



**THE DATASHEET OF  
DESD5V0U1BLQ-7B**



## Features

- Provides ESD Protection per IEC 61000-4-2 Standard: Contact  $\pm 10\text{kV}$
- 1 Channel of ESD Protection
- High Peak Pulse Current per IEC 61000-4-5 Standard
- Low Channel Input Capacitance
- Typically used in Cellular Handsets, Portable Electronics, Communication Systems, Computers and Peripherals
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen- and Antimony-Free. "Green" Device (Note 3)**

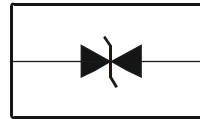
## Mechanical Data

- Case: X1-DFN1006-2
- Case Material: Molded Plastic, "Green" Molding Compound; UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: NiPdAu over Copper Lead-frame. Solderable per MIL-STD-202, Method 208 <sup>(e4)</sup>
- Polarity: Cathode Band
- Weight: 0.001 grams (Approximate)

X1-DFN1006-2



Bottom View



Device Schematic

## Ordering Information (Note 4)

Product	Compliance	Marking	Reel Size (inches)	Tape Width (mm)	Quantity per Reel
DESD5V0U1BLQ-7B	Automotive	RK	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

X1-DFN1006-2



RK = Product Type Marking Code  
Line Denotes Cathode Side

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

Characteristic	Symbol	Value	Unit	Conditions
Peak Pulse Current	$I_{PP}$	3.0	A	8/20 $\mu\text{s}$ , per Figure 3
ESD Protection – Contact Discharge	$V_{ESD\_Contact}$	$\pm 10$	kV	IEC 61000-4-2 Standard

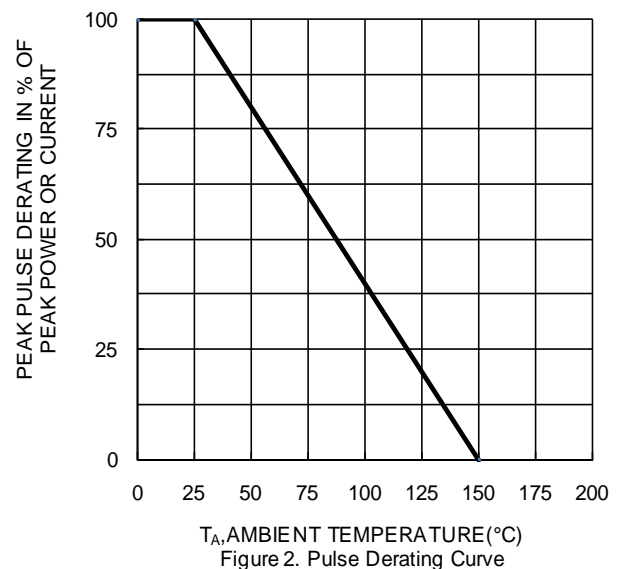
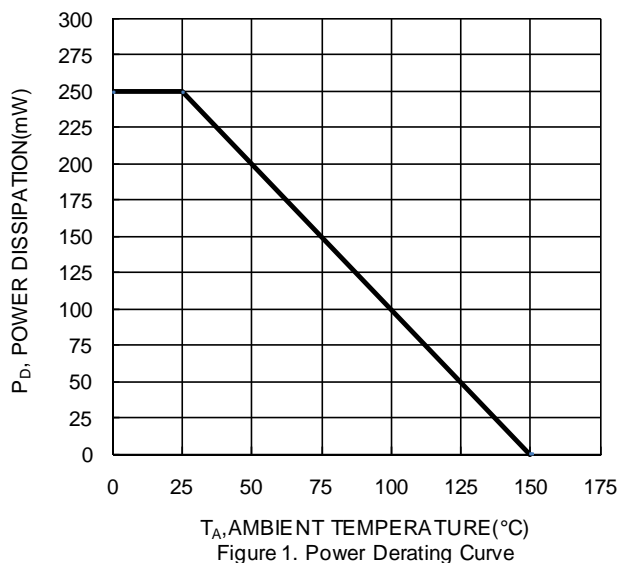
**Thermal Characteristics**

Characteristic	Symbol	Value	Unit
Package Power Dissipation (Note 5)	$P_D$	250	mW
Thermal Resistance, Junction to Ambient (Note 5)	$R_{\theta JA}$	522	$^\circ\text{C/W}$
Operating and Storage Temperature Range	$T_J, T_{STG}$	-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	$V_{RWM}$	—	—	5	V	—
Channel Leakage Current (Note 6)	$I_{RM}$	—	5	100	nA	$V_{RWM} = 5\text{V}$
Clamping Voltage	$V_{CL}$	—	7.2	—	V	$I_{PP} = 3.0\text{ A}, t_p = 8/20\mu\text{s}$
Breakdown Voltage	$V_{BR}$	5.5	7	9.5	V	$I_R = 5\text{mA}$
Differential Resistance	$R_{DIF}$	—	—	100	$\Omega$	$I_R = 1\text{mA}$
Channel Input Capacitance	$C_T$	—	2.9	—	pF	$V_R = 0\text{V}, f = 1\text{MHz}$
		—	1.9	—		$V_R = 5\text{V}, f = 1\text{MHz}$

- Notes:
- Device mounted on FR-4 PCB pad layout (2oz copper) as shown on Diodes, Inc. suggested pad layout AP02001, which can be found on our website at <http://www.diodes.com>.
  - Short duration pulse test used to minimize self-heating effect.



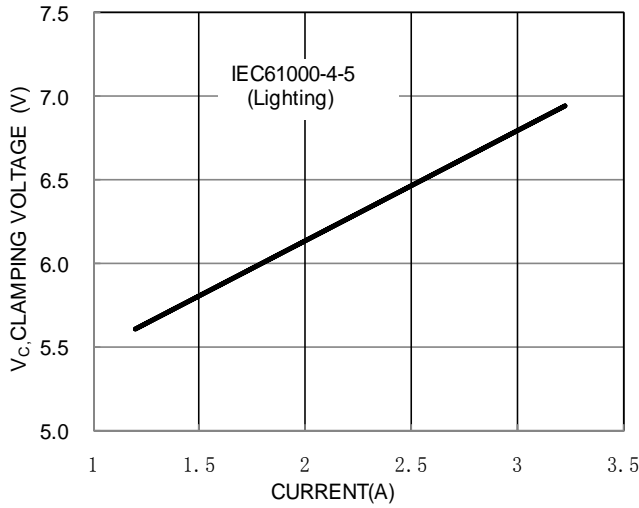


Figure 3. Clamping Voltage Characteristic

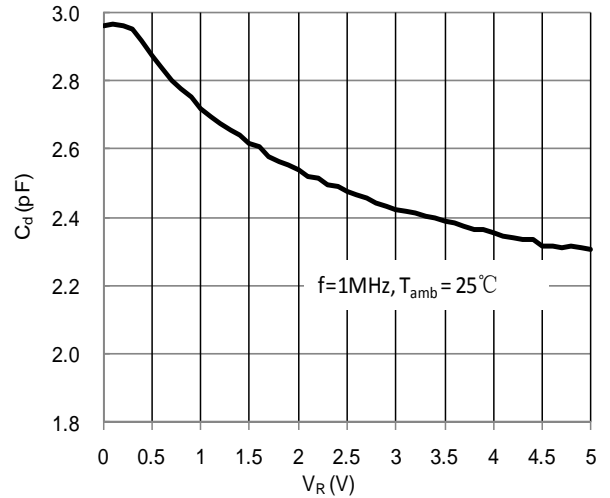


Figure 4. Input Capacitance vs. Input Voltage

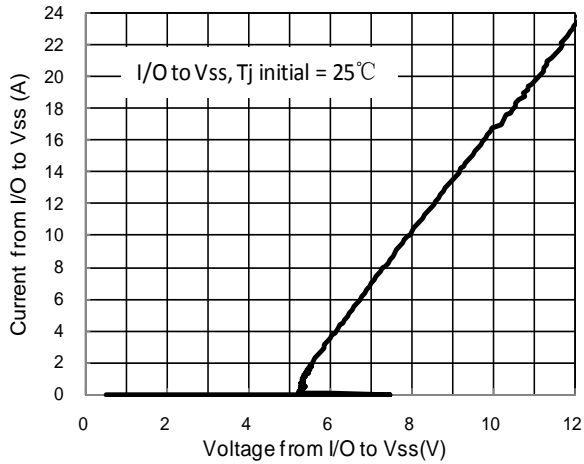


Figure 5. Current vs. Voltage

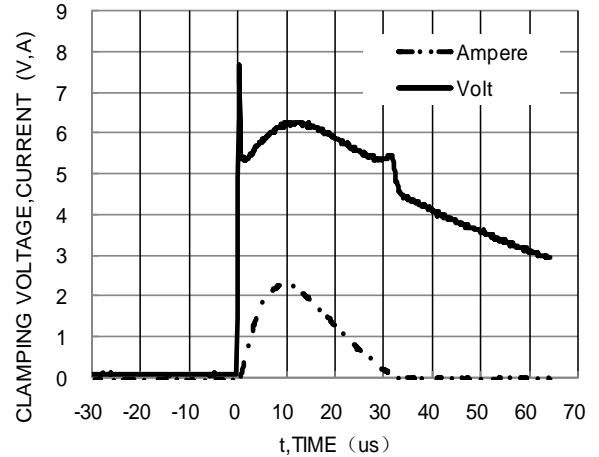


Figure 6. Waveform of Clamping Voltage, Current vs. Time(8/20us, I/O to Vss)

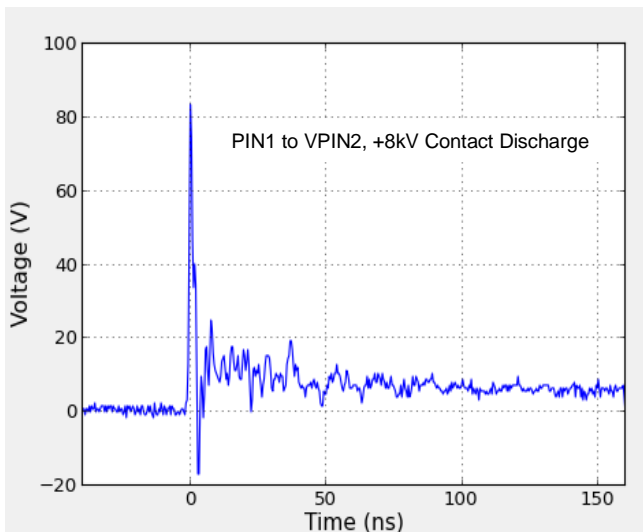


Figure 7 ESD response to IEC 61000-4-2

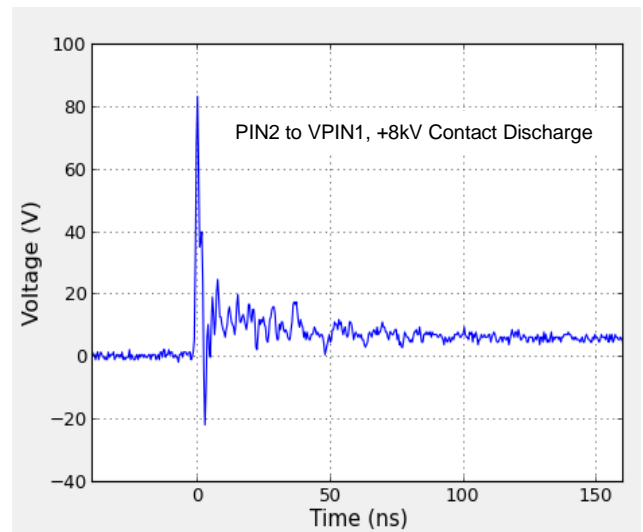
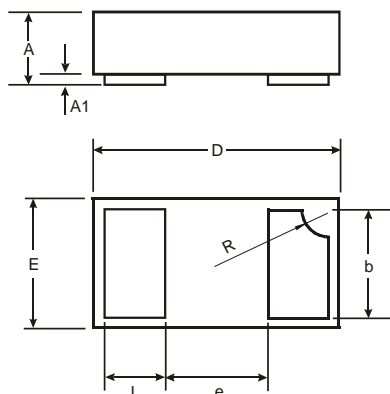


Figure 8 ESD response to IEC 61000-4-2

## Package Outline Dimensions

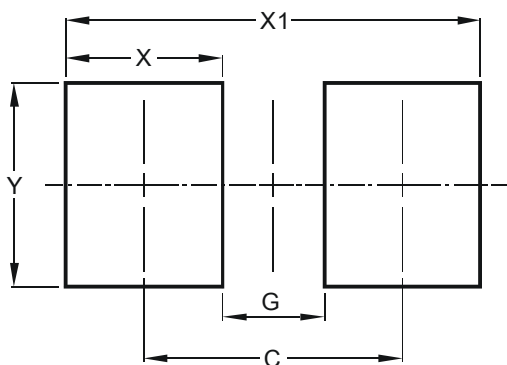
Please see <http://www.diodes.com/package-outlines.html> for the latest version.



X1-DFN1006-2			
Dim	Min	Max	Typ
A	0.47	0.53	0.50
A1	0	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	-	-	0.40
L	0.20	0.30	0.25
R	0.05	0.15	0.10
All Dimensions in mm			

## Suggested Pad Layout

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



Dimensions	Value (in mm)
C	0.70
G	0.30
X	0.40
X1	1.10
Y	0.70

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