

SURFACE MOUNT TRANSIENT VOLTAGE SUPPRESSOR

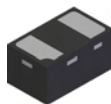
Features

- Planar Die Construction
- Ultra-Small Leadless Surface Mount Package
- Unidirectional
- Ideally Suited for Automated Assembly Processes
- **Lead Free By Design/RoHS Compliant (Note 1)**
- **"Green" Device (Note 2)**
- **Qualified to AEC-Q101 Standards for High Reliability**

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
- Weight: 0.001 grams (approximate)

X1-DFN1006-2



Bottom View

Ordering Information (Note 3)

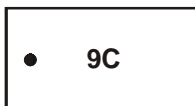
Part Number	Case	Packaging
TPD6V8LP-7	X1-DFN1006-2	3000/Tape & Reel
TPD6V8LP-7B	X1-DFN1006-2	10,000/Tape & Reel

Notes:

1. No purposefully added lead.
2. Diodes Inc.'s "Green" policy can be found on our website at <http://www.diodes.com>.
3. For packaging details, go to our website at <http://www.diodes.com>.

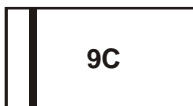
Marking Information

TPD6V8LP-7



Dot Denotes
Cathode Side

TPD6V8LP-7B



Bar Denotes
Cathode Side

9C = Product Type Marking Code

Maximum Ratings @ $T_A = 25^\circ\text{C}$ unless otherwise specified

Characteristic	Symbol	Value	Unit
Peak Pulse Power ($t_p = 8 \times 20\mu\text{s}$) (Note 4) (See figure 6)	P_{pk}	85	W
Forward Voltage (Note 5) @ $I_F = 10\text{mA}$	V_F	0.9	V
Peak Pulse Current ($t_p = 8 \times 20\mu\text{s}$) (Note 4) (See figure 6)	I_{pp}	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 4)	P_D	250	mW
Thermal Resistance, Junction to Ambient Air (Note 4)	$R_{\theta JA}$	500	$^\circ\text{C/W}$
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	Value	Unit
Reverse Standoff Voltage	V_{RWM}	5	V
Breakdown Voltage @ $I_T = 5\text{mA}$ (Note 5)	V_{BR}	6.4	V
		7.2	
Maximum Reverse Leakage @ V_{RWM} (Note 5)	I_R	0.5	μA
Maximum Clamping Voltage @ $I_{pp} = 4.5\text{A}$ ($t_p = 8 \times 20\mu\text{s}$) (See figure 6)	V_C	19	V
Typical Total Capacitance ($V_R = 0\text{V}$, $f = 1\text{MHz}$)	C_T	65	pF

Notes: 4. Part mounted on FR-4 PC board with recommended pad layout, as per <http://www.diodes.com>.
 5. Short duration pulse test used to minimize self-heating effect.

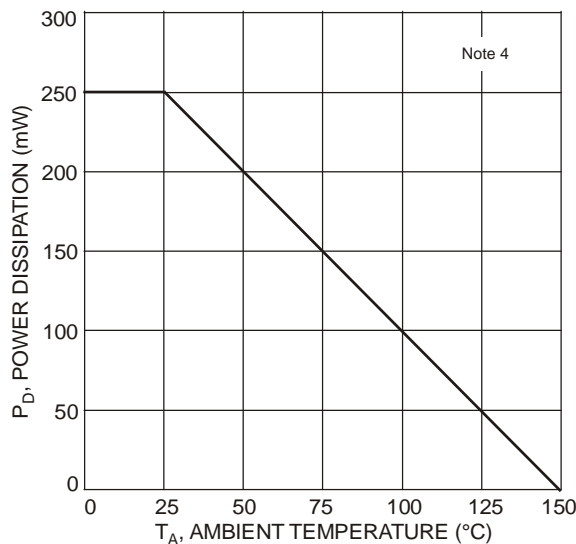


Fig. 1 Power Derating Curve

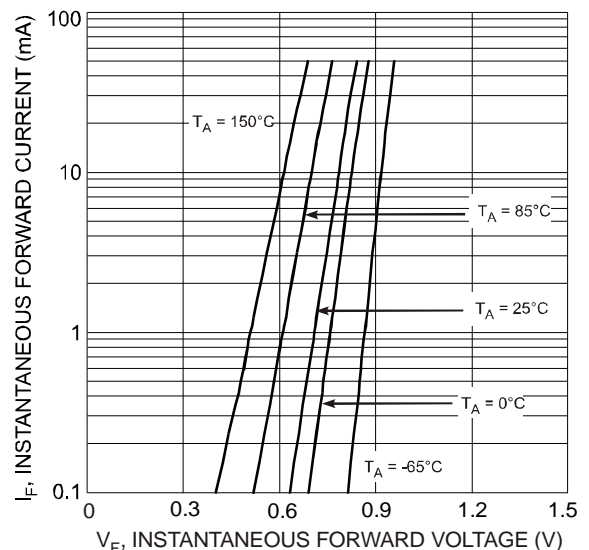


Fig. 2 Typical Forward Characteristics

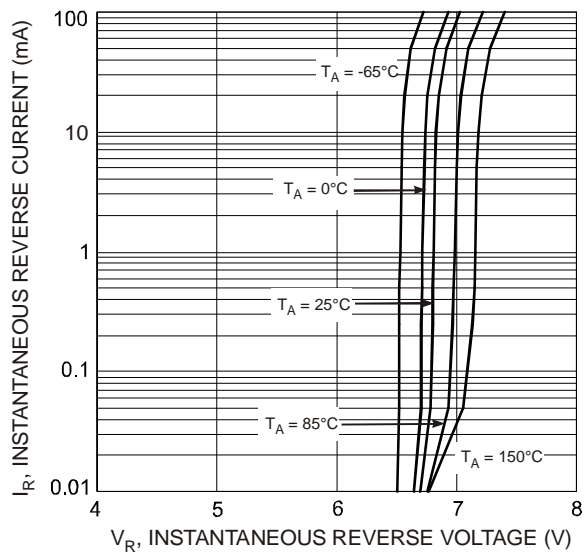


Fig. 3 Typical Breakdown Characteristics

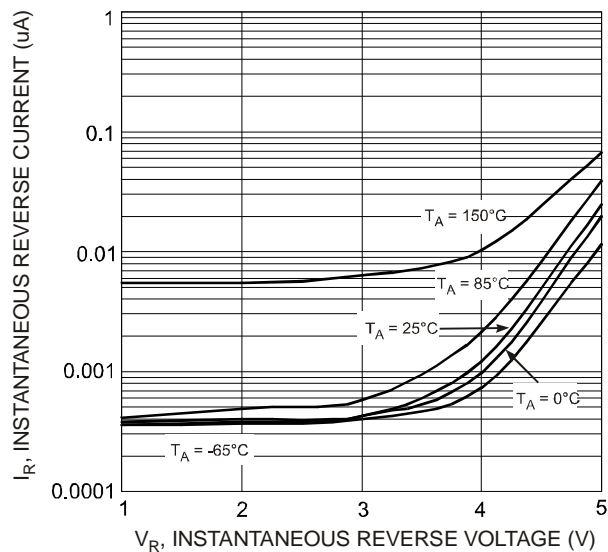


Fig. 4 Typical Low Current Reverse Characteristics

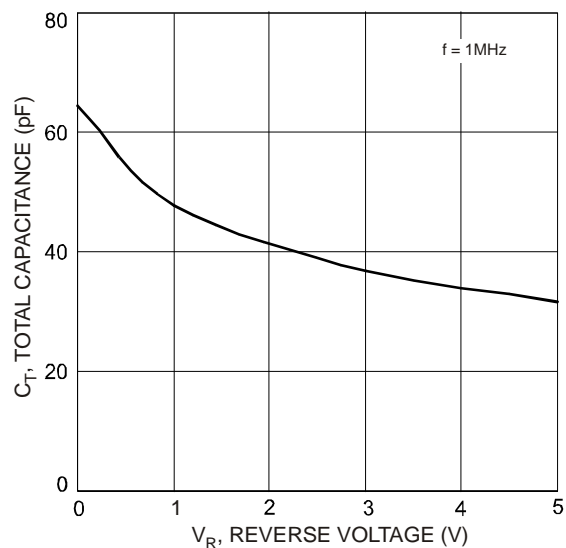


Fig. 5 Typical Total Capacitance vs. Reverse Voltage

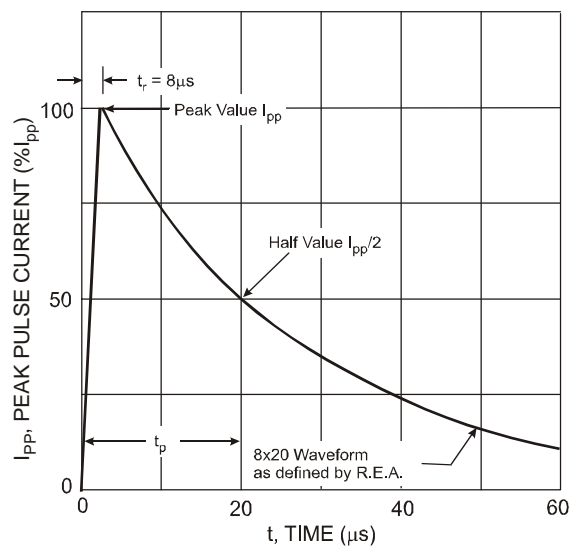
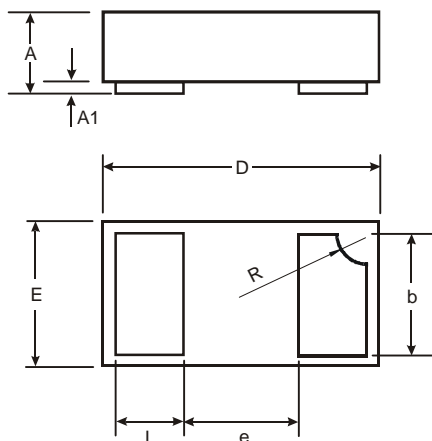


Fig. 6 Pulse Waveform

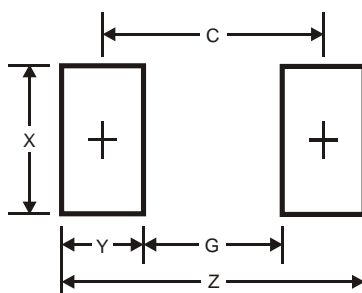
Package Outline Dimensions



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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