

DIGITRON SEMICONDUCTORS

1N5907-1N5908

1500W TRANSIENT VOLTAGE SUPPRESSORS
UNIDIRECTIONAL

MAXIMUM RATINGS

	1N5907	1N5908
1500W for 10/1000 μ s @ lead temperature $T_L = 25^\circ\text{C}$ with repetition rate of 0.01% or less		
Operating and storage temperature	-65 to +175 $^\circ$	-65 to +150 $^\circ\text{C}$
Thermal resistance (junction to lead) @ 0.375" from body	50 $^\circ\text{C}/\text{W}$	22 $^\circ\text{C}/\text{W}$
Thermal resistance (junction to ambient) when mounted on FR4 PC board with 4mm ² copper pads and track width 1mm, length 25mm	110 $^\circ\text{C}/\text{W}$	82 $^\circ\text{C}/\text{W}$
DC power dissipation	1 watt @ $T_L = \leq 125^\circ\text{C}$ 3/8" from body, or 1 watt @ $T_A \leq 65^\circ\text{C}$ when mounted on FR4 PC board with 4 mm ² copper pads and track width 1mm, length 25mm	5 watts @ $T_L = \leq 40^\circ\text{C}$ 3/8" from body, or 1.52 watts @ $T_A \leq 25^\circ\text{C}$ when mounted on FR4 PC board with 4 mm ² copper pads and track width 1mm, length 25mm
Forward surge current	200A for 8.3ms half-sine wave @ $T_A = 25^\circ\text{C}$	
Solder temperatures	260 $^\circ\text{C}$ for 10 s(maximum)	

ELECTRICAL CHARACTERISTICS @ 25 $^\circ\text{C}$

Part Number	Reverse stand-off voltage V_{WM} (1)	Minimum breakdown voltage $V_{(BR)}$ @ 1 mA	Maximum standby current I_D @ V_{WM}	Maximum clamping voltage V_C @ I_{PP1}	Peak pulse current I_{PP1}	Maximum clamping voltage V_C @ I_{PP2}	Peak pulse current I_{PP2}	Maximum clamping voltage V_C @ I_{PP3}	Peak pulse current I_{PP3}
	V	V	μA	V	A	V	A	V	A
1N5907	5.0	6.0	300	7.6	30	8.0	60	8.5	120
1N5908	5.0	6.0	300	7.6	30	8.0	60	8.5	120

1) A TVS is normally selected according to the reverse standoff voltage V_{WM} which should be equal to or greater than the dc or continuous peak operating voltage level

SYMBOLS AND DEFINITIONS

Symbol	Definition
V_{WM}	Standoff voltage: Applied reverse voltage to assure a nonconductive condition
$V_{(BR)}$	Breakdown voltage: The breakdown voltage of the device will exhibit at 25 $^\circ\text{C}$
V_C	Maximum clamping voltage: The maximum peak voltage appearing across the TVS when subjected to the peak pulse current in a one millisecond time interval. The peak pulse voltage is the combination of voltage rise due to both the series resistance and thermal rise and positive temperature coefficient
I_{PP}	Peak pulse current: The peak current during the impulse
P_{PP}	Peak pulse power: The pulse power as determined by the product of V_C & I_{PP}
I_D	Standby current: The current at the standoff voltage (V_{WM})
$I_{(BR)}$	Breakdown current: The current used for measuring breakdown voltage ($V_{(BR)}$)

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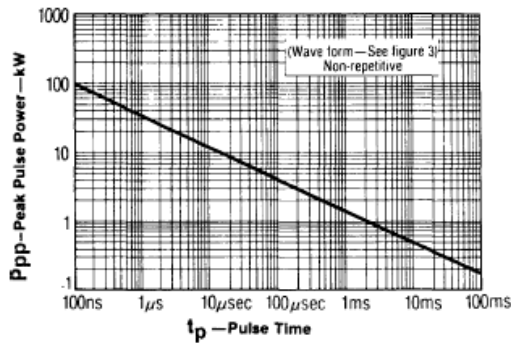


FIGURE 1
PEAK PULSE POWER VS. PULSE TIME

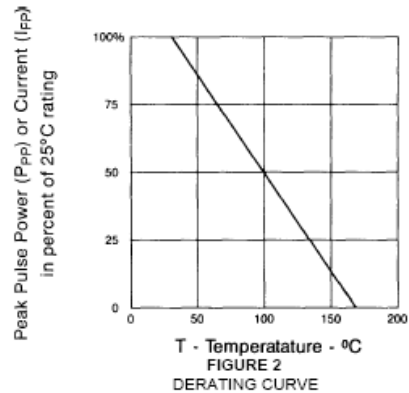


FIGURE 2
DERATING CURVE

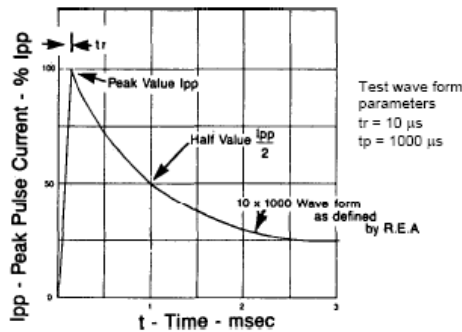


FIGURE 3
PULSE WAVEFORM

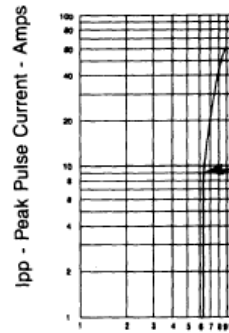
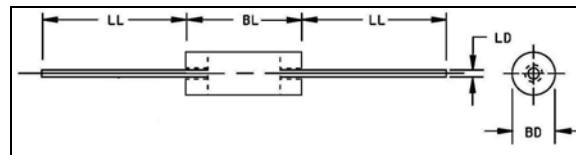


FIGURE 4
TYPICAL CLAMPING VOLTAGE (Vc) VS. PEAK PULSE CURRENT (Ipp)

MECHANICAL CHARACTERISTICS

	1N5907	1N5908
Case	DO-13 hermetically sealed metal and glass	Case 1 void free transfer molded thermosetting epoxy
Marking	Body painted, alpha-numeric	Body painted, alpha-numeric
Polarity	Cathode band	Cathode band



	Dimensions			
	DO-13 (1N5907)			
	Inches		Millimeters	
	Min	Max	Min	Max
BD	-	0.235	-	5.970
BL	0.315	0.350	8.001	8.890
LD	0.026	0.035	0.660	0.889
LL	1.250	-	31.750	-

	Dimensions			
	Case 1 (1N5908)			
	Inches		Millimeters	
	Min	Max	Min	Max
BD	0.005	0.010	0.127	0.254
BL	0.005	0.010	0.127	0.254
LD	0.002	0.040	0.058	1.016
LL	1.100	-	27.900	-