

**1 CHANNEL LOW CAPACITANCE TVS DIODE ARRAY**
**Features**

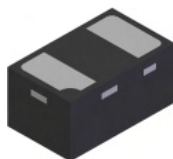
- IEC 61000-4-2 (ESD): Air  $\pm 15\text{kV}$ , Contact  $\pm 8\text{kV}$
- 1 Channel of ESD Protection
- Low Channel Input Capacitance of 0.85pF Typical
- Low Profile Package (0.53mm max) and Ultra-small PCB Footprint Area (1.08 \* 0.68mm max) Suitable for Compact Portable Electronics
- Typically Used at High Speed Ports such as USB 2.0, IEEE1394, Serial ATA, DVI, HDMI, PCI
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**

**Mechanical Data**

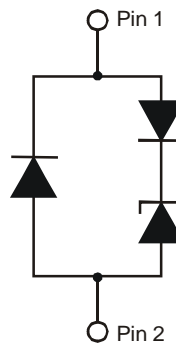
- Case: X1-DFN1006-2
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: NiPdAu over Copper leadframe. Solderable per MIL-STD-202, Method 208 **e4**
- Weight: 0.001 grams (Approximate)

NEW PRODUCT

X1-DFN1006-2



Bottom View



Device Schematic

**Ordering Information** (Note 4)

Part Number	Case	Packaging
D1213A-01LP-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) compliant.
  2. See <http://www.diodes.com> 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 <http://www.diodes.com>.

**Marking Information**


U2 = 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 Current	$I_{PP}$	5	A	8/20 $\mu\text{s}$ , Per Fig. 2
ESD Protection – Contact Discharge	$V_{ESD\_Contact}$	$\pm 8$	kV	Standard IEC 61000-4-2
ESD Protection – Air Discharge	$V_{ESD\_Air}$	$\pm 15$	kV	Standard IEC 61000-4-2

**Thermal Characteristics**

Characteristic	Symbol	Value	Unit
Package Power Dissipation (Note 5)	$P_D$	250	mW
Thermal Resistance, Junction to Ambient (Note 5)	$R_{\theta JA}$	500	$^\circ\text{C/W}$
Operating Temperature Range	$T_J$	-55 to +125	$^\circ\text{C}$
Storage Temperature Range	$T_{STG}$	-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 working voltage	$V_{RWM}$	-	-	3.3	V	-
Reverse current (Note 6)	$I_R$	-	0.1	1.0	$\mu\text{A}$	$V_R = V_{RWM} = 3.3\text{V}$
Reverse breakdown voltage	$V_{BR}$	6.0	-	-	V	$I_R = 1\text{mA}$
Forward voltage	$V_F$	0.6	0.8	0.95	V	$I_F = 8\text{mA}$
Reverse clamping voltage, Positive Transients	$V_{CL1}$	-	10.0	-	V	$I_{PP} = 1\text{A}$ , $t_p = 8/20\mu\text{s}$
Reverse clamping voltage, Negative Transients	$V_{CL2}$	-	-1.7	-	V	$I_{PP} = -1\text{A}$ , $t_p = 8/20\mu\text{s}$
Dynamic resistance	$R_{DYN}$	-	0.9	-	$\Omega$	$I_R = 1\text{A}$ , $t_p = 8/20\mu\text{s}$
Capacitance	$C_T$	-	0.85	1.2	pF	$V_R = 1.65\text{V}$ , $f = 1\text{MHz}$

- 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.

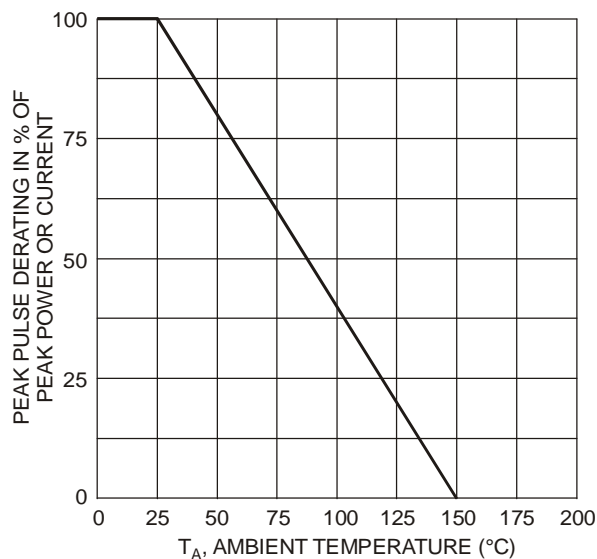


Fig. 1 Pulse Derating Curve

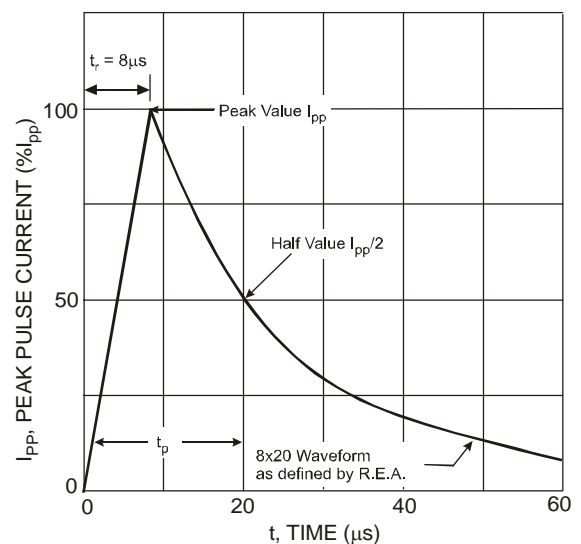
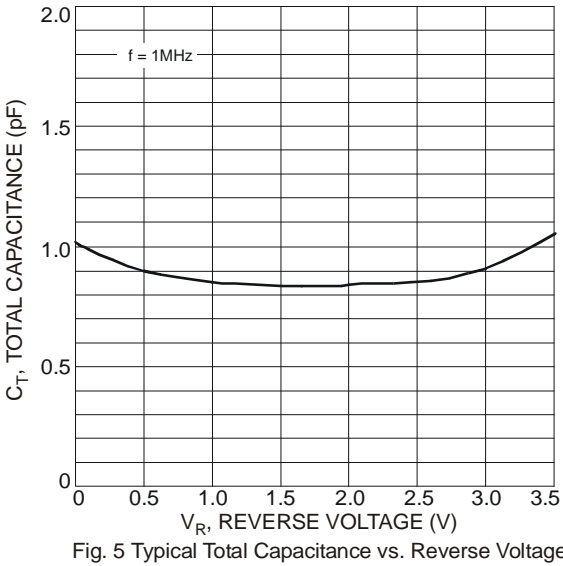
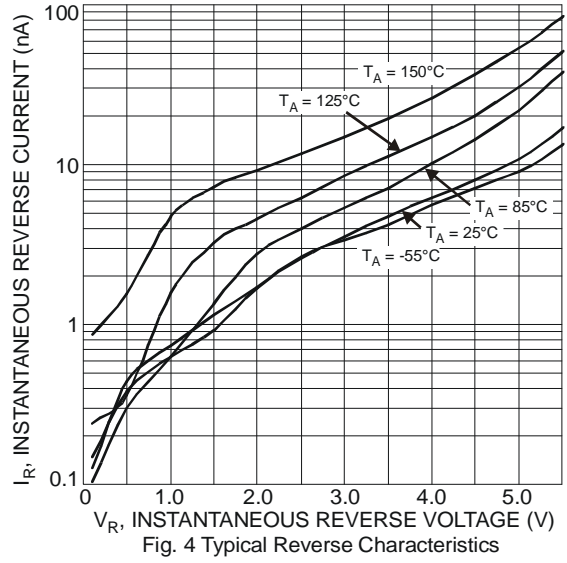
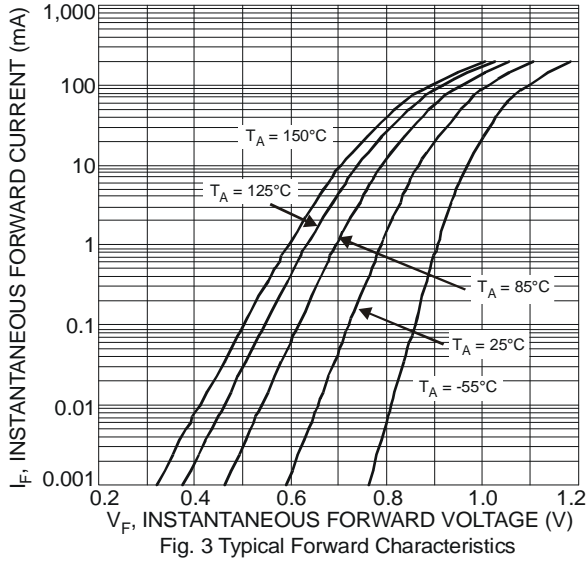
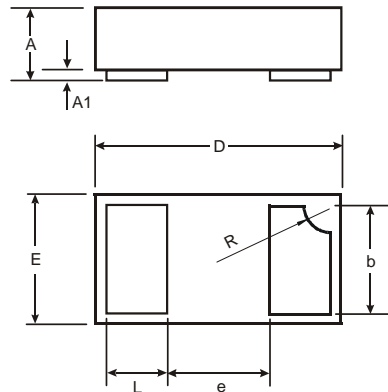


Fig. 2 Pulse Waveform



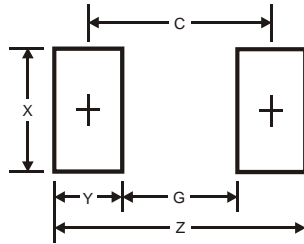
**Package Outline Dimensions**



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**



Dimensions	Value (in mm)
Z	1.1
G	0.3
X	0.7
Y	0.4
C	0.7

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