

85W 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: DFN1006-2
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020D
- Terminal Connections: Cathode Dot
- Terminals: Finish — NiPdAu over Copper leadframe. Solderable per MIL-STD-202, Method 208
- Marking Information: See Page 3
- Ordering Information: See Page 3
- Weight: 0.001 grams (approximate)



Bottom View

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 3) @ $I_F = 10\text{mA}$		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	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 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 3)	Minimum	V_{BR}	6.4	V
	Maximum		7.2	
Maximum Reverse Leakage @ V_{RWM} (Note 3)		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:
1. No purposefully added lead.
 2. Diodes Inc.'s "Green" policy can be found on our website at http://www.diodes.com/products/lead_free/index.php.
 3. Short duration pulse test used to minimize self-heating effect.
 4. Part mounted on FR-4 PC board with recommended pad layout, as per <http://www.diodes.com/datasheets/ap02001.pdf>.

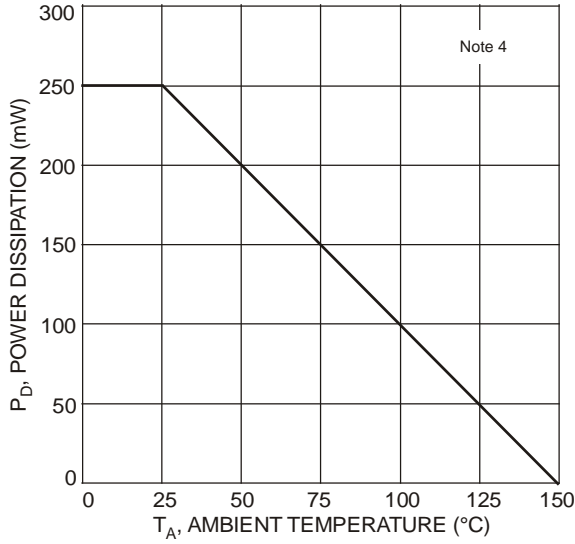


Fig. 1 Power Derating Curve

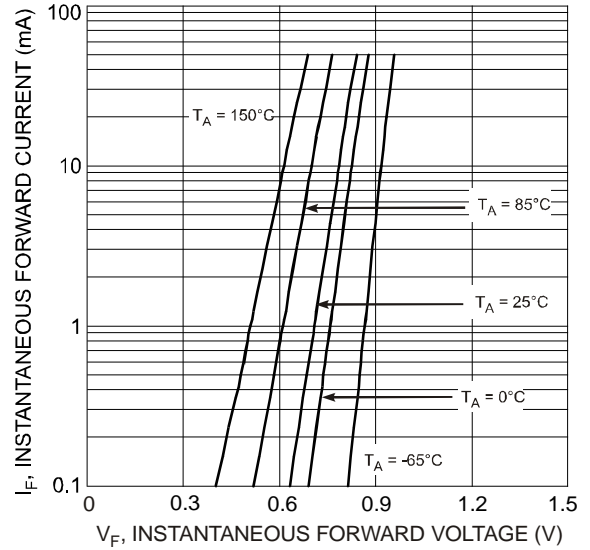


Fig. 2 Typical Forward Characteristics

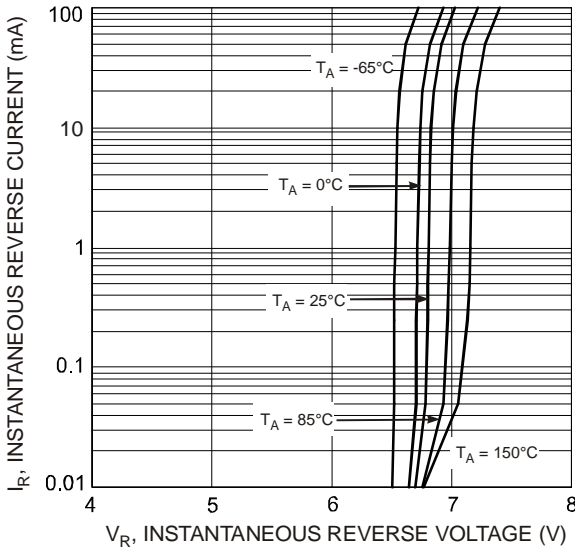


Fig. 3 Typical Breakdown Characteristics

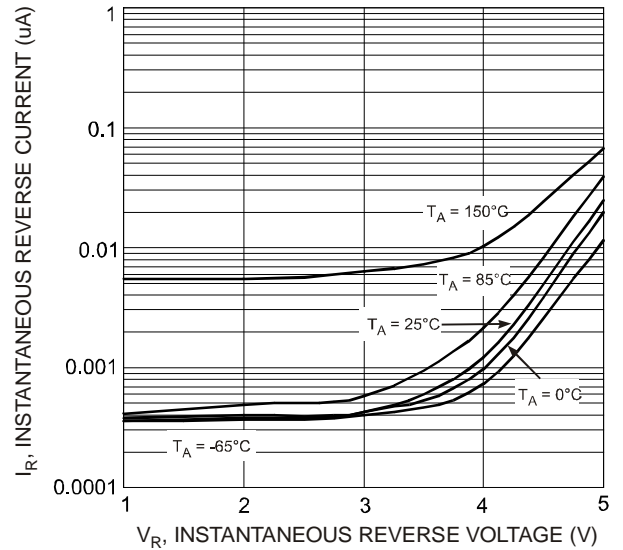


Fig. 4 Typical Low Current Reverse Characteristics

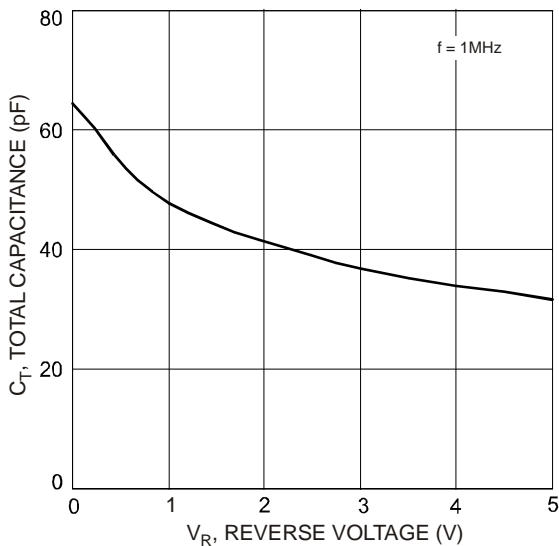


Fig. 5 Typical Total Capacitance vs. Reverse Voltage

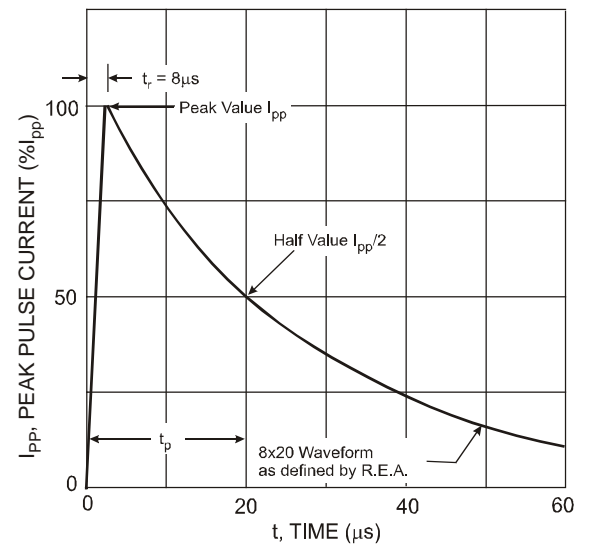


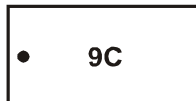
Fig. 6 Pulse Waveform

Ordering Information (Note 5)

Part Number	Case	Packaging
TPD6V8LP-7	DFN1006-2	3000/Tape & Reel

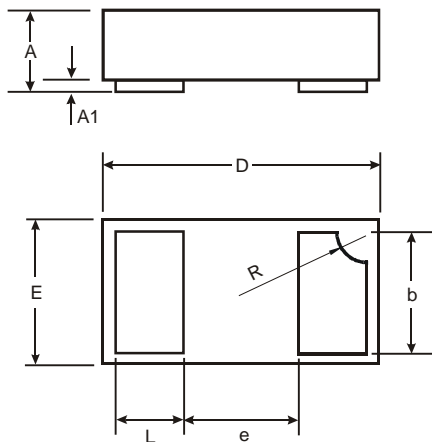
Notes: 5. For packaging details, go to our website at <http://www.diodes.com/datasheets/ap02007.pdf>.

Marking Information



9C = Product Type Marking Code,
Dot Denotes Cathode Side

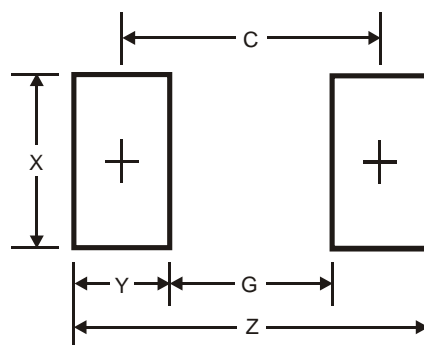
Package Outline Dimensions



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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