



**Microsemi Corp.**  
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# 1N4728A thru 1N4764A PLASTIC

**SILICON  
1 WATT  
ZENER DIODES**

## 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

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

| JEDEC TYPE NUMBER (Note 1) | ZENER VOLTAGE ( $V_z$ ) (Note 4) | TEST CURRENT ( $I_z$ ) | MAXIMUM DYNAMIC IMPEDANCE ( $Z_{zk}$ @ $I_z$ ) (Note 2) | MAXIMUM REVERSE CURRENT ( $I_r$ @ $V_r$ ) | TEST VOLTAGE ( $V_k$ ) | MAXIMUM REGULATOR CURRENT ( $I_{zm}$ ) ( $T_A = 50^{\circ}\text{C}$ ) | MAXIMUM KNEE IMPEDANCE ( $Z_{zk}$ @ $I_{zk}$ ) (Note 2) | TEST CURRENT ( $I_{zk}$ ) | MAXIMUM (SURGE) CURRENT ( $I_{sm}$ ) (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

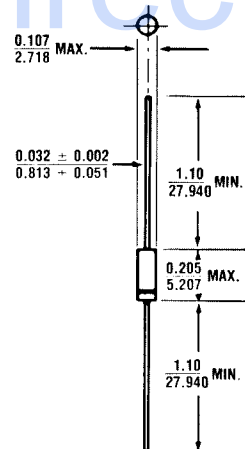


FIGURE 1

All dimensions in INCH  
m.m.

## MECHANICAL CHARACTERISTICS

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

FINISH: Corrosion resistant. Leads are solderable.

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

POLARITY: Banded end is cathode.

WEIGHT: 0.4 grams (Typical).

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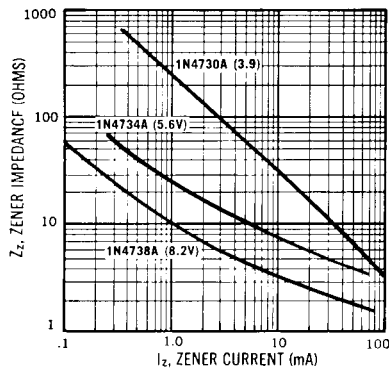
**NOTE 1** The JEDEC type numbers shown have a 5% tolerance on nominal zener voltage. No suffix signifies a 10% tolerance, C signifies 2%, and D signifies 1% tolerance.

**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

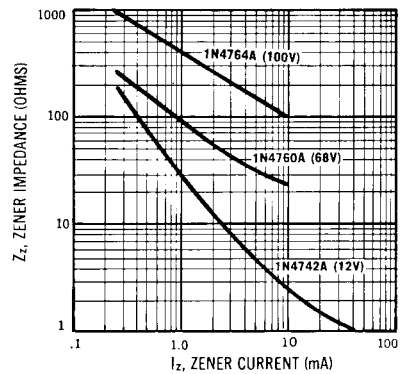
at two points to insure a sharp knee on the breakdown curve and eliminate unstable units.

**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  $I_{ZT}$ .

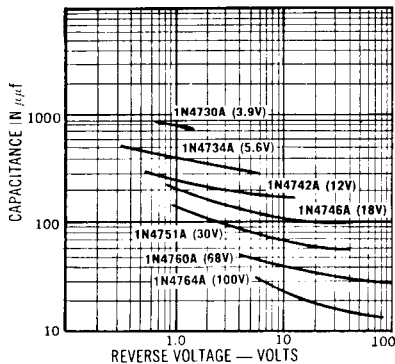
**NOTE 4** Voltage measurements to be performed 90 seconds after application of DC current.



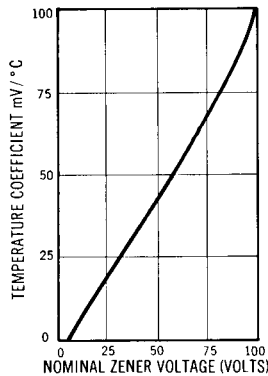
**FIGURE 2**  
TYPICAL ZENER IMPEDANCE vs.  
ZENER CURRENT FOR TYPES SHOWN



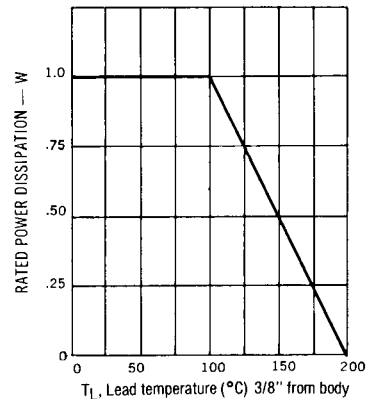
**FIGURE 3**  
TYPICAL ZENER IMPEDANCE vs.  
ZENER CURRENT FOR TYPES SHOWN



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



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



**FIGURE 6**  
POWER DERATING CURVE