

- 1N4099-1 THRU 1N4135-1 AVAILABLE IN JAN, JANTX, JANTXV AND JANS PER MIL-PRF-19500/435
- LOW CURRENT OPERATION AT 250 μ A
- LOW REVERSE LEAKAGE AND LOW NOISE CHARACTERISTICS
- METALLURGICALLY BONDED

1N4099 thru 1N4135
and
1N4099-1 thru 1N4135-1

MAXIMUM RATINGS

Junction and Storage Temperature: -65°C to +175°C
DC Power Dissipation: 500mW @ +50°C
Power Derating: 4 mW / °C above +50°C
Forward Voltage at 200 mA: 1.1 Volts maximum

ELECTRICAL CHARACTERISTICS @ 25°C, unless otherwise specified.

| JEDEC TYPE NUMBER | NOMINAL ZENER VOLTAGE V_Z @ I_{ZT} (Note 1) | ZENER TEST CURRENT I_{ZT} | MAXIMUM ZENER IMPEDANCE Z_{ZT} (Note 2) | MAXIMUM REVERSE LEAKAGE CURRENT I_R @ V_R | | MAXIMUM NOISE DENSITY N_D @ I_{ZT} | MAXIMUM ZENER CURRENT I_{ZM} |
|-------------------|---|-----------------------------|---|---|-------|--|--------------------------------|
| | VOLTS | μ A | OHMS | μ A | VOLTS | μ V / $\sqrt{\text{Hz}}$ | mA |
| 1N4099 | 6.8 | 250 | 200 | 10 | 5.17 | 40 | 56 |
| 1N4100 | 7.5 | 250 | 200 | 10 | 5.70 | 40 | 51 |
| 1N4101 | 8.2 | 250 | 200 | 1.0 | 6.24 | 40 | 46 |
| 1N4102 | 8.7 | 250 | 200 | 1.0 | 6.61 | 40 | 44 |
| 1N4103 | 9.1 | 250 | 200 | 1.0 | 6.92 | 40 | 42 |
| 1N4104 | 10 | 250 | 200 | 1.0 | 7.60 | 40 | 38 |
| 1N4105 | 11 | 250 | 200 | .05 | 8.44 | 40 | 35 |
| 1N4106 | 12 | 250 | 200 | .05 | 9.12 | 40 | 32 |
| 1N4107 | 13 | 250 | 200 | .05 | 9.87 | 40 | 29 |
| 1N4108 | 14 | 250 | 200 | .05 | 10.65 | 40 | 27 |
| 1N4109 | 15 | 250 | 100 | .05 | 11.40 | 40 | 25 |
| 1N4110 | 16 | 250 | 100 | .05 | 12.15 | 40 | 24 |
| 1N4111 | 17 | 250 | 100 | .05 | 12.92 | 40 | 22 |
| 1N4112 | 18 | 250 | 100 | .05 | 13.67 | 40 | 21 |
| 1N4113 | 19 | 250 | 150 | .05 | 14.44 | 40 | 20 |
| 1N4114 | 20 | 250 | 150 | .01 | 15.20 | 40 | 19 |
| 1N4115 | 22 | 250 | 150 | .01 | 16.72 | 40 | 17 |
| 1N4116 | 24 | 250 | 150 | .01 | 18.25 | 40 | 16 |
| 1N4117 | 25 | 250 | 150 | .01 | 19.00 | 40 | 15 |
| 1N4118 | 27 | 250 | 150 | .01 | 20.46 | 40 | 14 |
| 1N4119 | 28 | 250 | 200 | .01 | 21.28 | 40 | 14 |
| 1N4120 | 30 | 250 | 200 | .01 | 22.80 | 40 | 13 |
| 1N4121 | 33 | 250 | 200 | .01 | 25.08 | 40 | 12 |
| 1N4122 | 36 | 250 | 200 | .01 | 27.38 | 40 | 11 |
| 1N4123 | 39 | 250 | 200 | .01 | 29.65 | 40 | 9.8 |
| 1N4124 | 43 | 250 | 250 | .01 | 32.65 | 40 | 8.9 |
| 1N4125 | 47 | 250 | 250 | .01 | 35.75 | 40 | 8.1 |
| 1N4126 | 51 | 250 | 300 | .01 | 38.76 | 40 | 7.5 |
| 1N4127 | 56 | 250 | 300 | .01 | 42.60 | 40 | 6.7 |
| 1N4128 | 60 | 250 | 400 | .01 | 45.60 | 40 | 6.4 |
| 1N4129 | 62 | 250 | 500 | .01 | 47.10 | 40 | 6.1 |
| 1N4130 | 68 | 250 | 700 | .01 | 51.68 | 40 | 5.6 |
| 1N4131 | 75 | 250 | 700 | .01 | 57.00 | 40 | 5.1 |
| 1N4132 | 82 | 250 | 800 | .01 | 62.32 | 40 | 4.6 |
| 1N4133 | 87 | 250 | 1000 | .01 | 66.12 | 40 | 4.4 |
| 1N4134 | 91 | 250 | 1200 | .01 | 69.16 | 40 | 4.2 |
| 1N4135 | 100 | 250 | 1500 | .01 | 76.00 | 40 | 3.8 |

NOTE 1 The JEDEC type numbers shown above have a Zener voltage tolerance of $\pm 5\%$ of the nominal Zener voltage. V_Z is measured with the device junction in thermal equilibrium at an ambient temperature of 25°C $\pm 3^\circ$ C. A "C" suffix denotes a $\pm 2\%$ tolerance and a "D" suffix denotes a $\pm 1\%$ tolerance.

NOTE 2 Zener impedance is derived by superimposing on I_{ZT} , A 60 Hz rms a.c. current equal to 10% of I_{ZT} (25 μ A a.c.).

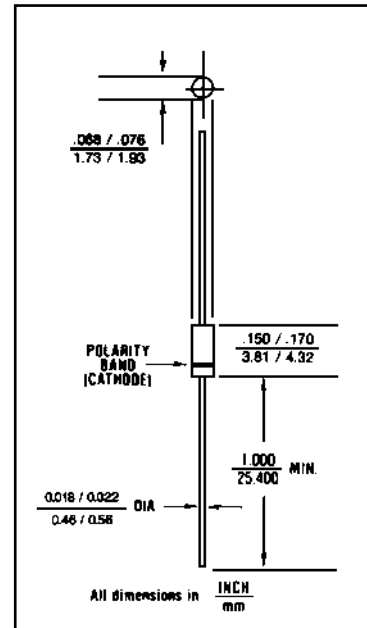


FIGURE 1

DESIGN DATA

CASE: Hermetically sealed glass case. DO - 35 outline.

LEAD MATERIAL: Copper clad steel.

LEAD FINISH: Tin / Lead

THERMAL RESISTANCE: ($R_{\theta JEC}$): 250 °C/W maximum at L = .375 inch

THERMAL IMPEDANCE: ($Z_{\theta JX}$): 35 °C/W maximum

POLARITY: Diode to be operated with the banded (cathode) end positive.

MOUNTING POSITION: ANY.



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1N4099 thru 1N4135 INCLUDING -1 VERSIONS

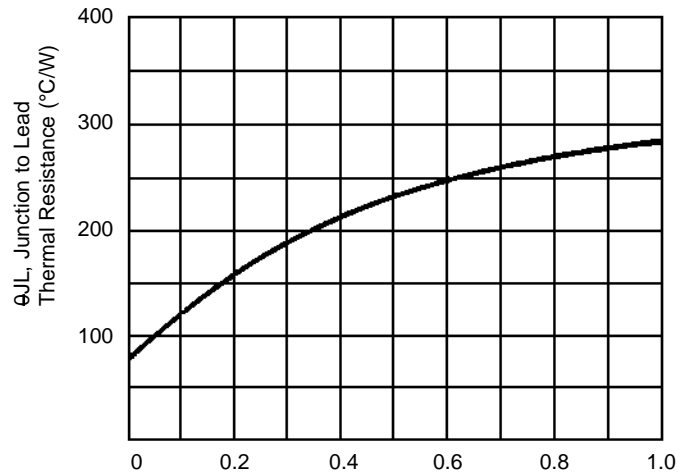


FIGURE 2
TYPICAL THERMAL RESISTANCE

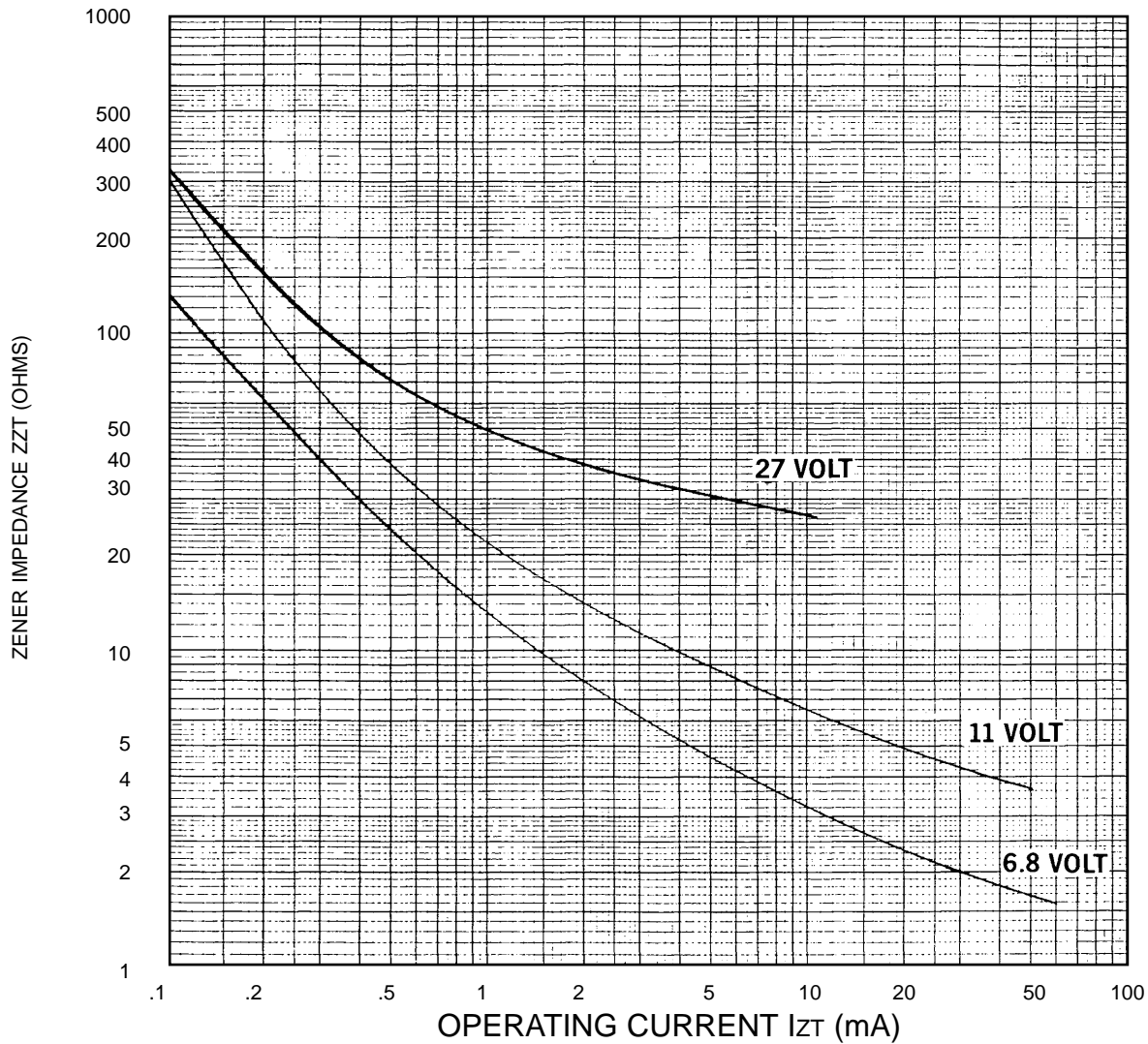


FIGURE 3
ZENER IMPEDANCE VS. OPERATING CURRENT