

# 1N4916 thru 1N4932A

## FEATURES

- ZENER VOLTAGE 19.2V
- TEMPERATURE COEFFICIENT RANGE: 0.01%/°C to 0.001%/°C
- $N_b$  YIELDS MAXIMUM-RMS NOISE FOR ANY BANDWIDTH

## MAXIMUM RATINGS

Junction and Storage Temperatures:  $-65^{\circ}\text{C}$  to  $+175^{\circ}\text{C}$   
DC Power Dissipation: 400 mW  
Power Derating: 3.20 mW/°C above  $50^{\circ}\text{C}$

## \*ELECTRICAL CHARACTERISTICS

@  $25^{\circ}\text{C}$ , unless otherwise specified

JEDEC TYPE NUMBER	TEST CURRENT $I_{ZT}$	MAX. VOLTAGE CHANGE WITH TEMPERATURE $\Delta V_{ZT}$	TEMPERATURE RANGE	EFFECTIVE TEMPERATURE COEFFICIENT $\alpha_{VZ}$	MAXIMUM DYNAMIC IMPEDANCE $Z_{ZT}$	MAXIMUM NOISE DENSITY $N_b$
	(Note 1 & 5)	(Note 2 & 5)				
	mA	VOLTS	°C	$\pm\%/^{\circ}\text{C}$	DHMS	$\mu\text{V}/\sqrt{\text{cps}}$
1N4916	0.5	0.144	+25 to +100	0.01	600	1.0
1N4916A	0.5	0.298	-55 to +100	0.01	600	1.0
1N4917	0.5	0.072	+25 to +100	0.005	600	1.0
1N4917A	0.5	0.149	-55 to +100	0.005	600	1.0
1N4918	0.5	0.029	+25 to +100	0.002	600	1.0
1N4918A	0.5	0.060	-55 to +100	0.002	600	1.0
1N4919	1.0	0.144	+25 to +100	0.01	300	0.5
1N4919A	1.0	0.298	-55 to +100	0.01	300	0.5
1N4920	1.0	0.072	+25 to +100	0.005	300	0.5
1N4920A	1.0	0.149	-55 to +100	0.005	300	0.5
1N4921	1.0	0.029	+25 to +100	0.002	300	0.5
1N4921A	1.0	0.060	-55 to +100	0.002	300	0.5
1N4922	2.0	0.144	+25 to +100	0.01	150	0.25
1N4922A	2.0	0.298	-55 to +100	0.01	150	0.25
1N4923	2.0	0.072	+25 to +100	0.005	150	0.25
1N4923A	2.0	0.149	-55 to +100	0.005	150	0.25
1N4924	2.0	0.029	+25 to +100	0.002	150	0.25
1N4924A	2.0	0.060	-55 to +100	0.002	150	0.25
1N4925	4.0	0.144	+25 to +100	0.01	75	0.22
1N4925A	4.0	0.298	-55 to +100	0.01	75	0.22
1N4926	4.0	0.072	+25 to +100	0.005	75	0.22
1N4926A	4.0	0.149	-55 to +100	0.005	75	0.22
1N4927	4.0	0.029	+25 to +100	0.002	75	0.22
1N4927A	4.0	0.060	-55 to +100	0.002	75	0.22
1N4928	4.0	0.014	+25 to +100	0.001	75	0.22
1N4928A	4.0	0.030	-55 to +100	0.001	75	0.22
1N4929	7.5	0.144	+25 to +100	0.01	36	0.20
1N4929A	7.5	0.298	-55 to +100	0.01	36	0.20
1N4930	7.5	0.072	+25 to +100	0.005	36	0.20
1N4930A	7.5	0.149	-55 to +100	0.005	36	0.20
1N4931	7.5	0.029	+25 to +100	0.002	36	0.20
1N4931A	7.5	0.060	-55 to +100	0.002	36	0.20
1N4932	7.5	0.014	+25 to +100	0.001	36	0.20
1N4932A	7.5	0.030	-55 to +100	0.001	36	0.20

\*JEDEC Registered Data.

## 19.2 VOLT LOW NOISE TEMPERATURE COMPENSATED ZENER REFERENCE DIODES

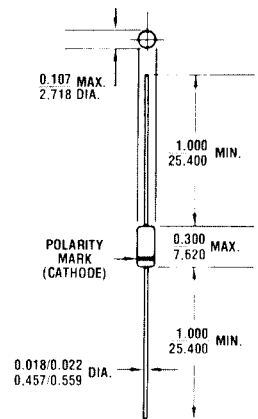


FIGURE 1

All dimensions in INCH  
m.m.

## MECHANICAL CHARACTERISTICS

CASE: Hermetically sealed glass case. DO-7.

FINISH: All external surfaces are corrosion resistant and leads solderable.

THERMAL RESISTANCE:  $300^{\circ}\text{C}/\text{W}$  (Typical) junction to lead at 0.375-inches from body.

POLARITY: Diode to be operated with the banded end positive with respect to the opposite end.

WEIGHT: 0.2 grams.

MOUNTING POSITION: Any.

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**NOTE 1** Nominal voltage for all types is 19.2 Volts  $\pm 5\%$ .

**NOTE 2** Referred to as the 'box' measurement method, the  $\Delta V_{ZT}$  is the maximum voltage variance that will occur as the voltage is scanned thru all temperatures between the temperature range limits.

**NOTE 3** The effective temperature coefficients are tabulated in  $\%/^{\circ}\text{C}$  primarily for information only because temperature compensated diodes inherently have a non-linear voltage-temperature relationship.

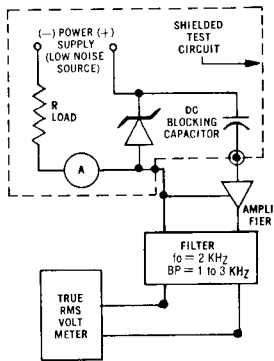
**NOTE 4** The dynamic Zener impedance  $Z_{ZT}$  is derived from the resulting a.c. voltage developed when a 60 cps, rms, a.c. current equal to 10% of the D.C. Zener current  $I_{ZT}$  is superimposed on  $I_{ZT}$ .

**NOTE 5** Voltage measurements to be performed 15 seconds after application of DC current.

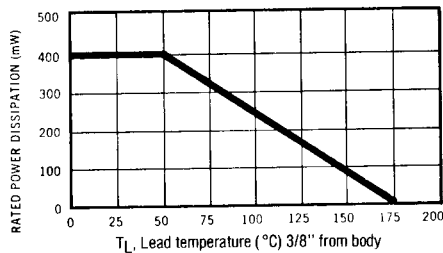
**NOTE 6** To specify radiation hardened devices, use "RH" prefix instead of "IN", i.e. RH4916A instead of IN4916A.

**NOTE 7** Consult factory for TX, TXV or JANS equivalent SCDs.

Noise Density ( $N_D$ ) is specified in Microvolts-rms per square root cycle. Actual measurement is performed using a 1 to 3 KHz frequency bandpass at the Zener test current ( $I_{ZT}$ ) @  $25^{\circ}\text{C}$  ambient temperature.



**FIGURE 2**  
NOISE DENSITY MEASUREMENT CIRCUIT



**FIGURE 3**  
POWER DERATING CURVE