american
power devices, inc.

1N6082B-1N6091B

Standard tolerances are 5%
20%, 10%, 2% and 1% are available

400 mW low voltage avalanche low noise silicon zener diodes

FEATURES

- Controlled avalanche
- Voltages fropm 4.3 to 10 V
- Low reverse leakage
- Low noise
- Hermetically sealed glass package
- APD can select any voltage in tolerances 1%, 2%, 5% and 10% at your application's test current.

MAXIMUM RATINGS

- Junction Temperature -65°C to + 175°C
- Storage Temperature -65°C to + 200°C
- DC Power Dissipation: 400mW @ T_L = 50°C
- Derate above 50°C: 2.67mW/°C

ELECTRICAL CHARACTERISTICS @ 25°C

Type (1)	Nominal Zener Voltage @ I_{ZT}	Maximum Impedance (2)		Maximum Reverse Leakage		Maximum Noise Density @ 250 µA (3)	Maximum Regulation	
		Z_{ZT}	I_{ZT}	I_R @ V_R			ΔV_Z	I_{ZT}
	Vdc	Ω	mA	µA	Vdc	µV√Hz	Vdc	mA
1N6082B	4.3	18	20	2.0	1.5	1	0.75	2.0
1N6083B	4.7	10	10	2.0	2.0	1	0.50	1.0
1N6084B	5.1	10	5	2.0	3.0	1	0.30	0.25
1N6085B	5.6	40	1	2.0	4.5	1	0.10	0.05
1N6086B	6.2	45	1	0.5	5.6	1	0.10	0.01
1N6087B	6.8	50	1	0.05	6.2	1	0.10	0.01
1N6088B	7.5	50	1	0.01	6.8	1	0.10	0.01
1N6089B	8.2	60	1	0.01	7.5	1	0.10	0.01
1N6090B	9.1	60	1	0.01	8.2	2	0.10	0.01
1N6091B	10.0	60	1	0.01	9.1	2	0.10	0.01

Note 1 The JEDEC type numbers shown with a B suffix have a ±5% tolerance. No suffix indicates a ±20% tolerance. Suffix A denotes a ±10% tolerance, suffix C denotes a ±2% tolerance and suffix D denotes ±1% tolerance.

Note 2 The zener impedance is derived from the 60 Hz ac voltage, which results when an ac current having an rms value equal to 10% of the DC zener current (I_{ZT}) is superimposed on I_{ZT}.

Note 3 Measured from 1 KHz to 3 KHz in noise density measurement circuit shown on the following page.

MECHANICAL CHARACTERISTICS

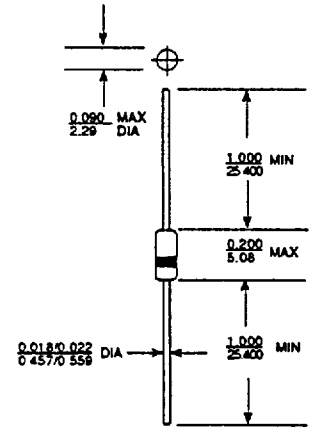

FIGURE 1 all dimensions in INCH mm

CASE: Hermetically sealed glass package (DO-35)
FINISH: Corrosion resistant. Leads are tin plated.
THERMAL RESISTANCE: 200°C/W junction to lead at 0.375-inches from body.
POLARITY: Cathode banded.
WEIGHT: 0.2 grams (typ).

This series also available in DO-7 package. Consult factory for availability.

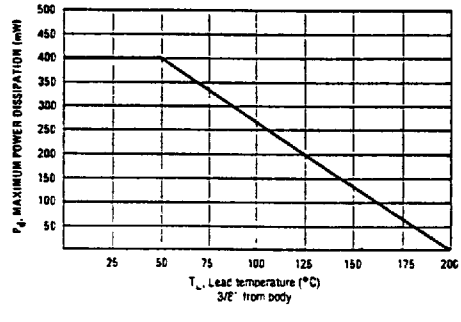

Figure 2 POWER DERATING

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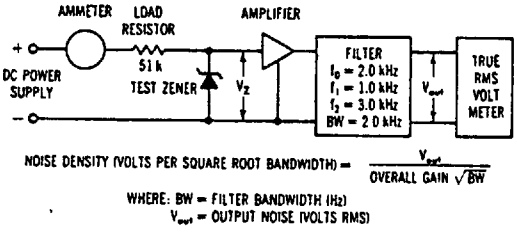

Figure 3 NOISE DENSITY MEASUREMENT CIRCUIT

Noise Density

A zener diode produces noise when biased in the reverse mode. The most significant portion of the noise is caused by the zener breakdown and is referred to as microplasma —or white — noise. The higher frequencies can be eliminated by the use of a shunt capacitor. However the lower frequencies can not be removed without a serious degradation in zener performance.

Noise density (ND) in microvolts-rms per square-root-hertz decreases as zener current increases. The measurement of ND can be made with a circuit as shown in Figure 3. Measurement is performed using a 1 KHz to 3 KHz frequency bandpass filter at a constant zener test current (I_{ZT}) at 25°C ambient temperature.