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)**
- **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 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: Finish – NiPdAu over Copper Lead-Frame. Solderable per MIL-STD-202, Method 208 e4
- Weight: 0.001 grams (Approximate)

X1-DFN1006-2

Bottom View

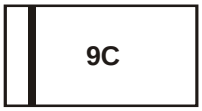
Ordering Information (Note 4)

Part Number	Package	Packing	
		Qty.	Carrier
TPD6V8LPN-7	X1-DFN1006-2	3,000	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

TPD6V8LPN-7



Top View
Bar Denotes
Cathode Side

9C = Product Type Marking Code

Maximum Ratings (@ T_A = +25°C, unless otherwise specified.)

Characteristic		Symbol	Value	Unit
Peak Pulse Power (t_P = 8 x 20µs) (Note 5) (See Figure 6)		P_{PK}	85	W
Forward Voltage (Note 6) @ I_F = 10mA		V_F	0.9	V
Peak Pulse Current (t_P = 8 x 20µs) (Note 5) (See Figure 6)		I_{PP}	4.5	A
ESD Rating	Human Body Model	V_{PP}	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_D	250	mW
Thermal Resistance, Junction to Ambient Air (Note 5)	$R_{\theta JA}$	500	°C/W
Operating and Storage Temperature Range	T_J, T_{STG}	-55 to +150	°C

Electrical Characteristics (@ T_A = +25°C, unless otherwise specified.)

Characteristic		Symbol	Value	Unit
Reverse Standoff Voltage		V_{RWM}	5	V
Breakdown Voltage @ I_T = 5mA (Note 6)	Minimum	V_{BR}	6.4	V
	Maximum		7.2	
Maximum Reverse Leakage @ V_{RWM} (Note 6)		I_R	0.5	µA
@ V_R (Note 6 & 7)			380	nA
Maximum Clamping Voltage @ I_{PP} = 4.5A (t_P = 8x20µs) (See Figure 6)		V_C	19	V
Typical Total Capacitance (V_R = 0V, f = 1MHz)		C_T	65	pF

Notes: 5. Part mounted on FR-4 substrate, 2 oz Cu pad board with recommended pad layout, as per http://www.diodes.com/package-outlines.html.
6. Short duration pulse test used to minimize self-heating effect.
7. Guaranteed over the temperature range -40°C to +85°C and over the reverse voltage (V_R) range 2.0V to 2.6V.

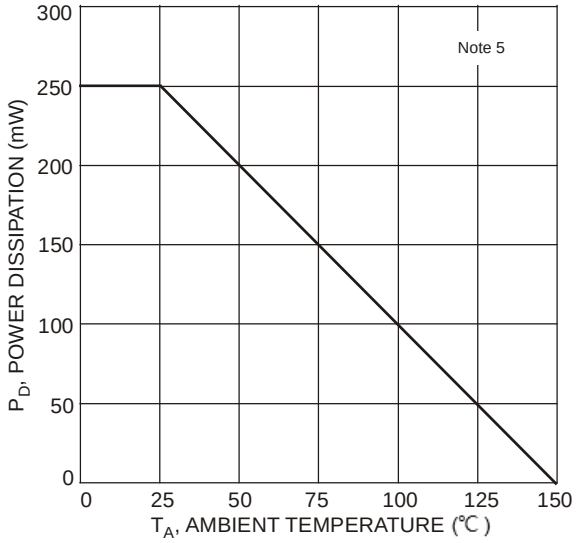


Fig. 1 Power Derating Curve

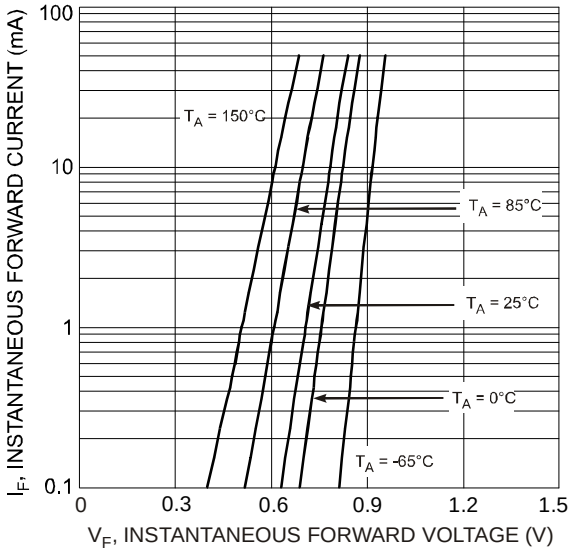


Fig. 2 Typical Forward Characteristics

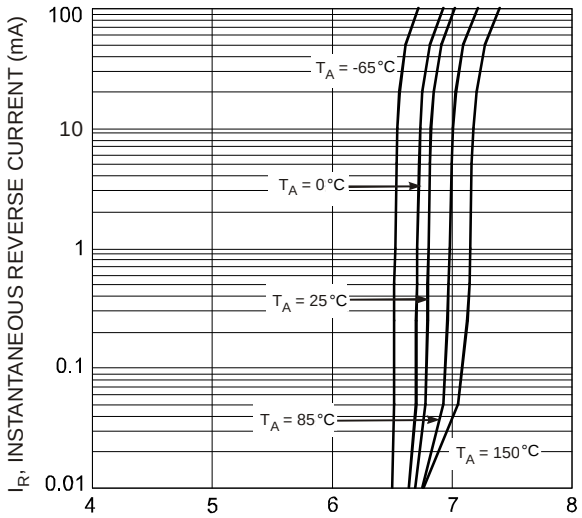


Fig. 3 Typical Breakdown Characteristics

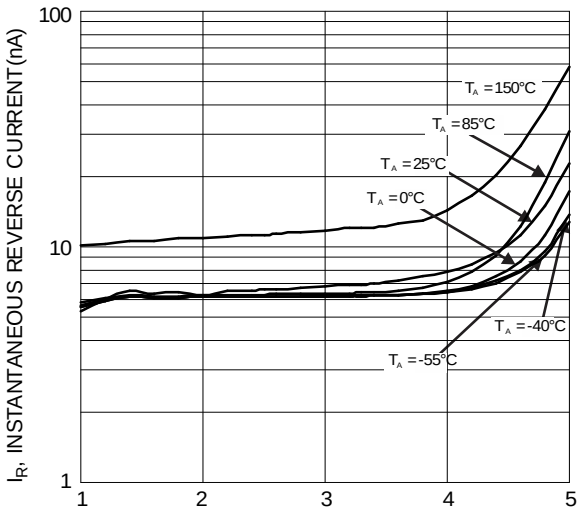


Fig.4 Typical Low Current Reverse Characteristics

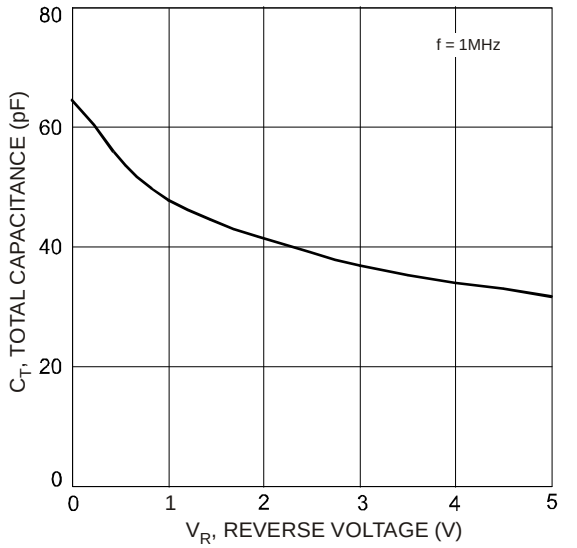


Fig. 5 Typical Total Capacitance vs. Reverse Voltage

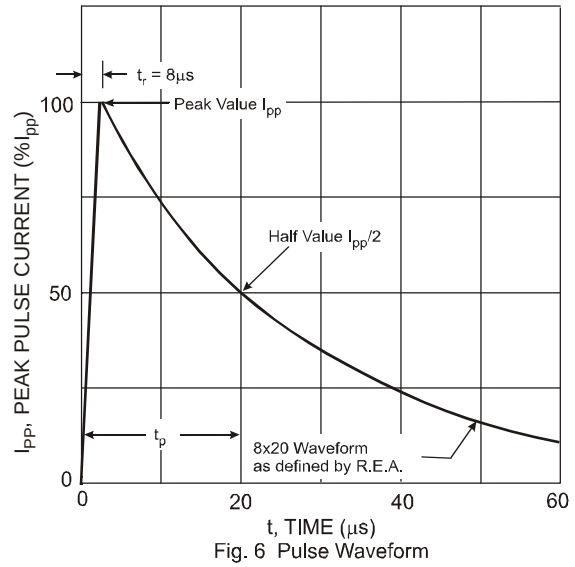
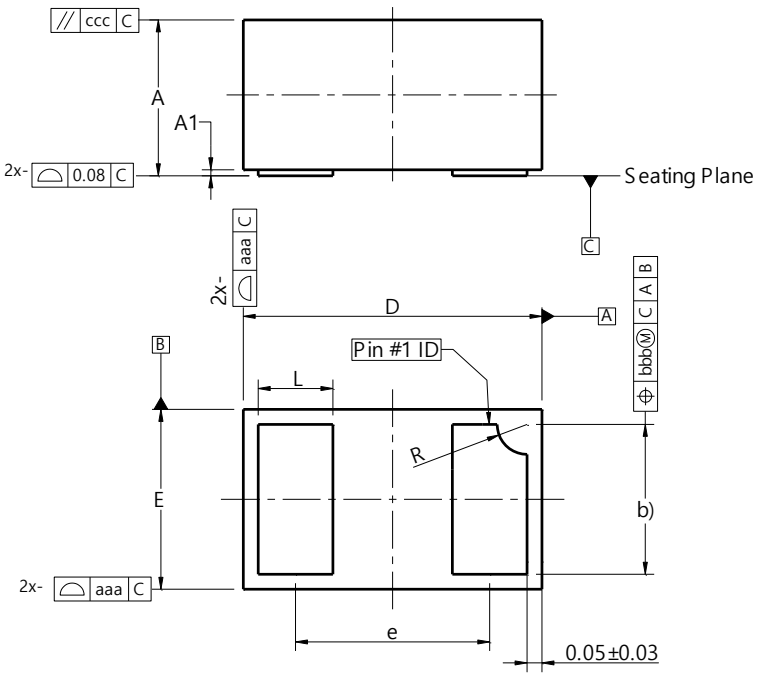


Fig. 6 Pulse Waveform

Package Outline Dimensions

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

X1-DFN1006-2

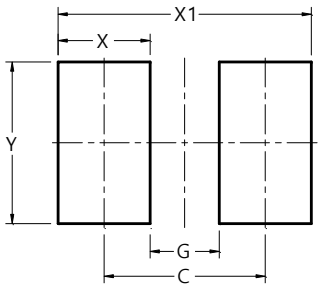


X1-DFN1006-2			
Dim	**Min**	**Max**	**Typ**
A	0.47	0.53	0.50
A1	0.00	0.05	0.03
b	0.45	0.55	0.50
D	0.95	1.075	1.00
E	0.55	0.675	0.60
e	--	--	0.65
L	0.20	0.30	0.25
R	0.05	0.15	0.10
aaa	0.15		
bbb	0.05		
ccc	0.05		
All Dimensions in mm			

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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