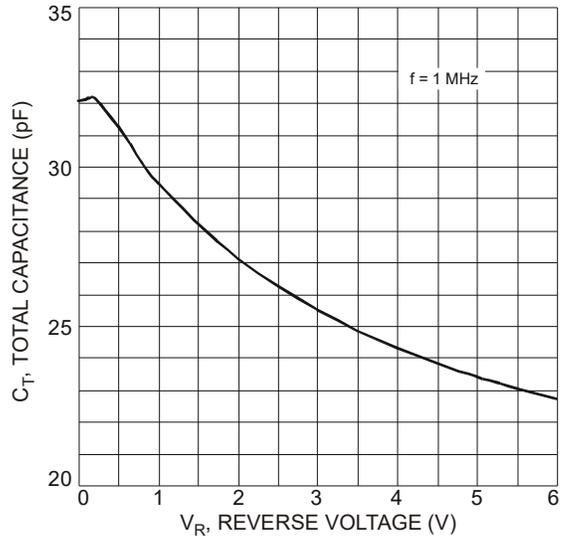


Fig. 2 Typical Total Capacitance vs. Reverse Voltage

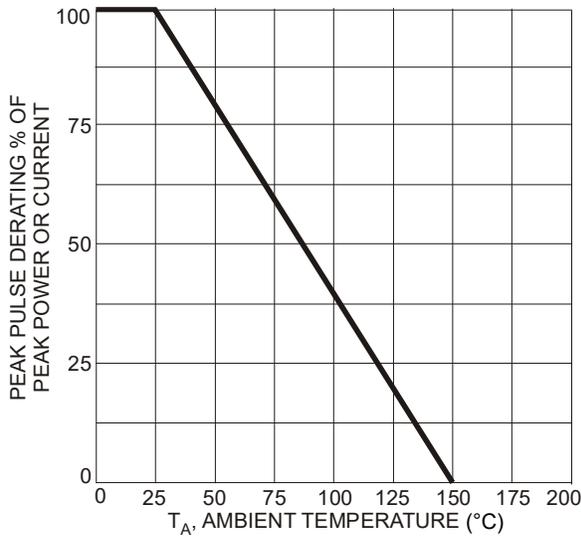


Fig. 3 Power Dissipation vs. Ambient Temperature

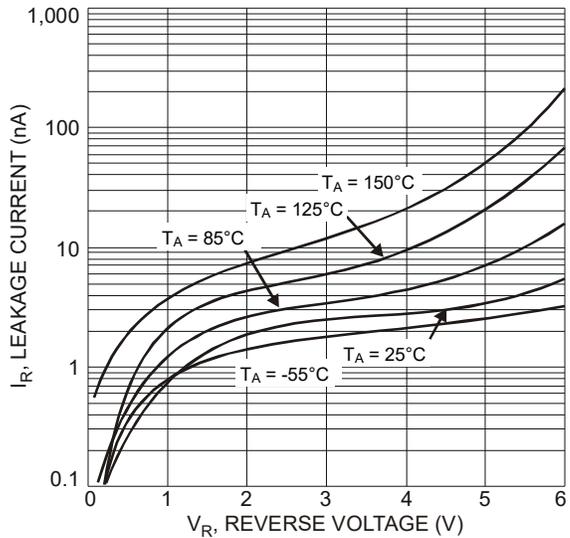
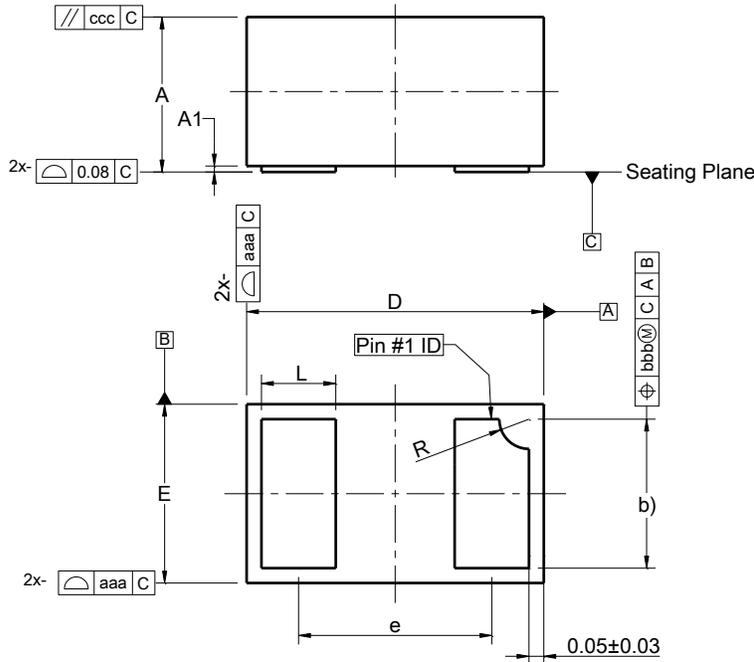


Fig. 4 Typical Reverse Characteristics

**Package Outline Dimensions**

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

**X1-DFN1006-2**

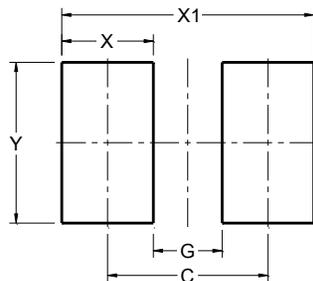


X1-DFN1006-2			
Dim	Min	Max	Typ
A	0.47	0.53	0.50
A1	0.00	0.05	0.03
b	0.45	0.55	0.50
D	0.95	1.075	1.00
E	0.55	0.675	0.60
e	--	--	0.65
L	0.20	0.30	0.25
R	0.05	0.15	0.10
aaa	0.15		
bbb	0.05		
ccc	0.05		
All Dimensions in mm			

**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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