

- ZENER DIODE** – Monolithic Temperature Compensated Zener Reference Chips  
 – All Junctions Completely Protected with Silicon Dioxide  
 – Electrically Equivalent to 1N821 Thru 1N829  
 – Compatible with all Wire Bonding and Die Attach Techniques with the Exception of Solder Reflow

*Qualified per MIL-PRF-19500/159*

**DEVICES**

**1N821                      1N825                      1N829**  
**1N823                      1N827**

**QUALIFIED LEVELS**

**JANHC**  
**JANKC**

(For 1N821 thru 1N829)

**MAXIMUM RATING AT 25°C**

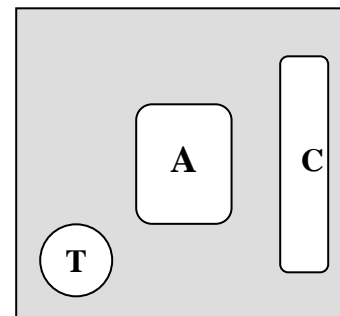
Operating Temperature:    -65°C to +175°C  
 Storage Temperature:       -65°C to +175°C

**REVERSE LEAKAGE CURRENT**

$I_R = 2\mu A$  @ 25°C &  $V_R = 3V_{dc}$

**ELECTRICAL CHARACTERISTICS ( $T_A = 25^\circ C$ , unless otherwise specified)**

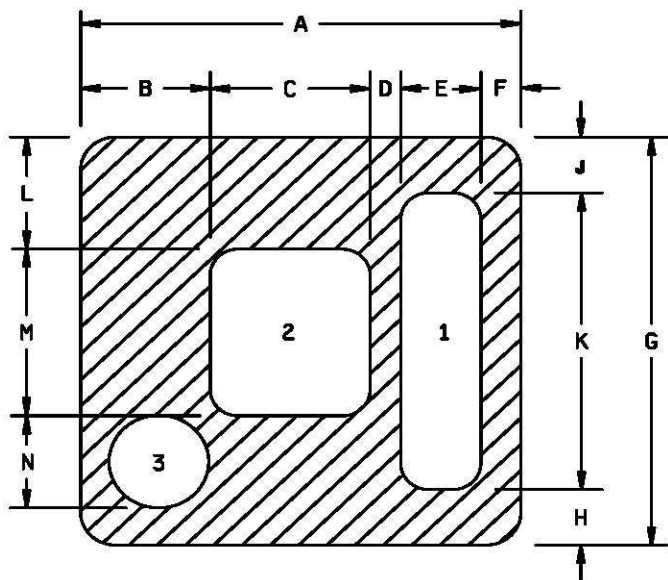
TYPE NUMBER	ZENER VOLTAGE	ZENER TEST CURRENT	MAXIMUM ZENER IMPEDANCE	-55° to +100° VOLTAGE TEMPERATURE STABILITY	EFFECTIVE TEMPERATURE COEFFICIENT
	$V_{ZT} @ I_{ZT}$	$I_{ZT}$	$Z_{ZT}$ (Note 1)	$^3V_{ZT}$ (Note 2)	
	VOLTS	mA	OHMS	mV	% / °C
1N821	5.9 – 6.5	7.5	15	96	0.01
1N823	5.9 – 6.5	7.5	15	48	0.005
1N825	5.9 – 6.5	7.5	15	19	0.002
1N827	5.9 – 6.5	7.5	15	9	0.001
1N829	5.9 – 6.5	7.5	15	5	0.0005



**NOTE:**

- Zener impedance is derived by superimposing on  $I_{ZT}$  A 60Hz rms a.c. current equal to 10% of  $I_{ZT}$ .
- The maximum allowable change observed over the entire temperature range i.e., the diode voltage will not exceed the specified mV at any discrete temperature between the established limits, per JEDEC standard No.5

**PACKAGE DIMENSIONS**



Symbol	Dimensions			
	Inches		Millimeters	
	Min	Max	Min	Max
A	.0280	.0320	.711	.813
B	.0080	.0100	.203	.254
C	.0104	.0106	.264	.269
D	.0019	.0021	.048	.053
E	.0054	.0056	.137	.142
F	.0020	.0040	.050	.102
G	.0280	.0320	.711	.813
H	.0030	.0050	.076	.127
J	.0030	.0050	.076	.127
K	.0209	.0211	.531	.536
L	.0080	.0100	.203	.254
M	.0104	.0106	.264	.269
N	.0059	.0061	.150	.155

Backside must be electrically isolated to ensure proper performance.

**DESIGN DATA**

Metallization:

Top: 1 (Cathode) Al      Circuit layout data:  
 2 (Anode) Al      For zener operation, cathode must be operated positive with respect to anode.  
 3 (Test pad) Al      Test pad is for wire bond evaluation only. No electrical contact is made with test pad.

Back: Au

Al thickness      25,000Å minimum.  
 Gold thickness    4,000Å minimum.  
 Chip thickness    .010 inch (0.25 mm) ±0.002 inch (+0.05 mm).

**NOTES:**

1. Dimensions are in inches unless otherwise indicated.
2. Millimeters are given for general information only.
3. In accordance with ASME Y14.5M, diameters are equivalent to  $\phi$ x symbology.

JANHC and JANKC (A-version) die dimensions.