



# 1N4728A THRU 1N4764A

## 1W ZENER DIODE

### FEATURES

- \* 3.3 thru 100 volt voltage range
- \* High surge current rating
- \* Higher voltages available, see 1EZ series

### MECHANICAL CHARACTERISTICS

- \* CASE: Molded encapsulation, axial lead package (DO-41).
- \* FINISH: Corrosion resistant. Leads are solderable.
- \* THERMAL RESISTANCE: 45°C/Watt junction to lead at 0.375 inches from body.
- \* POLARITY: banded end is cathode.
- \* WEIGHT: 0.4 grams (Typical).

### MAXIMUM RATINGS

Junction and Storage temperature: -65°C to +200°C

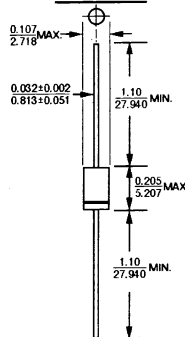
DC Power Dissipation: 1 Watt

Power Derating: 10mW/°C, from 100°C

Forward Voltage @ 200mA: 1.2 Volts

**VOLTAGE RANGE**  
3.3 to 100 Volts

### DO-41



All dimensions in  $\frac{\text{inches}}{\text{mm}}$

### \* ELECTRICAL CHARACTERISTICS @ 25°C

| JEDEC<br>TYPE<br>NUMBER<br>(Note 1) | ZENER<br>VOLTAGE<br>(V <sub>Z</sub> )<br>(Note 4) | TEST<br>CURRENT<br>I <sub>ZT</sub> | MAXIMUM<br>DYNAMIC<br>IMPEDANCE<br>Z <sub>0T</sub> @ I <sub>ZT</sub><br>(Note 2) | MAXIMUM<br>REVERSE<br>CURRENT<br>I <sub>R</sub> @ V <sub>R</sub> | TEST<br>VOLTAGE<br>(V <sub>R</sub> ) | MAXIMUM<br>REGULATOR<br>CURRENT<br>(I <sub>ZM</sub> )<br>(Note 2) | MAXIMUM<br>KNEE<br>IMPEDANCE<br>(Z <sub>0K</sub> @ I <sub>ZK</sub> )<br>(Note 2) | TEST<br>CURRENT<br>(I <sub>ZK</sub> ) | MAXIMUM<br>(SURGE)<br>CURRENT<br>(I <sub>S</sub> )<br>(Note 3) |
|-------------------------------------|---------------------------------------------------|------------------------------------|----------------------------------------------------------------------------------|------------------------------------------------------------------|--------------------------------------|-------------------------------------------------------------------|----------------------------------------------------------------------------------|---------------------------------------|----------------------------------------------------------------|
|                                     |                                                   |                                    |                                                                                  |                                                                  |                                      |                                                                   |                                                                                  |                                       |                                                                |
|                                     | VOLTS                                             | mA                                 | OHMS                                                                             | μA                                                               | VOLTS                                | mA                                                                | OHMS                                                                             | mA                                    | mA                                                             |
| 1N4728A                             | 3.3                                               | 76                                 | 10                                                                               | 100                                                              | 1                                    | 276                                                               | 400                                                                              | 1.0                                   | 1380                                                           |
| 1N4729A                             | 3.6                                               | 69                                 | 10                                                                               | 100                                                              | 1                                    | 252                                                               | 400                                                                              | 1.0                                   | 1260                                                           |
| 1N4730A                             | 3.9                                               | 64                                 | 9                                                                                | 50                                                               | 1                                    | 234                                                               | 400                                                                              | 1.0                                   | 1190                                                           |
| 1N4731A                             | 4.3                                               | 58                                 | 9                                                                                | 10                                                               | 1                                    | 217                                                               | 400                                                                              | 1.0                                   | 1070                                                           |
| 1N4732A                             | 4.7                                               | 53                                 | 8                                                                                | 10                                                               | 1                                    | 193                                                               | 500                                                                              | 1.0                                   | 970                                                            |
| 1N4733A                             | 5.1                                               | 49                                 | 7                                                                                | 10                                                               | 1                                    | 178                                                               | 550                                                                              | 1.0                                   | 890                                                            |
| 1N4734A                             | 5.6                                               | 45                                 | 5                                                                                | 10                                                               | 2                                    | 162                                                               | 600                                                                              | 1.0                                   | 810                                                            |
| 1N4735A                             | 6.2                                               | 41                                 | 2                                                                                | 10                                                               | 3                                    | 146                                                               | 700                                                                              | 1.0                                   | 730                                                            |
| 1N4736A                             | 6.8                                               | 37                                 | 3.5                                                                              | 10                                                               | 4                                    | 133                                                               | 700                                                                              | 1.0                                   | 660                                                            |
| 1N4737A                             | 7.5                                               | 34                                 | 4.0                                                                              | 10                                                               | 5                                    | 121                                                               | 700                                                                              | 0.5                                   | 605                                                            |
| 1N4738A                             | 8.2                                               | 31                                 | 4.5                                                                              | 10                                                               | 6                                    | 110                                                               | 700                                                                              | 0.5                                   | 560                                                            |
| 1N4739A                             | 9.1                                               | 28                                 | 5.0                                                                              | 10                                                               | 7                                    | 100                                                               | 700                                                                              | 0.5                                   | 500                                                            |
| 1N4740A                             | 10                                                | 25                                 | 7                                                                                | 10                                                               | 7.6                                  | 91                                                                | 700                                                                              | 0.25                                  | 454                                                            |
| 1N4741A                             | 11                                                | 23                                 | 8                                                                                | 5                                                                | 8.4                                  | 83                                                                | 700                                                                              | 0.25                                  | 414                                                            |
| 1N4742A                             | 12                                                | 21                                 | 9                                                                                | 5                                                                | 9.1                                  | 76                                                                | 700                                                                              | 0.25                                  | 380                                                            |
| 1N4743A                             | 13                                                | 19                                 | 10                                                                               | 5                                                                | 9.9                                  | 69                                                                | 700                                                                              | 0.25                                  | 344                                                            |
| 1N4744A                             | 15                                                | 17                                 | 14                                                                               | 5                                                                | 11.4                                 | 61                                                                | 700                                                                              | 0.25                                  | 304                                                            |
| 1N4745A                             | 16                                                | 15.5                               | 16                                                                               | 5                                                                | 12.2                                 | 57                                                                | 700                                                                              | 0.25                                  | 285                                                            |
| 1N4746A                             | 18                                                | 14                                 | 20                                                                               | 5                                                                | 13.7                                 | 50                                                                | 750                                                                              | 0.25                                  | 250                                                            |
| 1N4747A                             | 20                                                | 12.5                               | 22                                                                               | 5                                                                | 15.2                                 | 45                                                                | 750                                                                              | 0.25                                  | 225                                                            |
| 1N4748A                             | 22                                                | 11.5                               | 23                                                                               | 5                                                                | 16.7                                 | 41                                                                | 750                                                                              | 0.25                                  | 205                                                            |
| 1N4749A                             | 24                                                | 10.5                               | 25                                                                               | 5                                                                | 18.2                                 | 38                                                                | 750                                                                              | 0.25                                  | 190                                                            |
| 1N4750A                             | 27                                                | 9.5                                | 35                                                                               | 5                                                                | 20.6                                 | 34                                                                | 750                                                                              | 0.25                                  | 170                                                            |
| 1N4751A                             | 30                                                | 8.5                                | 40                                                                               | 5                                                                | 22.8                                 | 30                                                                | 1000                                                                             | 0.25                                  | 150                                                            |
| 1N4752A                             | 33                                                | 7.5                                | 45                                                                               | 5                                                                | 25.1                                 | 27                                                                | 1000                                                                             | 0.25                                  | 135                                                            |
| 1N4753A                             | 36                                                | 7.0                                | 50                                                                               | 5                                                                | 27.4                                 | 25                                                                | 1000                                                                             | 0.25                                  | 125                                                            |
| 1N4754A                             | 39                                                | 6.5                                | 60                                                                               | 5                                                                | 29.7                                 | 23                                                                | 1000                                                                             | 0.25                                  | 115                                                            |
| 1N4755A                             | 43                                                | 6.0                                | 70                                                                               | 5                                                                | 32.7                                 | 22                                                                | 1500                                                                             | 0.25                                  | 110                                                            |
| 1N4756A                             | 47                                                | 5.5                                | 80                                                                               | 5                                                                | 35.8                                 | 19                                                                | 1500                                                                             | 0.25                                  | 95                                                             |
| 1N4757A                             | 51                                                | 5.0                                | 95                                                                               | 5                                                                | 38.8                                 | 18                                                                | 1500                                                                             | 0.25                                  | 90                                                             |
| 1N4758A                             | 56                                                | 4.5                                | 110                                                                              | 5                                                                | 42.6                                 | 16                                                                | 2000                                                                             | 0.25                                  | 80                                                             |
| 1N4759A                             | 62                                                | 4.0                                | 125                                                                              | 5                                                                | 47.1                                 | 14                                                                | 2000                                                                             | 0.25                                  | 70                                                             |
| 1N4760A                             | 68                                                | 3.7                                | 150                                                                              | 5                                                                | 51.7                                 | 13                                                                | 2000                                                                             | 0.25                                  | 65                                                             |
| 1N4761A                             | 75                                                | 3.3                                | 175                                                                              | 5                                                                | 56.0                                 | 12                                                                | 2000                                                                             | 0.25                                  | 60                                                             |
| 1N4762A                             | 82                                                | 3.0                                | 200                                                                              | 5                                                                | 62.2                                 | 11                                                                | 3000                                                                             | 0.25                                  | 55                                                             |
| 1N4763A                             | 91                                                | 2.8                                | 250                                                                              | 5                                                                | 69.2                                 | 10                                                                | 3000                                                                             | 0.25                                  | 50                                                             |
| 1N4764A                             | 100                                               | 2.5                                | 350                                                                              | 5                                                                | 76.0                                 | 9                                                                 | 3000                                                                             | 0.25                                  | 45                                                             |

\* JEDEC Registered Data

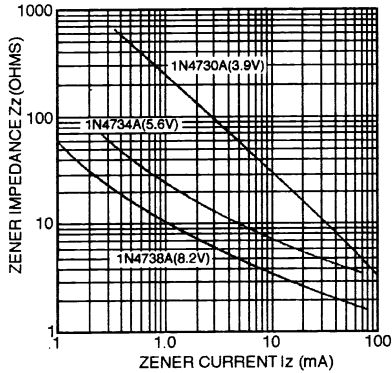
**NOTE 1** The JEDEC type numbers shown have a 5% tolerance on nominal zener voltage. No suffix signifies a 10% tolerance, C signifies 2%, and D signifies 1% tolerance.

**NOTE 2** The Zener impedance is derived from the 60 Hz ac voltage, which results when an ac current having an rms value equal to 10% of the DC Zener current (I<sub>ZT</sub> or I<sub>ZK</sub>) is superimposed on I<sub>ZT</sub> or I<sub>ZK</sub>. Zener impedance is measured at two points to insure a sharp knee on the breakdown curve and eliminate unstable units.

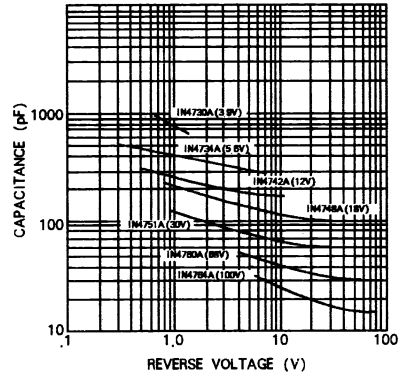
**NOTE 3** The zener surge current is measured at 25°C ambient using a 1/2 square wave or equivalent sine wave pulse 1/120 second duration superimposed on I<sub>ZT</sub>.

**NOTE 4** Voltage measurements to be performed 90 seconds after application of DC current.

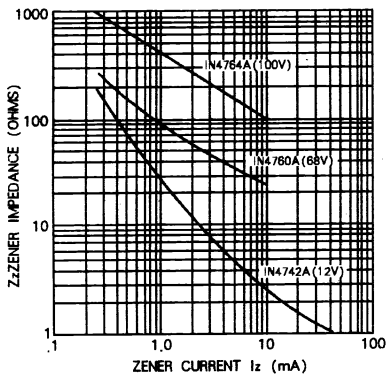
## RATINGS AND CHARACTERISTIC CURVES (1N4728A THRU 1N4764A)



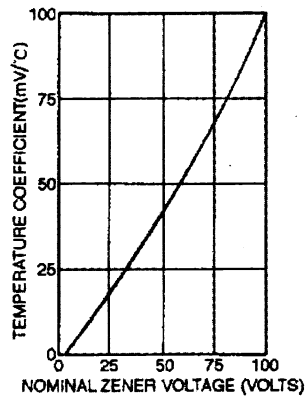
**FIGURE 1**  
 TYPICAL ZENER IMPEDANCE vs.  
 ZENER CURRENT FOR TYPES SHOWN



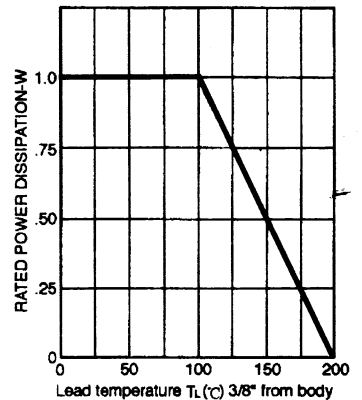
**FIGURE 2**  
 CAPACITANCE vs. VOLTAGE FOR  
 REPRESENTATIVE TYPES



**FIGURE 3**  
 TYPICAL ZENER IMPEDANCE vs.  
 ZENER CURRENT FOR TYPES SHOWN



**FIGURE 4**  
 TEMP. COEFF. vs. ZENER  
 VOLTAGE



**FIGURE 5**  
 POWER DERATING CURVE