



## 500 mW temperature compensated zener reference diodes

### FEATURES

- 6.2 V stable references
- Guaranteed maximum %/°C
- Hermetically sealed glass package

### MAXIMUM RATINGS

- Junction Temperature: -65°C to +200°C
- Storage Temperature: -65°C to +200°C
- DC Power Dissipation: 500mW @  $T_L < 50^\circ\text{C}$
- Derate above 50°C: 3.33mW/°C

These silicon devices are low-level, temperature compensated, zener reference diodes. Oxide-passivated junctions give them stability and make these diodes highly reliable reference sources. Glass-enclosed construction provides a rugged, hermetically sealed unit.

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

JEDEC TYPE NUMBER	ZENER VOLTAGE (Note 1 and 4) $V_z @ I_{zT}$	ZENER TEST CURRENT $I_{zT}$	MAXIMUM ZENER IMPEDANCE (Note 3 and 4) $Z_{zT}$	VOLTAGE TEMPERATURE STABILITY ( $\Delta V_{zT}$ MAX) -55° to +100° (Note 3 and 4)	EFFECTIVE TEMPERATURE COEFFICIENT $\alpha_{Vz}$
	VOLTS	mA	OHMS	mV	%/°C
1N821	5.9 - 6.5	7.5	15	96	0.01
1N821A	5.9 - 6.5	7.5	10	96	0.01
1N822†	5.9 - 6.5	7.5	15	96	0.01
1N823	5.9 - 6.5	7.5	15	48	0.005
1N823A	5.9 - 6.5	7.5	10	48	0.005
1N824†	5.9 - 6.5	7.5	15	48	0.005
1N825	5.9 - 6.5	7.5	15	19	0.002
1N825A	5.9 - 6.5	7.5	10	19	0.002
1N826	6.2 - 6.9	7.5	15	20	0.002
1N827	5.9 - 6.5	7.5	15	9	0.001
1N827A	5.9 - 6.5	7.5	10	9	0.001
1N828	6.2 - 6.9	7.5	15	10	0.001
1N829	5.9 - 6.5	7.5	15	5	0.0005

† Double anode: Electrical specifications apply under both polarities

### MECHANICAL CHARACTERISTICS

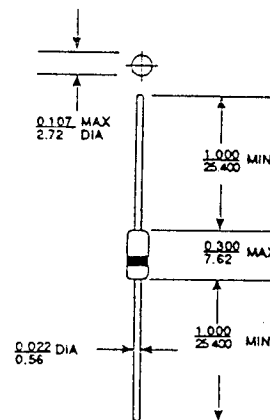


FIGURE 1 all dimensions in INCH mm

CASE: Hermetically sealed glass package (DO-7)  
FINISH: Corrosion resistant.  
Leads are tin plated.  
THERMAL RESISTANCE: 250°C/W (typ) junction to ambient.  
POLARITY: Cathode banded.  
WEIGHT: 0.2 grams (typ).

This series also offered in DO-35 package. Consult factory for availability.

**Note 1** 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  $I_{zT}$ . Zener impedance is measured at two points to insure a sharp knee at breakdown thus eliminating unstable devices.

**Note 2** The maximum allowable change over the entire temperature range, i.e. the diode voltage will not exceed the specified mV at any discrete temperature between the established limits.

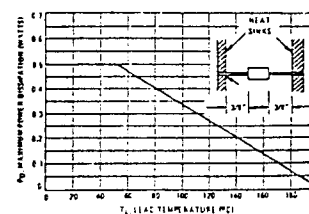
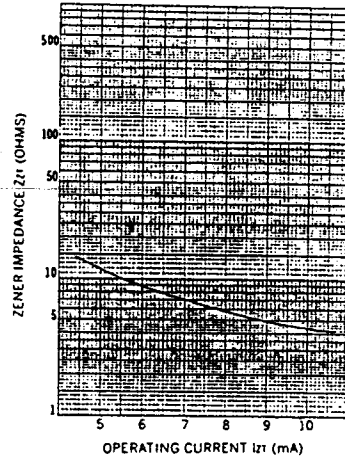


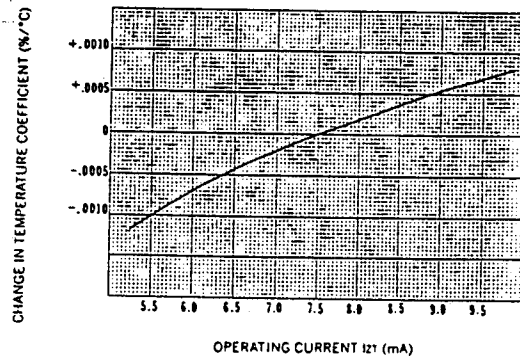
Figure 2 POWER DERATING



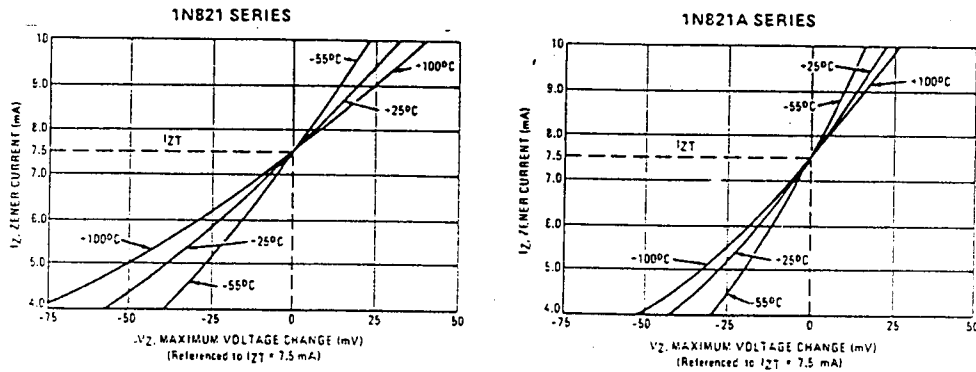
**TYPICAL CHARACTERISTICS**



**Figure 3 CHANGE OF ZENER IMPEDANCE VERSUS CHANGE IN OPERATING CURRENT**



**Figure 4 CHANGE OF TEMPERATURE COEFFICIENT VERSUS CHANGE IN OPERATING CURRENT**



**Figure 5 ZENER CURRENT VERSUS MAXIMUM VOLTAGE CHANGE**

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