

**ELECTRICAL CHARACTERISTICS @ 25°C**

| TYPE*  | NOMINAL<br>ZENER<br>VOLTAGE<br>$V_Z @ I_{ZT}$ | TEST<br>CURRENT<br>$I_{ZT}$ | MAXIMUM ZENER<br>IMPEDANCE |                              | VOLTAGE<br>REGULATION<br>(Note 1)<br>$\Delta V_Z$ | MAXIMUM REVERSE<br>LEAKAGE CURRENT<br>VOLTAGE |       | MAXIMUM<br>TEMPERATURE<br>COEFF.<br>$\alpha_{VZ} @ I_{ZT}$ | MAXIMUM<br>CONTINUOUS<br>CURRENT<br>$I_{ZM}$ | SURGE<br>CURRENT<br>@ 8.3 ms<br>sq. wave<br>$I_{ZSM}$ |
|--------|-----------------------------------------------|-----------------------------|----------------------------|------------------------------|---------------------------------------------------|-----------------------------------------------|-------|------------------------------------------------------------|----------------------------------------------|-------------------------------------------------------|
|        |                                               |                             | $Z_Z @$<br>$I_{ZT}$        | $Z_{ZK}^* @$<br>$I_{ZK}=1mA$ |                                                   | $I_R$                                         | $V_R$ |                                                            |                                              |                                                       |
|        |                                               |                             | OHMS                       | OHMS                         |                                                   | $\mu A$                                       | VOLTS |                                                            |                                              |                                                       |
| 1N6632 | 3.3                                           | 380                         | 3.0                        | 500                          | 0.90                                              | 300                                           | 1.0   | -.075                                                      | 1440                                         | 20.0                                                  |
| 1N6633 | 3.6                                           | 350                         | 2.5                        | 500                          | 0.80                                              | 250                                           | 1.0   | -.070                                                      | 1320                                         | 18.7                                                  |
| 1N6634 | 3.9                                           | 320                         | 2.0                        | 500                          | 0.75                                              | 175                                           | 1.0   | -.060                                                      | 1220                                         | 17.6                                                  |
| 1N6635 | 4.3                                           | 290                         | 2.0                        | 500                          | 0.70                                              | 25                                            | 1.0   | -.050                                                      | 1100                                         | 16.4                                                  |
| 1N6636 | 4.7                                           | 260                         | 2.0                        | 450                          | 0.60                                              | 20                                            | 1.0   | +/- .025                                                   | 1010                                         | 15.3                                                  |
| 1N6637 | 5.1                                           | 240                         | 1.5                        | 400                          | 0.50                                              | 5                                             | 1.0   | +/- .030                                                   | 930                                          | 14.4                                                  |
| 1N5968 | 5.6                                           | 220                         | 1.0                        | 400                          | 0.4                                               | 5000                                          | 4.28  | .04                                                        | 865                                          | 20                                                    |
| 1N5969 | 6.2                                           | 220                         | 1.0                        | 1000                         | 0.5                                               | 1000                                          | 4.74  | .04                                                        | 765                                          | 20                                                    |
| 1N4954 | 6.8                                           | 175                         | 1.0                        | 1000                         | 0.7                                               | 150                                           | 5.2   | .05                                                        | 700                                          | 29.3                                                  |
| 1N4955 | 7.5                                           | 175                         | 1.5                        | 800                          | 0.7                                               | 100                                           | 5.7   | .06                                                        | 630                                          | 26.4                                                  |
| 1N4956 | 8.2                                           | 150                         | 1.5                        | 600                          | 0.7                                               | 50                                            | 6.2   | .06                                                        | 580                                          | 24                                                    |
| 1N4957 | 9.1                                           | 150                         | 2.0                        | 400                          | 0.7                                               | 25                                            | 6.9   | .06                                                        | 520                                          | 22                                                    |
| 1N4958 | 10.0                                          | 125                         | 2.0                        | 125                          | 0.8                                               | 25                                            | 7.6   | .07                                                        | 475                                          | 20                                                    |
| 1N4959 | 11                                            | 125                         | 2.5                        | 130                          | 0.8                                               | 10                                            | 8.4   | .07                                                        | 430                                          | 19                                                    |
| 1N4960 | 12                                            | 100                         | 2.5                        | 140                          | 0.8                                               | 10                                            | 9.1   | .07                                                        | 395                                          | 18                                                    |
| 1N4961 | 13                                            | 100                         | 3.0                        | 145                          | 0.9                                               | 10                                            | 9.9   | .08                                                        | 365                                          | 16                                                    |
| 1N4962 | 15                                            | 75                          | 3.5                        | 150                          | 1.0                                               | 5                                             | 11.4  | .08                                                        | 315                                          | 12                                                    |
| 1N4963 | 16                                            | 75                          | 3.5                        | 155                          | 1.1                                               | 5                                             | 12.2  | .08                                                        | 294                                          | 10                                                    |
| 1N4964 | 18                                            | 65                          | 4.0                        | 160                          | 1.2                                               | 5                                             | 13.7  | .085                                                       | 264                                          | 9.0                                                   |
| 1N4965 | 20                                            | 65                          | 4.5                        | 165                          | 1.5                                               | 2                                             | 15.2  | .085                                                       | 237                                          | 8.0                                                   |
| 1N4966 | 22                                            | 50                          | 5.0                        | 170                          | 1.8                                               | 2                                             | 16.7  | .085                                                       | 216                                          | 7.0                                                   |
| 1N4967 | 24                                            | 50                          | 5.0                        | 175                          | 2.0                                               | 2                                             | 18.2  | .090                                                       | 198                                          | 6.5                                                   |
| 1N4968 | 27                                            | 50                          | 6.0                        | 180                          | 2.0                                               | 2                                             | 20.6  | .090                                                       | 176                                          | 6.0                                                   |
| 1N4969 | 30                                            | 40                          | 8                          | 190                          | 2.5                                               | 2                                             | 22.8  | .090                                                       | 158                                          | 5.5                                                   |
| 1N4970 | 33                                            | 40                          | 10                         | 200                          | 2.8                                               | 2                                             | 25.1  | .095                                                       | 144                                          | 5.0                                                   |
| 1N4971 | 36                                            | 30                          | 11                         | 220                          | 3.0                                               | 2                                             | 27.4  | .095                                                       | 132                                          | 4.5                                                   |
| 1N4972 | 39                                            | 30                          | 14                         | 230                          | 3.0                                               | 2                                             | 29.7  | .095                                                       | 122                                          | 4.0                                                   |
| 1N4973 | 43                                            | 30                          | 20                         | 240                          | 3.3                                               | 2                                             | 32.7  | .095                                                       | 110                                          | 3.5                                                   |
| 1N4974 | 47                                            | 25                          | 25                         | 250                          | 3.5                                               | 2                                             | 35.8  | .095                                                       | 100                                          | 3.2                                                   |
| 1N4975 | 51                                            | 25                          | 27                         | 270                          | 4.0                                               | 2                                             | 38.8  | .095                                                       | 92                                           | 3.0                                                   |
| 1N4976 | 56                                            | 20                          | 35                         | 320                          | 4.4                                               | 2                                             | 42.6  | .095                                                       | 84                                           | 2.8                                                   |
| 1N4977 | 62                                            | 20                          | 42                         | 400                          | 5.0                                               | 2                                             | 47.1  | .100                                                       | 76                                           | 2.5                                                   |
| 1N4978 | 68                                            | 20                          | 50                         | 500                          | 5.5                                               | 2                                             | 51.7  | .100                                                       | 70                                           | 2.2                                                   |
| 1N4979 | 75                                            | 20                          | 55                         | 620                          | 6.0                                               | 2                                             | 56.0  | .100                                                       | 63.0                                         | 2.0                                                   |
| 1N4980 | 82                                            | 15                          | 80                         | 720                          | 6.6                                               | 2                                             | 62.2  | .100                                                       | 58.0                                         | 1.8                                                   |
| 1N4981 | 91                                            | 15                          | 90                         | 760                          | 7.5                                               | 2                                             | 69.2  | .100                                                       | 52.5                                         | 1.6                                                   |
| 1N4982 | 100                                           | 12                          | 110                        | 800                          | 8.0                                               | 2                                             | 76.0  | .100                                                       | 47.5                                         | 1.4                                                   |
| 1N4983 | 110                                           | 12                          | 125                        | 1000                         | 9.0                                               | 2                                             | 83.6  | .100                                                       | 43.0                                         | 1.2                                                   |
| 1N4984 | 120                                           | 10                          | 170                        | 1150                         | 10                                                | 2                                             | 91.2  | .100                                                       | 39.5                                         | 1.00                                                  |
| 1N4985 | 130                                           | 10                          | 190                        | 1250                         | 11                                                | 2                                             | 98.8  | .105                                                       | 36.6                                         | 0.80                                                  |
| 1N4986 | 150                                           | 8                           | 330                        | 1500                         | 13                                                | 2                                             | 114.0 | .105                                                       | 31.6                                         | 0.75                                                  |
| 1N4987 | 160                                           | 8                           | 350                        | 1650                         | 14                                                | 2                                             | 121.6 | .105                                                       | 29.4                                         | 0.70                                                  |
| 1N4988 | 180                                           | 5                           | 450                        | 1750                         | 16                                                | 2                                             | 136.8 | .110                                                       | 26.4                                         | 0.60                                                  |
| 1N4989 | 200                                           | 5                           | 500                        | 1850                         | 18                                                | 2                                             | 152   | .110                                                       | 23.6                                         | 0.50                                                  |
| 1N4990 | 220                                           | 5                           | 550                        | 2000                         | 19                                                | 2                                             | 167   | .115                                                       | 21.6                                         | 0.50                                                  |
| 1N4991 | 240                                           | 5                           | 650                        | 2050                         | 22                                                | 2                                             | 182   | .115                                                       | 19.8                                         | 0.40                                                  |
| 1N4992 | 270                                           | 5                           | 800                        | 2100                         | 25                                                | 2                                             | 206   | .120                                                       | 17.5                                         | 0.35                                                  |
| 1N4993 | 300                                           | 4                           | 950                        | 2150                         | 28                                                | 2                                             | 228   | .120                                                       | 15.6                                         | 0.30                                                  |
| 1N4994 | 330                                           | 4                           | 1175                       | 2200                         | 32                                                | 2                                             | 251   | .120                                                       | 14.4                                         | 0.25                                                  |
| 1N4995 | 360                                           | 3                           | 1400                       | 2300                         | 35                                                | 2                                             | 274   | .120                                                       | 13.0                                         | 0.22                                                  |
| 1N4996 | 390                                           | 3                           | 1800                       | 2500                         | 40                                                | 2                                             | 297   | .120                                                       | 12.0                                         | 0.20                                                  |

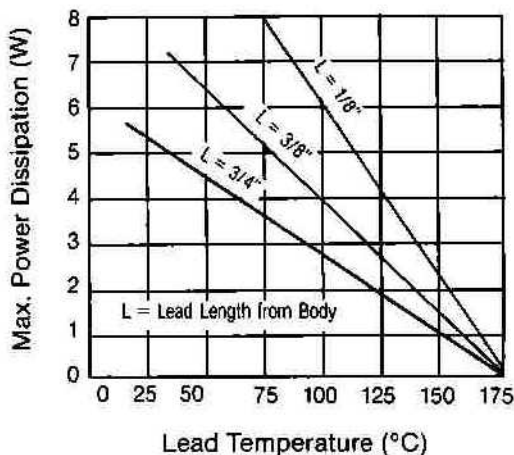
\* $I_{ZK} = 5 \text{ mA}$  for 1N5968

NOTE 1: Maximum voltage change  $\Delta V_Z$  between 10% of  $I_{ZM}$  and 50% of  $I_{ZM}$

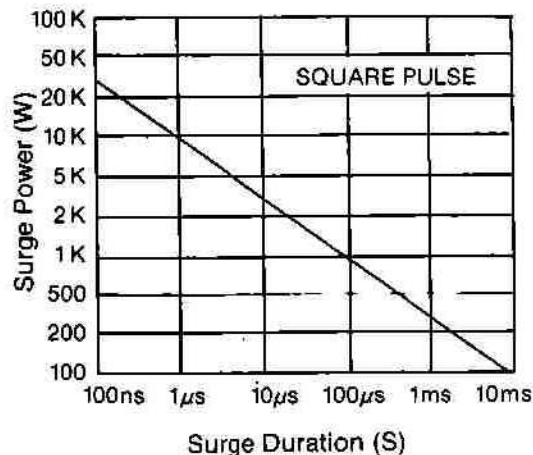
## SYMBOLS & DEFINITIONS

| Symbol                      | Definition                                                                                                                                                                                                                                      |
|-----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| $V_Z$                       | Zener Voltage: The zener voltage the device will exhibit at a specified current ( $I_Z$ ) in its breakdown region.                                                                                                                              |
| $I_Z$ , $I_{ZT}$ , $I_{ZK}$ | Regulator Current: The dc regulator current ( $I_Z$ ), at a specified test point ( $I_{ZT}$ ), or near breakdown knee ( $I_{ZK}$ ).                                                                                                             |
| $Z_{ZT}$ or $Z_{ZK}$        | Dynamic Impedance: The small signal impedance of the diode when biased to operate in its breakdown region at a specified rms current modulation (typically 10% of $I_{ZT}$ or $I_{ZK}$ ) and superimposed on $I_{ZT}$ or $I_{ZK}$ respectively. |
| $V_F$                       | Maximum Forward Voltage: The maximum forward voltage the device will exhibit at a specified current.                                                                                                                                            |
| $I_R$                       | Maximum Reverse Current: The maximum reverse (leakage) current that will flow at the specified voltage and temperature.                                                                                                                         |
| $I_{ZM}$                    | Maximum Regulator (Zener) Current: The maximum rated dc current for the specified power rating.                                                                                                                                                 |
| $I_{ZSM}$                   | Maximum Zener Surge Current: The nonrepetitive peak value of zener surge current at a specified wave form.                                                                                                                                      |

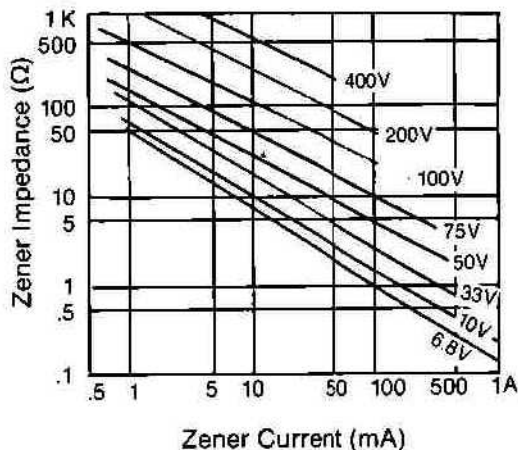
## GRAPHS



**FIGURE 1**  
POWER DISSIPATION vs. LEAD  
TEMPERATURE DERATING CURVE

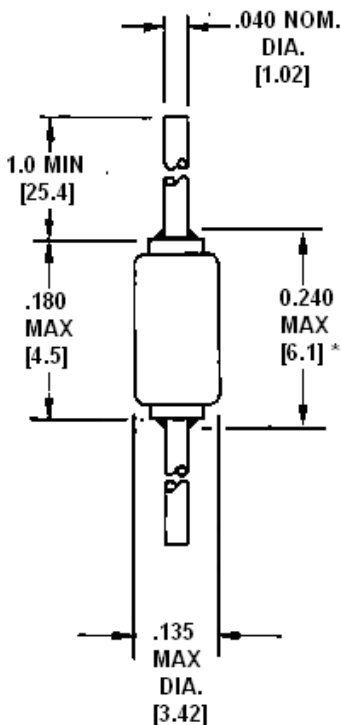


**FIGURE 2**  
SURGE POWER vs.  
SURGE DURATION



**FIGURE 3**  
TYPICAL ZENER IMPEDANCE vs.  
ZENER CURRENT

PACKAGE DIMENSIONS



Lead Tolerance = + .002 -.003 in

\*Includes sections of the lead or fillet over which the lead diameter is uncontrolled.