



**Microsemi Corp.**  
The diode experts

SCOTTSDALE, AZ  
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(602) 941-6300

## 1N5985 thru 1N6031

SILICON  
500 mW  
ZENER DIODES

### FEATURES

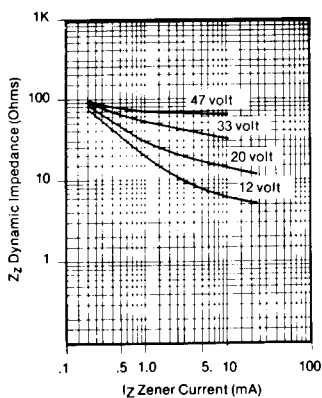
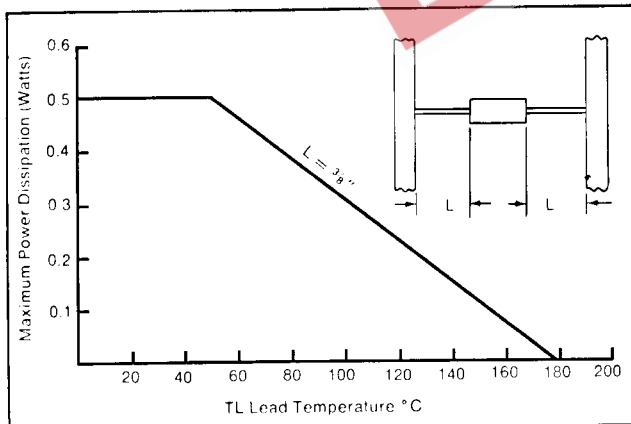
- Popular DO-35 Package—Small and Rugged
- Double Slug Construction
- Constructed with an Oxide Passivated All Diffused Die

### MAXIMUM RATINGS

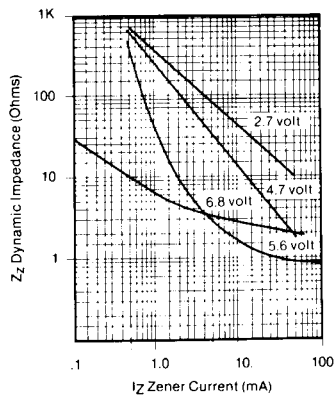
Operating & Storage Temp.:  $-65^{\circ}\text{C}$  to  $+200^{\circ}\text{C}$   
 DC Power Dissipation: At Lead Temp.  $T_L \leq 50^{\circ}\text{C}$   
 Lead length 3/8": 500 mW  
 Derate above  $+50^{\circ}\text{C}$ : 3.33mW/ $^{\circ}\text{C}$   
 Forward voltage @ 100mA: 1.5V  
 and  $T_L = 30^{\circ}\text{C}$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

### 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.



Typical Effect of Zener Current on Zener Impedance



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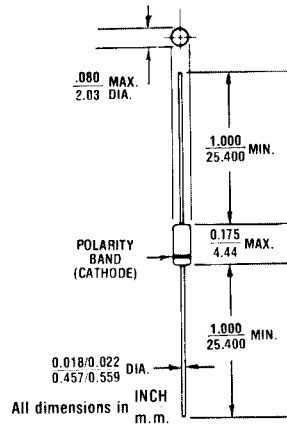


FIGURE 1

### 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 $\alpha_{VZ}$ %/°C
			$Z_{ZT}$ @ $I_{ZT}$ Ohms		$Z_{ZK}$ @ $I_{ZK} = 0.25$ mA Ohms		$I_R$ @ $\mu A$		$V_R$ 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.

## 1N5985 thru 1N6031

**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.

