

# POWER ZENERS

## 3 Watt

# 1N5063 - 1N5117

### FEATURES

- 10 Times Greater Surge Rating than Conventional 1 Watt Types
- Small Physical Size

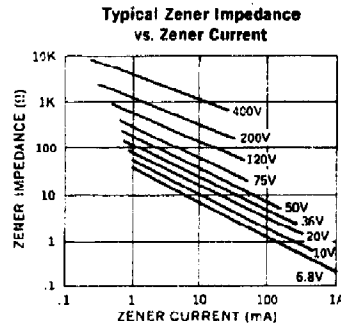
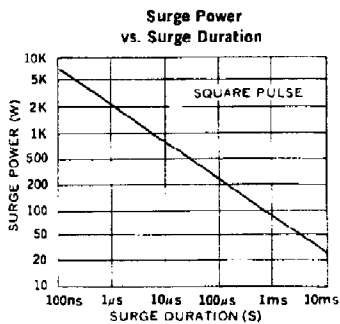
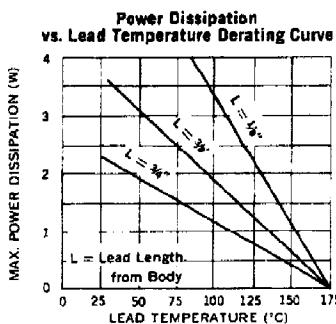
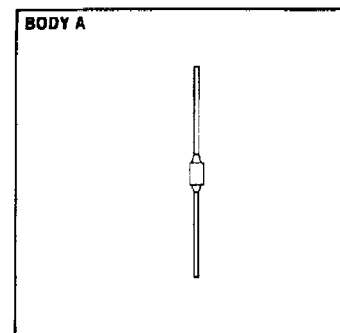
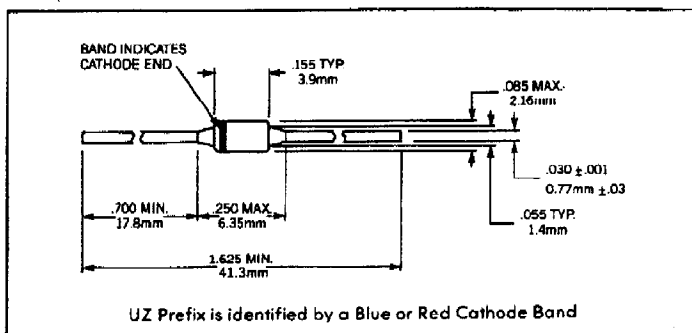
### DESCRIPTION

Fused-in-glass metallurgically bonded 3 watt zener diodes.

### ABSOLUTE MAXIMUM RATINGS

|                                   |                                     |
|-----------------------------------|-------------------------------------|
| Zener Voltage, $V_Z$              | 6.8 to 400V                         |
| Continuous Current                | See Table                           |
| Surge Current (8.3ms)             | See Table                           |
| Surge Power                       | See Graph                           |
| Power                             | See Lead Temperature Derating Curve |
| Storage and Operating Temperature | -65°C to +175°C                     |

### MECHANICAL SPECIFICATIONS



### OPTIONAL HIGH RELIABILITY (HR2) SCREENING

The following tests are performed on 100% of the devices specified:

| SCREEN                           | MIL-STD-750 METHOD | CONDITIONS   |
|----------------------------------|--------------------|--|
| 1. High Temperature              | 1032               | 24 Hours @ $T_A = 175^\circ\text{C}$   |
| 2. Temperature Cycling           | 1051               | C, 20 Cycles, -65 to +175°C. No dwell required @ 25°C ≥ 10 min. at extremes  |
| 3. Hermetic Seal @ Gross Leak    | 1071               | E, ZYGLO   |
| 4. Interim Electrical Parameters | GO/NO GO           | $V_Z + I_R$ @ 25°C   |
| 5. Power Burn-in                 | 1038               | B, 96 Hours, $T_A = 25^\circ\text{C}$ , $I_Z$ adjusted so that $150^\circ\text{C} \leq T_j \leq 175^\circ\text{C}$ |
| 6. Final Electrical Parameters   | GO/NO GO           | $V_Z + I_R$ @ 25°C<br>PDA = 10% (Final Electricals)  |



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| Type *                  | Electrical Specifications at 25°C                           |                                 |                                  |                                 |                        |                         |      |  | Maximum Ratings                                 |  |
|-------------------------|---|---------------------------------|----------------------------------|---------------------------------|------------------------|-------------------------|------|--|---|--|
|                         | Nominal Zener Voltage †<br>V <sub>Z</sub> @ I <sub>ZT</sub> | Test Current<br>I <sub>ZT</sub> | Max. Zener Impedance ‡           | Maximum Reverse Leakage Current |                        |                         |      | Typ. Temp. Coefficient<br>T <sub>C</sub> @ I <sub>ZT</sub> | Maximum Continuous Current *<br>I <sub>ZM</sub> | Maximum Surge Current †<br>I <sub>SM</sub> |
|                         |   |                                 | Z <sub>Z</sub> @ I <sub>ZT</sub> | I <sub>R</sub> @ V <sub>R</sub> | ± 5%<br>V <sub>R</sub> | ± 10%<br>V <sub>R</sub> | %/°C |  |   |  |
| Jedec**<br>Registration | Volts   | mA                              | Ohms                             | µA                              | Volts                  | Volts                   | %/°C | mA   | Amps  |  |
| 1N5063                  | 6.8   | 75                              | 2                                | 500                             | 5.2                    | 4.9                     | .04  | 440  | 10.0  |  |
| 1N5064                  | 7.5   | 75                              | 2                                | 300                             | 5.7                    | 5.4                     | .04  | 400  | 8.0   |  |
| 1N5065                  | 8.2   | 75                              | 3                                | 200                             | 6.2                    | 5.9                     | .05  | 360  | 7.0   |  |
| 1N5066                  | 9.1   | 75                              | 3                                | 100                             | 6.9                    | 6.6                     | .05  | 330  | 6.0   |  |
| 1N5067                  | 10.0  | 75                              | 4                                | 40                              | 7.6                    | 7.2                     | .06  | 300  | 5.0   |  |
| 1N4883                  | 12  | 65                              | 5                                | 10                              | 9.1                    | 8.6                     | .07  | 250  | 4.0   |  |
| 1N5069                  | 13  | 50                              | 6                                | 10                              | 9.9                    | 9.3                     | .07  | 230  | 4.0   |  |
| 1N5070                  | 14  | 50                              | 6                                | 10                              | 10.6                   | 10.1                    | .07  | 210  | 4.0   |  |
| 1N5071                  | 15  | 50                              | 6                                | 10                              | 11.4                   | 10.8                    | .07  | 200  | 3.0   |  |
| 1N5072                  | 16  | 50                              | 7                                | 5                               | 12.2                   | 11.5                    | .07  | 185  | 3.0   |  |
| 1N5073                  | 18  | 40                              | 8                                | 5                               | 13.7                   | 12.9                    | .08  | 170  | 2.0   |  |
| 1N4884                  | 20  | 40                              | 9                                | 5                               | 15.2                   | 14.4                    | .08  | 150  | 2.0   |  |
| 1N5074                  | 22  | 30                              | 10                               | 5                               | 16.7                   | 15.8                    | .08  | 135  | 2.0   |  |
| 1N5075                  | 24  | 30                              | 10                               | 5                               | 18.2                   | 17.3                    | .08  | 125  | 1.5   |  |
| 1N5076                  | 27  | 25                              | 12                               | 1                               | 20.6                   | 19.4                    | .09  | 110  | 1.5   |  |
| 1N5077                  | 30  | 25                              | 15                               | 1                               | 22.8                   | 21.6                    | .090 | 100  | 1.5   |  |
| 1N5078                  | 33  | 20                              | 21                               | 1                               | 25.1                   | 23.7                    | .090 | 90   | 1.2   |  |
| 1N5079                  | 36  | 20                              | 21                               | 1                               | 27.4                   | 25.9                    | .090 | 85   | 1.0   |  |
| 1N5081                  | 40  | 20                              | 27                               | 1                               | 30.4                   | 28.8                    | .095 | 75   | 1.0   |  |
| 1N5083                  | 45  | 15                              | 37                               | 1                               | 34.2                   | 32.4                    | .095 | 65   | 0.8   |  |
| 1N5085                  | 50  | 15                              | 50                               | 1                               | 38.0                   | 36.0                    | .095 | 60   | 0.8   |  |
| 1N5087                  | 56  | 10                              | 70                               | 1                               | 42.6                   | 40.3                    | .095 | 55   | 0.7   |  |
| 1N5088                  | 60  | 10                              | 70                               | 1                               | 45.7                   | 43.2                    | .095 | 50   | 0.6   |  |
| 1N5091                  | 70  | 10                              | 90                               | 1                               | 53.3                   | 50.5                    | .095 | 45   | 0.6   |  |
| 1N5092                  | 75  | 10                              | 100                              | 1                               | 56.0                   | 54.0                    | .095 | 40   | 0.5   |  |
| 1N5093                  | 80  | 10                              | 115                              | 1                               | 60.8                   | 57.7                    | .095 | 35   | 0.4   |  |
| 1N4096                  | 90  | 8.0                             | 150                              | 1                               | 68.5                   | 64.8                    | .095 | 30   | 0.4   |  |
| 1N4097                  | 100   | 5.0                             | 175                              | 1                               | 76.0                   | 72.0                    | .100 | 30   | 0.4   |  |
| 1N5096                  | 110   | 5.0                             | 250                              | 1                               | 83.6                   | 79.2                    | .100 | 25   | 0.3   |  |
| 1N5097                  | 120   | 5.0                             | 325                              | 1                               | 91.2                   | 86.4                    | .100 | 25   | 0.2   |  |
| 1N5098                  | 130   | 5.0                             | 375                              | 1                               | 98.8                   | 93.6                    | .100 | 20   | 0.20  |  |
| 1N5099                  | 140   | 5.0                             | 550                              | 1                               | 106                    | 101                     | .100 | 20   | 0.20  |  |
| 1N4098                  | 150   | 5.0                             | 650                              | 1                               | 114                    | 108                     | .100 | 20   | 0.20  |  |
| 1N5100                  | 160   | 4.0                             | 700                              | 1                               | 122                    | 115                     | .100 | 20   | 0.15  |  |
| 1N5101                  | 170   | 4.0                             | 750                              | 1                               | 129                    | 122                     | .100 | 18   | 0.15  |  |
| 1N5102                  | 180   | 4.0                             | 850                              | 1                               | 137                    | 129                     | .100 | 18   | 0.10  |  |
| 1N5103                  | 190   | 4.0                             | 900                              | 1                               | 144                    | 137                     | .100 | 15   | 0.10  |  |
| 1N5104                  | 200   | 4.0                             | 950                              | 1                               | 152                    | 144                     | .100 | 15   | 0.10  |  |
| 1N5105                  | 220   | 3.0                             | 1100                             | 1                               | 167                    | 158                     | .100 | 15   | 0.09  |  |
| 1N5106                  | 240   | 3.0                             | 1300                             | 1                               | 182                    | 173                     | .105 | 12   | 0.09  |  |
| 1N5107                  | 260   | 3.0                             | 1500                             | 1                               | 198                    | 187                     | .105 | 12   | 0.08  |  |
| 1N5109                  | 280   | 3.0                             | 1700                             | 1                               | 213                    | 202                     | .105 | 10   | 0.08  |  |
| 1N5110                  | 300   | 3.0                             | 1900                             | 1                               | 228                    | 216                     | .105 | 10   | 0.07  |  |
| 1N5111                  | 320   | 2.0                             | 2100                             | 1                               | 243                    | 230                     | .105 | 9  | 0.07  |  |
| 1N5113                  | 340   | 2.0                             | 2400                             | 1                               | 258                    | 245                     | .110 | 9  | 0.06  |  |
| 1N5114                  | 360   | 2.0                             | 2700                             | 1                               | 274                    | 259                     | .110 | 8  | 0.06  |  |
| 1N5115                  | 380   | 2.0                             | 3000                             | 1                               | 289                    | 274                     | .110 | 8  | 0.06  |  |
| 1N5117                  | 400   | 2.0                             | 3500                             | 1                               | 304                    | 288                     | .110 | 7  | 0.06  |  |