



Microsemi Corp.
The diode experts

SCOTTSDALE, AZ
For more information call:
(602) 941-6300

1N5985 thru 1N6031

FEATURES

- Popular DO-35 Package—Small and Rugged
- Double Slug Construction
- Constructed with an Oxide Passivated All Diffused Die

MAXIMUM RATINGS

Operating & Storage Temp.: -65°C to $+200^{\circ}\text{C}$
 DC Power Dissipation: At Lead Temp. $T_L \leq 50^{\circ}\text{C}$
 Lead length 3/8": 500 mW
 Derate above $+50^{\circ}\text{C}$: $3.33\text{mW}/^{\circ}\text{C}$
 Forward voltage @ 100mA: 1.5V
 and $T_L = 30^{\circ}\text{C}$ $L = 3/8"$

ELECTRICAL CHARACTERISTICS

See the following table:
 The type number listed indicates a 20% tolerance. For 10% tolerance, add suffix A;
 for 5% tolerance, add suffix B; for 2% tolerance add suffix C; for 1% tolerance, add suffix D.

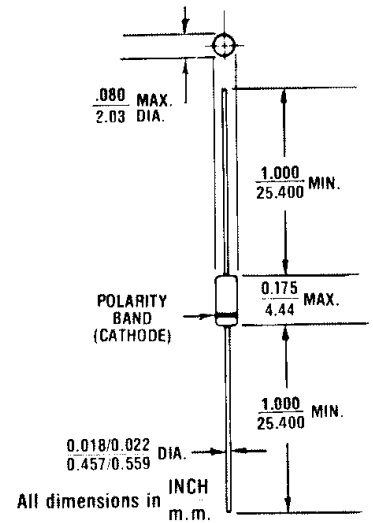
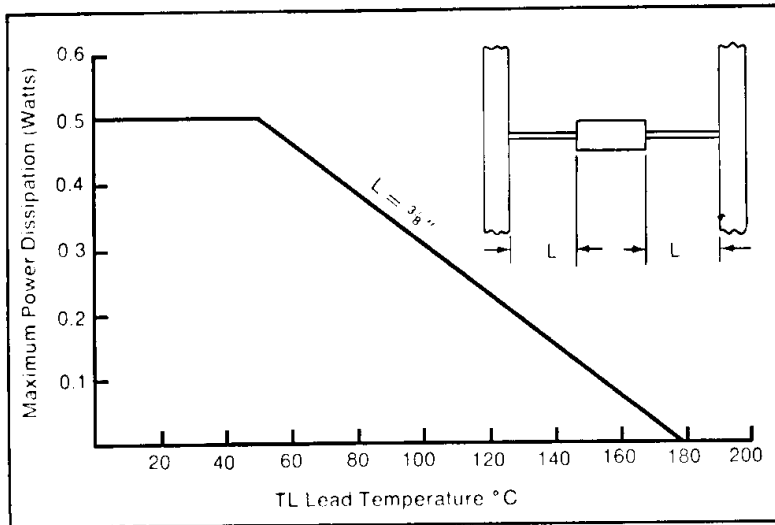


FIGURE 1

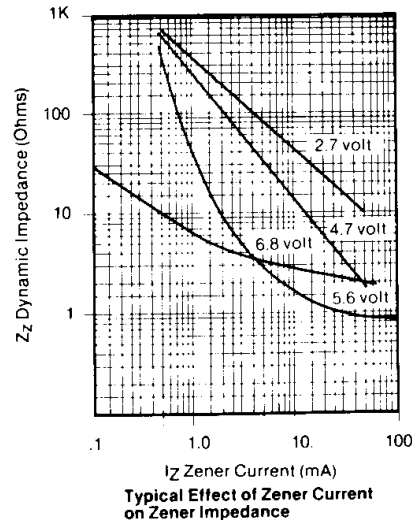
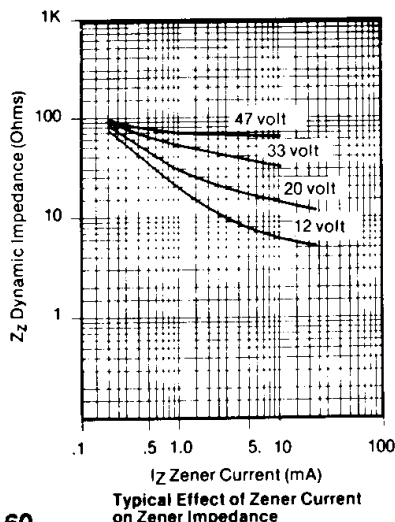
MECHANICAL CHARACTERISTICS

CASE: Hermetically sealed glass case. DO-35.

FINISH: All external surfaces are corrosion resistant and leads solderable.

THERMAL RESISTANCE: $200^{\circ}\text{C}/\text{W}$ (Typical) junction to lead at 0.375-inches from body.

POLARITY: Diode to be operated with the banded end positive with respect to the opposite end.



1N5985 thru 1N6031

***ELECTRICAL CHARACTERISTICS @ 30°C Lead Temperature. Lead Length 3/8".**

| JEDEC Type Number | Nominal Zener Voltage $V_Z @ I_{ZT}$ Volts (Note 2) | Test Current I_{ZT} mA | Max. Zener Impedance (Note 1) | | | | Max. Reverse Leakage Current | | | | Max. DC Zener Current I_{ZM} (Note 3) | Typical Temp. Coef. of Zener Voltage α_{VZ} %/°C |
|-------------------|---|--------------------------|-------------------------------|---------------|--|---------------|------------------------------|---------------|----------------|---------------|---|---|
| | | | $Z_{ZT} @ I_{ZT}$ Ohms | | $Z_{ZK} @ I_{ZK} = 0.25\text{mA}$ Ohms | | $I_R @$ μA | | V_R Volts | | | |
| | | | B, C, D Suffix | A, Non-Suffix | B, C, D Suffix | A, Non-Suffix | B, C, D Suffix | A, Non-Suffix | B, C, D Suffix | A, Non-Suffix | | |
| 1N5985 | 2.4 | 5.0 | 100 | 110 | 1800 | 2000 | 100 | 100 | 1.0 | 0.5 | 208 | -0.09 |
| 1N5986 | 2.7 | 5.0 | 100 | 110 | 1900 | 2200 | 75 | 100 | 1.0 | 0.5 | 185 | -0.075 |
| 1N5987 | 3.0 | 5.0 | 95 | 100 | 2000 | 2300 | 50 | 100 | 1.0 | 0.5 | 167 | -0.07 |
| 1N5988 | 3.3 | 5.0 | 95 | 100 | 2200 | 2400 | 25 | 75 | 1.0 | 0.5 | 152 | -0.06 |
| 1N5989 | 3.6 | 5.0 | 90 | 95 | 2300 | 2500 | 15 | 50 | 1.0 | 0.5 | 139 | -0.055 |
| 1N5990 | 3.9 | 5.0 | 90 | 95 | 2400 | 2500 | 10 | 25 | 1.0 | 1.0 | 128 | -0.045 |
| 1N5991 | 4.3 | 5.0 | 88 | 90 | 2500 | 2500 | 5.0 | 15 | 1.0 | 1.0 | 116 | -0.01 |
| 1N5992 | 4.7 | 5.0 | 70 | 90 | 2200 | 2500 | 3.0 | 10 | 1.5 | 1.0 | 106 | +0.01 |
| 1N5993 | 5.1 | 5.0 | 50 | 88 | 2050 | 2500 | 2.0 | 5.0 | 2.0 | 1.0 | 98 | +0.025 |
| 1N5994 | 5.6 | 5.0 | 25 | 70 | 1800 | 2200 | 2.0 | 3.0 | 3.0 | 1.5 | 89 | +0.035 |
| 1N5995 | 6.2 | 5.0 | 10 | 50 | 1300 | 2050 | 1.0 | 2.0 | 4.0 | 2.0 | 81 | +0.04 |
| 1N5996 | 6.8 | 5.0 | 8.0 | 25 | 750 | 1800 | 1.0 | 2.0 | 5.2 | 3.0 | 74 | +0.044 |
| 1N5997 | 7.5 | 5.0 | 7.0 | 10 | 600 | 1300 | 0.5 | 1.0 | 6.0 | 4.0 | 67 | +0.051 |
| 1N5998 | 8.2 | 5.0 | 7.0 | 15 | 600 | 750 | 0.5 | 1.0 | 6.5 | 5.2 | 61 | +0.055 |
| 1N5999 | 9.1 | 5.0 | 10 | 18 | 600 | 600 | 0.1 | 0.5 | 7.0 | 6.0 | 55 | +0.061 |
| 1N6000 | 10 | 5.0 | 15 | 22 | 600 | 600 | 0.1 | 0.5 | 8.0 | 6.5 | 50 | +0.065 |
| 1N6001 | 11 | 5.0 | 18 | 25 | 600 | 600 | 0.1 | 0.1 | 8.4 | 7.0 | 45 | +0.068 |
| 1N6002 | 12 | 5.0 | 22 | 32 | 600 | 600 | 0.1 | 0.1 | 9.1 | 8.0 | 42 | +0.073 |
| 1N6003 | 13 | 5.0 | 25 | 36 | 600 | 600 | 0.1 | 0.1 | 9.9 | 8.4 | 38 | +0.075 |
| 1N6004 | 15 | 5.0 | 32 | 42 | 600 | 600 | 0.1 | 0.1 | 11 | 9.1 | 33 | +0.079 |
| 1N6005 | 16 | 5.0 | 36 | 48 | 600 | 600 | 0.1 | 0.1 | 12 | 9.9 | 31 | +0.080 |
| 1N6006 | 18 | 5.0 | 42 | 55 | 600 | 600 | 0.1 | 0.1 | 14 | 11 | 28 | +0.083 |
| 1N6007 | 20 | 5.0 | 48 | 62 | 600 | 600 | 0.1 | 0.1 | 15 | 12 | 25 | +0.085 |
| 1N6008 | 22 | 5.0 | 55 | 70 | 600 | 600 | 0.1 | 0.1 | 17 | 14 | 23 | +0.087 |
| 1N6009 | 24 | 5.0 | 62 | 78 | 600 | 600 | 0.1 | 0.1 | 18 | 15 | 21 | +0.090 |
| 1N6010 | 27 | 5.0 | 70 | 88 | 600 | 700 | 0.1 | 0.1 | 21 | 17 | 19 | +0.091 |
| 1N6011 | 30 | 5.0 | 78 | 95 | 600 | 700 | 0.1 | 0.1 | 23 | 18 | 17 | +0.093 |
| 1N6012 | 33 | 5.0 | 88 | 110 | 700 | 800 | 0.1 | 0.1 | 25 | 21 | 15 | +0.094 |
| 1N6013 | 36 | 5.0 | 95 | 130 | 700 | 900 | 0.1 | 0.1 | 27 | 23 | 14 | +0.094 |
| 1N6014 | 39 | 2.0 | 130 | 170 | 800 | 1000 | 0.1 | 0.1 | 30 | 25 | 13 | +0.095 |
| 1N6015 | 43 | 2.0 | 150 | 180 | 900 | 1100 | 0.1 | 0.1 | 33 | 27 | 12 | +0.095 |
| 1N6016 | 47 | 2.0 | 170 | 200 | 1000 | 1300 | 0.1 | 0.1 | 36 | 30 | 11 | +0.096 |
| 1N6017 | 51 | 2.0 | 180 | 225 | 1300 | 1400 | 0.1 | 0.1 | 39 | 33 | 9.8 | +0.096 |
| 1N6018 | 56 | 2.0 | 200 | 240 | 1400 | 1600 | 0.1 | 0.1 | 43 | 36 | 8.9 | +0.096 |
| 1N6019 | 62 | 2.0 | 225 | 265 | 1400 | 1700 | 0.1 | 0.1 | 47 | 39 | 8.0 | +0.097 |
| 1N6020 | 68 | 2.0 | 240 | 280 | 1600 | 2000 | 0.1 | 0.1 | 52 | 43 | 7.4 | +0.097 |
| 1N6021 | 75 | 2.0 | 265 | 300 | 1700 | 2300 | 0.1 | 0.1 | 56 | 47 | 6.7 | +0.098 |
| 1N6022 | 82 | 2.0 | 280 | 350 | 2000 | 2600 | 0.1 | 0.1 | 62 | 52 | 6.1 | +0.098 |
| 1N6023 | 91 | 2.0 | 300 | 400 | 2300 | 3000 | 0.1 | 0.1 | 69 | 56 | 5.5 | +0.099 |
| 1N6024 | 100 | 1.0 | 500 | 800 | 2600 | 4000 | 0.1 | 0.1 | 76 | 62 | 5.0 | +0.110 |
| 1N6025 | 110 | 1.0 | 650 | 950 | 3000 | 4500 | 0.1 | 0.1 | 84 | 69 | 4.5 | +0.110 |
| 1N6026 | 120 | 1.0 | 800 | 1250 | 4000 | 5000 | 0.1 | 0.1 | 91 | 76 | 4.2 | +0.110 |
| 1N6027 | 130 | 1.0 | 950 | 1400 | 4500 | 5500 | 0.1 | 0.1 | 99 | 84 | 3.8 | +0.110 |
| 1N6028 | 150 | 1.0 | 1250 | 1700 | 5000 | 6000 | 0.1 | 0.1 | 114 | 91 | 3.3 | +0.110 |
| 1N6029 | 160 | 1.0 | 1400 | 2000 | 5500 | 7000 | 0.1 | 0.1 | 122 | 99 | 3.1 | +0.110 |
| 1N6030 | 180 | 1.0 | 1700 | 2350 | 6000 | 8000 | 0.1 | 0.1 | 137 | 114 | 2.8 | +0.110 |
| 1N6031 | 200 | 1.0 | 2000 | 2700 | 7000 | 9000 | 0.1 | 0.1 | 152 | 122 | 2.5 | +0.110 |

*Indicates JEDEC Registered Data.

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NOTE 1.

Zener impedance is derived from the 1KHz AC voltage which results when an AC current having an rms value equal to 10% of DC zener current (IZT or IZK) is superimposed on IZT or IZK.

NOTE 2.

Voltage measurements to be performed 20 seconds after application of the DC test current.

NOTE 3.

The maximum zener current Izm shown is for the nominal voltages. The following formula can be used to determine the worst case current for any tolerance device.

$$I_{zm} = \frac{P}{V_{zm}}$$

Where Vzm is the high end of the voltage tolerance specified and P is the rated power of the device.

CAPACITANCE vs. Vz CURVE

