

- 1N3821A-1 THRU 1N3828A-1 AVAILABLE IN JAN, JANTX AND JANTXV  
PER MIL-PRF-19500/115
- 1 WATT ZENER DIODE
- DOUBLE PLUG CONSTRUCTION
- METALLURGICALLY BONDED

1N3821A thru 1N3828A  
and  
1N3821A-1 thru 1N3828A-1

## MAXIMUM RATINGS

Operating Temperature: -65°C to +175°C  
Storage Temperature: -65°C to +175°C  
DC Power Dissipation: 1 watt @  $T_L = 95^\circ\text{C}$   
Power Derating: 12.5 mW / °C above  $T_L = 95^\circ\text{C}$   
Forward Voltage @ 200mA = 1.2 volts maximum

## ELECTRICAL CHARACTERISTICS @ 25°C

| CDI<br>TYPE<br>NUMBER<br>(NOTE 1) | NOMINAL<br>ZENER<br>VOLTAGE<br>$V_Z @ I_{ZT}$<br>(NOTE 3) | ZENER<br>TEST<br>CURRENT<br>$I_{ZT}$ | MAXIMUM ZENER IMPEDANCE<br>$Z_{ZT} @ I_{ZT}$ $Z_{ZK} @ I_{ZK}=1\text{mA}$<br>(NOTE 2) |      | MAX. DC<br>ZENER<br>CURRENT<br>$I_{ZM}$ | MAX. REVERSE<br>LEAKAGE CURRENT<br>$I_R @ V_R$ |       |
|-----------------------------------|-----------------------------------------------------------|--------------------------------------|---------------------------------------------------------------------------------------|------|-----------------------------------------|------------------------------------------------|-------|
|                                   | VOLTS                                                     | mA                                   | OHMS                                                                                  | OHMS | mA                                      | $\mu\text{A}$                                  | VOLTS |
| 1N3821                            | 3.3                                                       | 76                                   | 10                                                                                    | 400  | 276                                     | 100                                            | 1     |
| 1N3821A                           | 3.3                                                       | 76                                   | 10                                                                                    | 400  | 276                                     | 100                                            | 1     |
| 1N3822                            | 3.6                                                       | 69                                   | 10                                                                                    | 400  | 252                                     | 75                                             | 1     |
| 1N3822A                           | 3.6                                                       | 69                                   | 10                                                                                    | 400  | 252                                     | 75                                             | 1     |
| 1N3823                            | 3.9                                                       | 64                                   | 9                                                                                     | 400  | 238                                     | 25                                             | 1     |
| 1N3823A                           | 3.9                                                       | 64                                   | 9                                                                                     | 400  | 238                                     | 25                                             | 1     |
| 1N3824                            | 4.3                                                       | 58                                   | 9                                                                                     | 400  | 213                                     | 5                                              | 1     |
| 1N3824A                           | 4.3                                                       | 58                                   | 9                                                                                     | 400  | 213                                     | 5                                              | 1     |
| 1N3825                            | 4.7                                                       | 53                                   | 8                                                                                     | 500  | 194                                     | 5                                              | 1     |
| 1N3825A                           | 4.7                                                       | 53                                   | 8                                                                                     | 500  | 194                                     | 5                                              | 1     |
| 1N3826                            | 5.1                                                       | 49                                   | 7                                                                                     | 550  | 178                                     | 3                                              | 1     |
| 1N3826A                           | 5.1                                                       | 49                                   | 7                                                                                     | 550  | 178                                     | 3                                              | 1     |
| 1N3827                            | 5.6                                                       | 45                                   | 5                                                                                     | 600  | 162                                     | 3                                              | 2     |
| 1N3827A                           | 5.6                                                       | 45                                   | 5                                                                                     | 600  | 162                                     | 3                                              | 2     |
| 1N3828                            | 6.2                                                       | 41                                   | 2                                                                                     | 700  | 146                                     | 3                                              | 3     |
| 1N3828A                           | 6.2                                                       | 41                                   | 2                                                                                     | 700  | 146                                     | 3                                              | 3     |

**NOTE 1** No suffix =  $\pm 10\%$  tolerance on nominal Zener voltage, suffix "A" signifies  $\pm 5\%$ , suffix "C" signifies  $\pm 2\%$ , suffix "D" signifies  $\pm 1\%$ .

**NOTE 2** Zener impedance is derived by superimposing on  $I_{ZT}$  A 60Hz rms a.c. current equal to 10% of  $I_{ZT}$ .

**NOTE 3** Zener voltage is measured with the device junction in thermal equilibrium at an ambient temperature of  $25^\circ\text{C} \pm 3^\circ\text{C}$ .

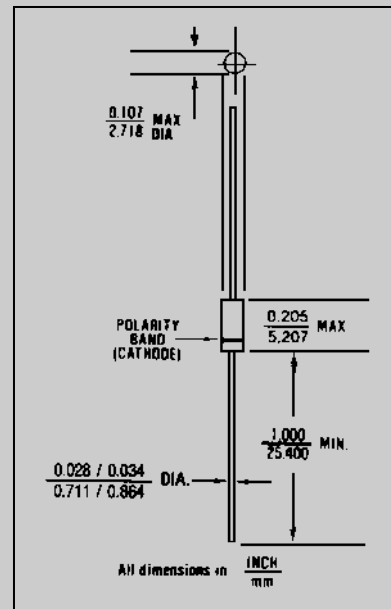


FIGURE 1

## DESIGN DATA

**CASE:** Hermetically sealed glass case, DO41.

**LEAD MATERIAL:** Copper clad steel

**LEAD FINISH:** Tin / Lead

**THERMAL RESISTANCE:** ( $R_{\theta JEC}$ ): 80 °C/W maximum at L = .375 inch

**THERMAL IMPEDANCE:** ( $Z_{\theta JX}$ ): 15 °C/W maximum

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

**MOUNTING POSITION:** Any.

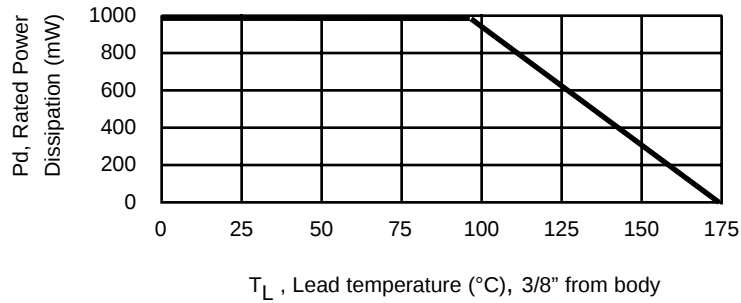


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# 1N3821A thru 1N3828A and 1N3821A-1 thru 1N3828A-1

FIGURE 2



POWER DERATING CURVE

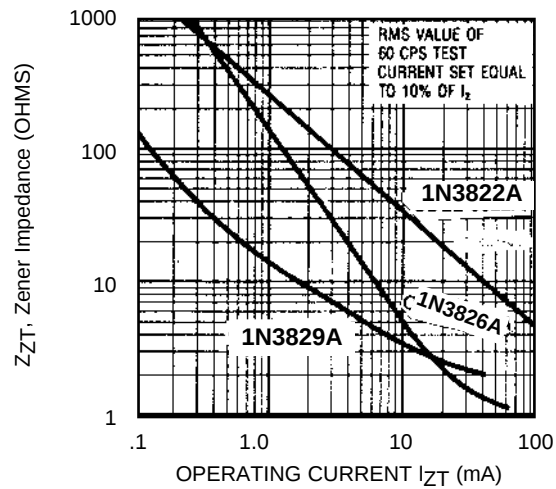


FIGURE 3

ZENER IMPEDANCE VS. OPERATING CURRENT

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