DIGITRON™ Semiconductors

High-reliability discrete products
and engineering services since 1977

1N5907-1N5908

1500 WATT TRANSIENT VOLTAGE SUPPRESSOR

FEATURES

- Available as "HR" (high reliability) screened per MIL-PRF-19500, JANTX level. Add "HR" suffix to base part number.
- Available as non-RoHS (Sn/Pb plating), standard, and as RoHS by adding "-PBF" suffix.

MAXIMUM RATINGS

Ratings	1N5907	1N5908
1500W for 10/1000µs @ lead temperature T_L = 25°C with repetition rate of 0.01% or less		
Operating and storage temperature	-65 to +175°	-65 to +150°C
Thermal resistance (junction to lead) @ 0.375" from body	50°C/W	22°C/W
Thermal resistance (junction to ambient) when mounted on FR4 PC board with 4mm² copper pads and track width 1mm, length 25mm	110°C/W	82°C/W
DC power dissipation	1 watt @ T_L = ≤ 125°C 3/8" from body, or 1 watt @ T_A ≤ 65°C when mounted on FR4 PC board with 4 mm² copper pads and track width 1mm, length 25mm	5 watts @ T_L = ≤ 40°C 3/8" from body, or 1.52 watts @ T_A ≤ 25°C when mounted on FR4 PC board with 4 mm² copper pads and track width 1mm, length 25mm
Forward surge current	200A for 8.3ms half-sine wave @ T_A = 25°C	
Solder temperatures	260°C for 10 s(maximum)	

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise specified)

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

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°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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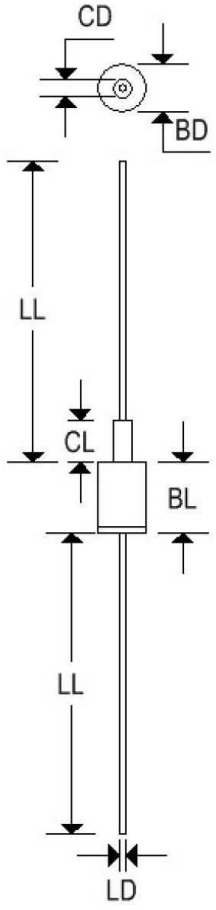
MECHANICAL CHARACTERISTICS

Case	DO-13 (1N5907)
Marking	Body painted, alpha-numeric
Polarity	Cathode band



	DO-13			
	Inches		Millimeters	
	Min	Max	Min	Max
BD	-	0.235	-	5.970
BL	0.315	0.350	8.001	8.890
LD	0.027	0.035	0.686	0.762
LL	1.250	-	31.750	-
CD	-	0.100	-	2.540
CL	-	0.210	-	5.334

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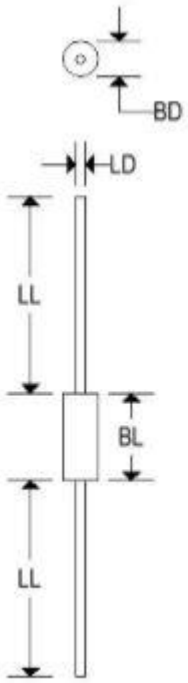
MECHANICAL CHARACTERISTICS

Case	DO-201 (1N5908)
Marking	Body painted, alpha-numeric
Polarity	Cathode band



	DO-201			
	Inches		Millimeters	
	Min	Max	Min	Max
BD	0.190	0.250	4.826	6.350
BL	0.285	0.375	7.239	9.525
LD	0.038	0.042	0.965	1.067
LL	1.000	-	25.400	-

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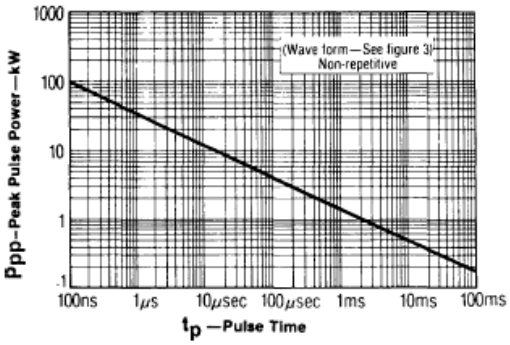

FIGURE 1
PEAK PULSE POWER VS. PULSE TIME

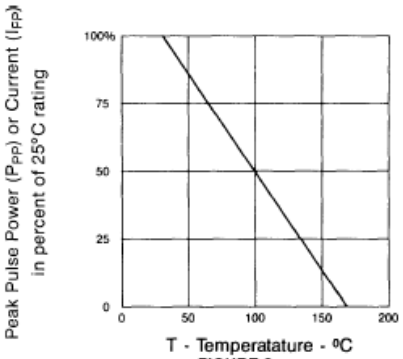

FIGURE 2
DERATING CURVE

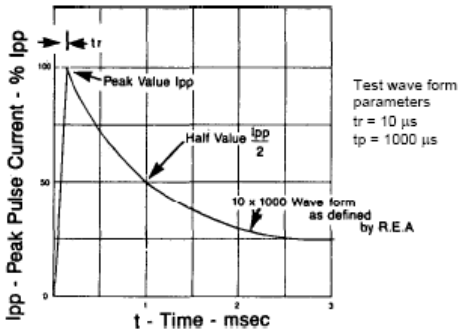

FIGURE 3
PULSE WAVEFORM

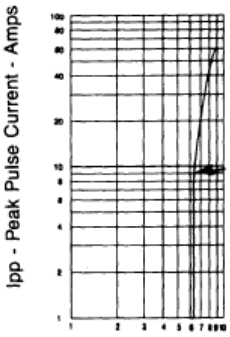

FIGURE 4 TYPICAL CLAMPING VOLTAGE (V_C)
VS. PEAK PULSE CURRENT (I_{PP})