



# 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

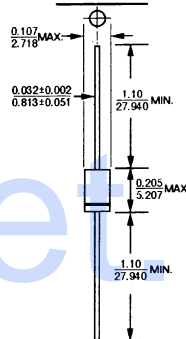
DC Power Dissipation: 1 Watt

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 TYPE NUMBER (Note 1) | ZENER VOLTAGE (Vz) (Note 4) | TEST CURRENT IZT | MAXIMUM DYNAMIC IMPEDANCE ZzT @ IZT (Note 2) | MAXIMUM REVERSE CURRENT Ir @ Vr | TEST VOLTAGE (Vr) | MAXIMUM REGULATOR CURRENT (Izm) (Note 2) | MAXIMUM KNEE IMPEDANCE (Zzk @ Izk) (Note 2) | TEST CURRENT (Izk) mA | MAXIMUM (SURGE) CURRENT (Is) mA (Note 3) |
|----------------------------|-----------------------------|------------------|--|---------------------------------|-------------------|--|---|-----------------------|--|
|                            |                             |                  |  |                                 |                   |  |   |                       |  |
| 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                                       |

**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.

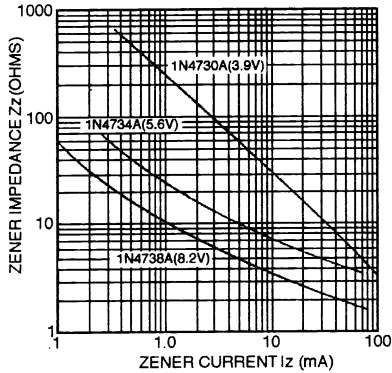
**NOTE 2** The Zener impedance is derived from the 60 Hz ac voltage, which results when an ac current having an rms value equal to 10% of the DC Zener current ( $I_{ZT}$  or  $I_{ZK}$ ) is superimposed on  $I_{ZT}$  or  $I_{ZK}$ . Zener impedance is measured at two points to insure a sharp knee on the 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  $I_{ZT}$ .

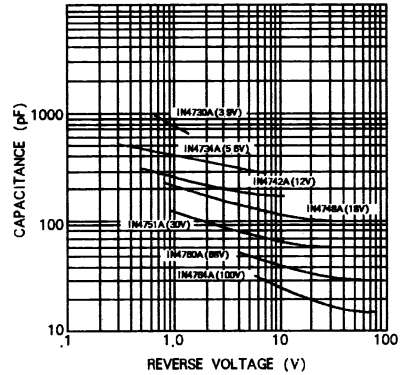
**NOTE 4** Voltage measurements to be performed 90 seconds after application of DC current.

\* JEDEC Registered Data

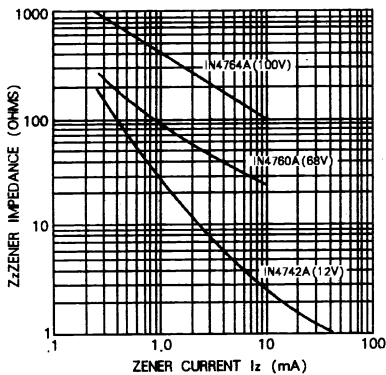
## RATINGS AND CHARACTERISTIC CURVES (1N4728A THRU 1N4764A)



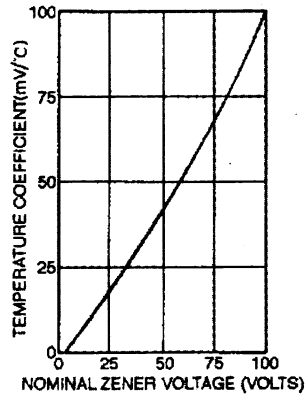
**FIGURE 1**  
TYPICAL ZENER IMPEDANCE vs.  
ZENER CURRENT FOR TYPES SHOWN



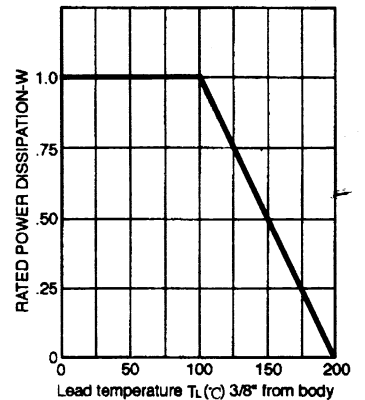
**FIGURE 2**  
CAPACITANCE vs. VOLTAGE FOR  
REPRESENTATIVE TYPES



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



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



**FIGURE 5**  
POWER DERATING CURVE