american
power devices, inc.

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°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°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 (ΔV_{zt} MAX) −55° to +100° (Note 3 and 4)	EFFECTIVE TEMPERATURE COEFFICIENT α_{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

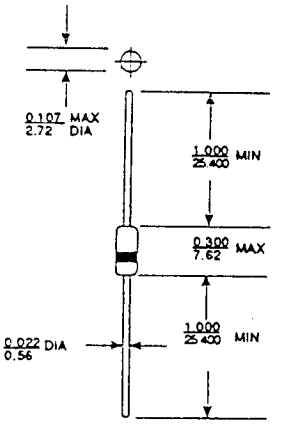

FIGURE 1 all dimensions in INCH mm

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.

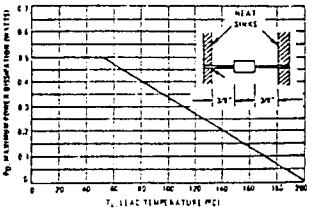

Figure 2 POWER DERATING

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.

TYPICAL CHARACTERISTICS

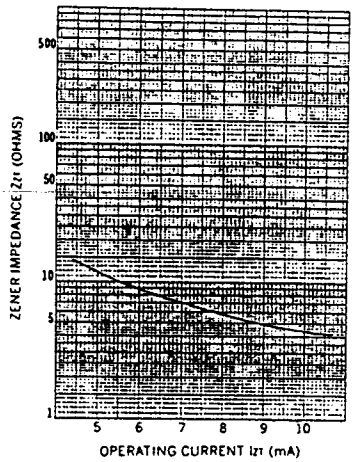

Figure 3 CHANGE OF ZENER IMPEDANCE VERSUS CHANGE IN OPERATING CURRENT

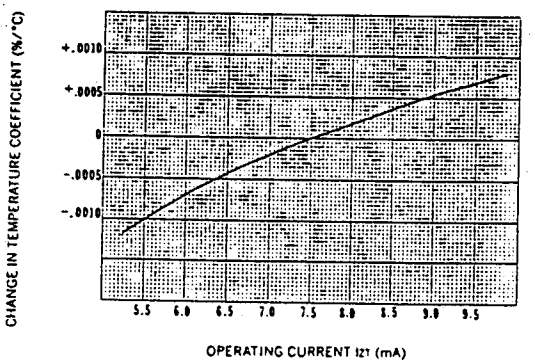

Figure 4 CHANGE OF TEMPERATURE COEFFICIENT VERSUS CHANGE IN OPERATING CURRENT

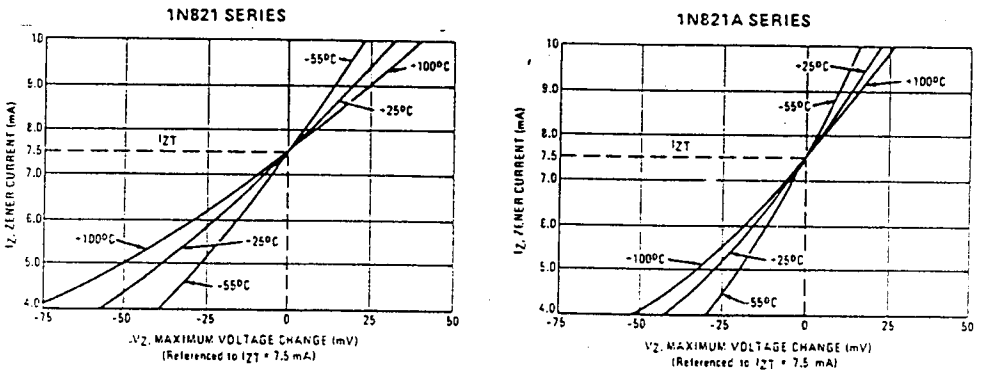

Figure 5 ZENER CURRENT VERSUS MAXIMUM VOLTAGE CHANGE

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