



**Microsemi Corp.**  
The diode experts

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# 1N4728A thru 1N4764A PLASTIC

## FEATURES

- 3.3 THRU 100 VOLT VOLTAGE RANGE
- HIGH SURGE CURRENT RATING
- HIGHER VOLTAGES AVAILABLE, SEE 1EZ SERIES

## MAXIMUM RATINGS

Junction and Storage Temperature:  $-65^{\circ}\text{C}$  to  $+200^{\circ}\text{C}$

DC Power Dissipation: 1 Watt

Power Derating:  $10\text{mW}/^{\circ}\text{C}$ , from  $100^{\circ}\text{C}$

Forward Voltage @ 200 mA: 1.2 Volts

**SILICON  
1 WATT  
ZENER DIODES**

## \*ELECTRICAL CHARACTERISTICS @ $25^{\circ}\text{C}$

| JEDEC<br>TYPE<br>NUMBER<br>(Note 1) | ZENER<br>VOLTAGE<br>( $V_z$ )<br>(Note 4) | TEST<br>CURRENT<br>( $I_z$ ) | MAXIMUM<br>DYNAMIC<br>IMPEDANCE<br>( $Z_{zk}$ @ $I_z$ )<br>(Note 2) | MAXIMUM<br>REVERSE<br>CURRENT<br>( $I_r$ @ $V_r$ ) | TEST<br>VOLTAGE<br>( $V_k$ ) | MAXIMUM<br>REGULATOR<br>CURRENT<br>( $I_{zk}$ )<br>$T_A = 50^{\circ}\text{C}$ | MAXIMUM<br>KNEE<br>IMPEDANCE<br>( $Z_{zk}$ @ $I_{zk}$ )<br>(Note 2) | TEST<br>CURRENT<br>( $I_{zk}$ ) | MAXIMUM<br>(SURGE)<br>CURRENT<br>( $I_s$ )<br>(Note 3) |
|-------------------------------------|-------------------------------------------|------------------------------|---------------------------------------------------------------------|----------------------------------------------------|------------------------------|-------------------------------------------------------------------------------|---------------------------------------------------------------------|---------------------------------|--------------------------------------------------------|
|                                     | VOLTS                                     | mA                           | OHMS                                                                | $\mu\text{A}$                                      | 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                             | 550                                                    |
| 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

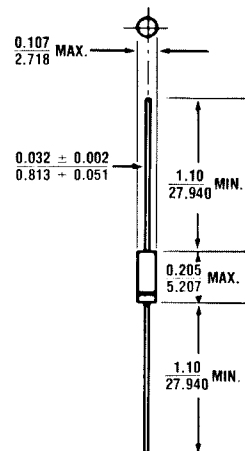


FIGURE 1

All dimensions in INCH  
m.m.

## MECHANICAL CHARACTERISTICS

CASE: Molded encapsulation, axial lead package (DO-41).

FINISH: Corrosion resistant. Leads are solderable.

THERMAL RESISTANCE:  $45^{\circ}\text{C}/$  Watt junction to lead at 0.375-inches from body.

POLARITY: Banded end is cathode.

WEIGHT: 0.4 grams (Typical).

# 1N4728A thru 1N4764A PLASTIC

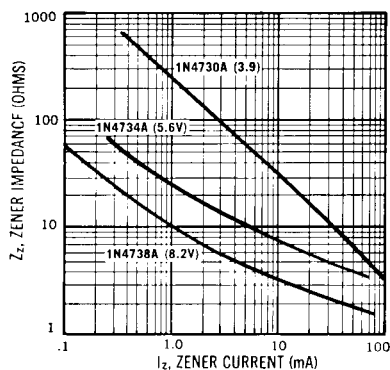
**NOTE 1** The JEDEC type numbers shown have a 5% tolerance on nominal zener voltage. No suffix signifies a 10% tolerance, C signifies 2%, and D signifies 1% tolerance.

**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

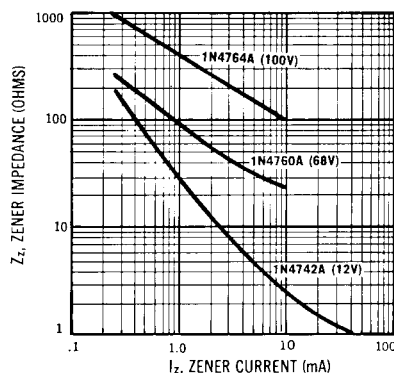
at two points to insure a sharp knee on the breakdown curve and eliminate unstable units.

**NOTE 3** The reverse 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  $I_{ZT}$ .

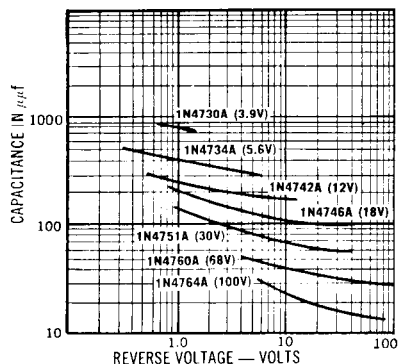
**NOTE 4** Voltage measurements to be performed 90 seconds after application of DC current.



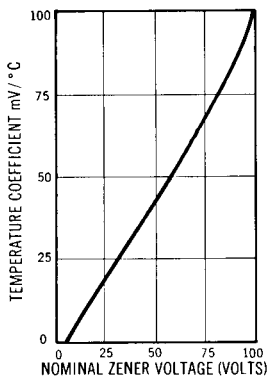
**FIGURE 2**  
TYPICAL ZENER IMPEDANCE vs.  
ZENER CURRENT FOR TYPES SHOWN



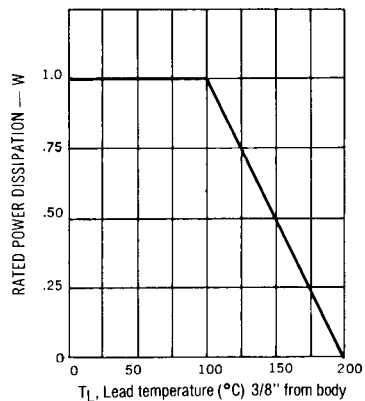
**FIGURE 3**  
TYPICAL ZENER IMPEDANCE vs.  
ZENER CURRENT FOR TYPES SHOWN



**FIGURE 4**  
CAPACITANCE vs. VOLTAGE FOR  
REPRESENTATIVE TYPES



**FIGURE 5**  
TEMP. COEFF. vs.  
ZENER VOLTAGE



**FIGURE 6**  
POWER DERATING CURVE