



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

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**SURFACE MOUNT TRANSIENT VOLTAGE SUPPRESSOR**

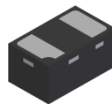
**Features**

- Planar Die Construction
- Ultra-Small Leadless Surface Mount Package
- Unidirectional
- Ideally Suited for Automated Assembly Processes
- **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: Finish — NiPdAu over Copper Leadframe; Solderable per MIL-STD-202, Method 208 **e4**
- Weight: 0.001 grams (Approximate)

X1-DFN1006-2



Bottom View

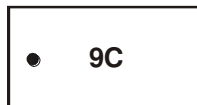
**Ordering Information** (Note 4)

Part Number	Case	Packaging
TPD6V8LP-7	X1-DFN1006-2	3000/Tape & Reel
TPD6V8LP-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/quality/lead\\_free.html](http://www.diodes.com/quality/lead_free.html) 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/products/packages.html>.

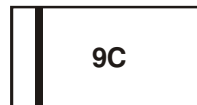
**Marking Information**

TPD6V8LP-7



Top View  
Dot Denotes  
Cathode Side

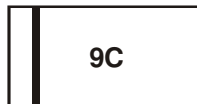
TPD6V8LP-7B



Top View  
Bar Denotes  
Cathode Side

9C = Product Type Marking Code

**OR**



Top View  
Bar Denotes  
Cathode Side

**Maximum Ratings** (@T<sub>A</sub> = +25°C, unless otherwise specified.)

Characteristic	Symbol	Value	Unit
Peak Pulse Power (tp = 8 x 20µs) (Note 5) (See Figure 6)	P <sub>pk</sub>	85	W
Forward Voltage (Note 6) @ I <sub>F</sub> = 10mA	V <sub>F</sub>	0.9	V
Peak Pulse Current (tp = 8 x 20µs) (Note 5) (See Figure 6)	I <sub>pp</sub>	4.5	A
ESD Rating	Human Body Model	8	kV
	Machine Model	400	V
	IEC61000-4-2 Air Discharge	±25	kV
	IEC61000-4-2 Contact Discharge	±8	kV

**Thermal Characteristics**

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 5)	P <sub>D</sub>	250	mW
Thermal Resistance, Junction to Ambient Air (Note 5)	R <sub>θJA</sub>	500	°C/W
Operating and Storage Temperature Range	T <sub>J</sub> , T <sub>STG</sub>	-65 to +150	°C

**Electrical Characteristics** (@T<sub>A</sub> = +25°C, unless otherwise specified.)

Characteristic	Symbol	Value	Unit
Reverse Standoff Voltage	V <sub>RWM</sub>	5	V
Breakdown Voltage @ I <sub>T</sub> = 5mA (Note 6)	V <sub>BR</sub>	Minimum	6.4
		Maximum	7.2
Maximum Reverse Leakage @ V <sub>RWM</sub> (Note 6) @ V <sub>R</sub> (Notes 6 & 7)	I <sub>R</sub>	0.5	µA
		380	nA
Maximum Clamping Voltage @ I <sub>pp</sub> = 4.5A (tp = 8x20µs) (See Figure 6)	V <sub>C</sub>	19	V
Typical Total Capacitance (V <sub>R</sub> = 0V, f = 1MHz)	C <sub>T</sub>	65	pF

- Notes:
- Part mounted on FR-4 PC board with recommended pad layout, as per <http://www.diodes.com>.
  - Short duration pulse test used to minimize self-heating effect.
  - Guaranteed over the temperature range -40°C to +85°C and over the reverse voltage (V<sub>R</sub>) range 2.0V to 2.6V.

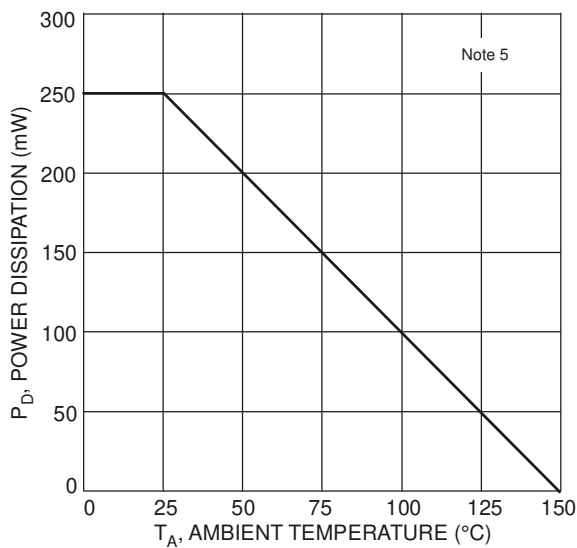


Fig. 1 Power Derating Curve

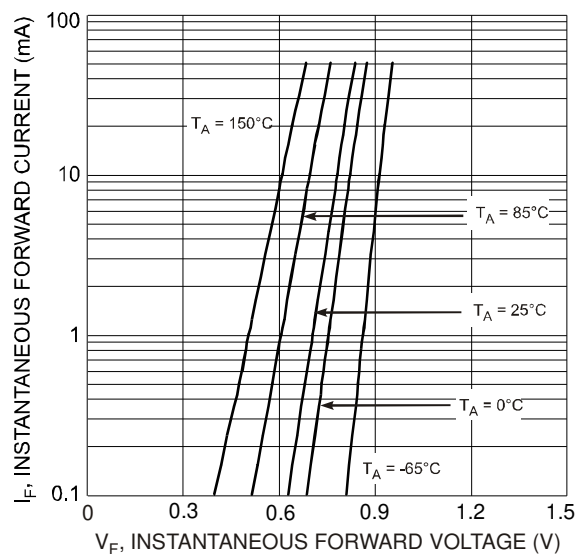


Fig. 2 Typical Forward Characteristics

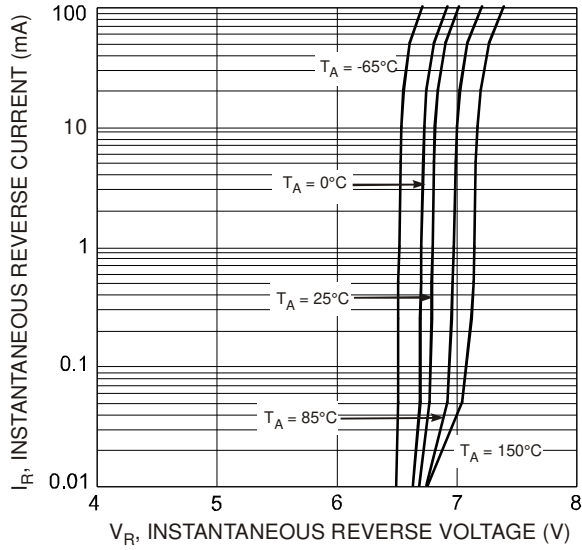


Fig. 3 Typical Breakdown Characteristics

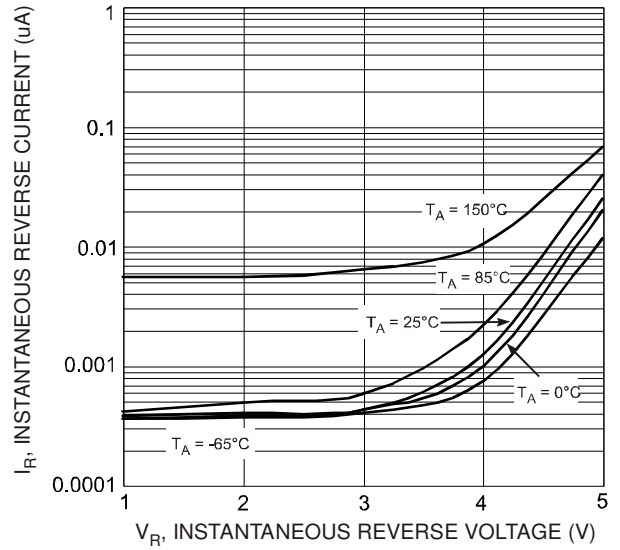


Fig. 4 Typical Low Current Reverse Characteristics

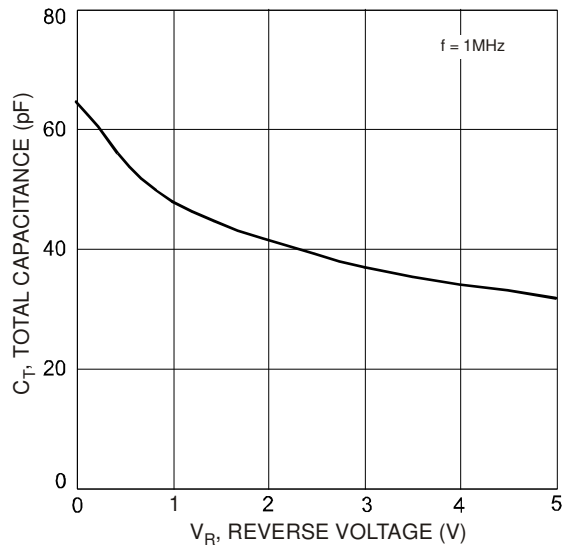


Fig. 5 Typical Total Capacitance vs. Reverse Voltage

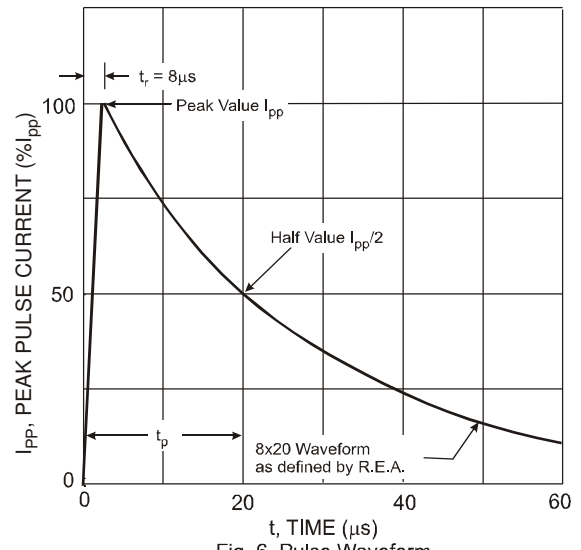
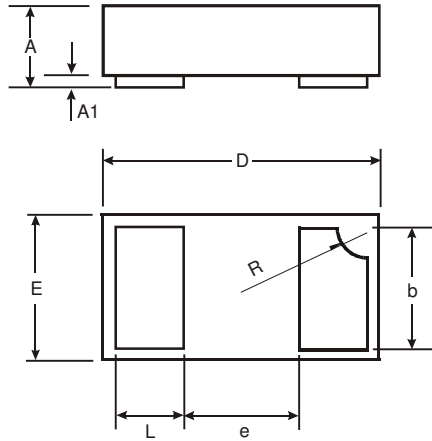


Fig. 6 Pulse Waveform



## Package Outline Dimensions

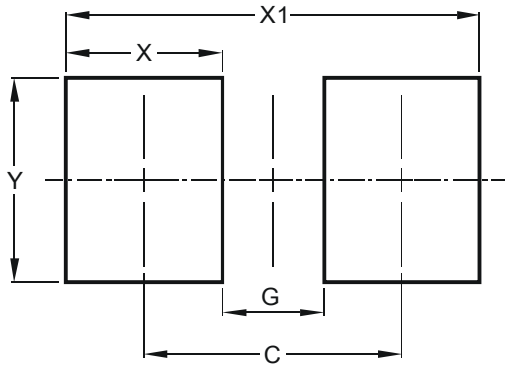
Please see AP02001 at <http://www.diodes.com/datasheets/ap02001.pdf> for the latest version.



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 AP02001 at <http://www.diodes.com/datasheets/ap02001.pdf> 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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