

DIGITRON SEMICONDUCTORS

1N5985-1N6031

500mW ZENER DIODES

MAXIMUM RATINGS

| | |
|---------------------------------------|----------------------|
| Operating and Storage Temperature | -65 to +175°C |
| DC Power Dissipation @ 25°C | 500 mW 3.33 mW/°C |
| Lead Length 3/8" Derate above 50°C | |
| Forward Voltage @ 200mA | 1.1 V |

ELECTRICAL CHARACTERISTICS

| Part Number | Nominal Zener Voltage $V_Z @ I_{ZT}$ (note 2) Volts | Zener Test Current I_{ZT} mA | Maximum Zener Impedance (note 1) | | | | Maximum Reverse Leakage Current | | | | Maximum DC Zener Current I_{ZM} (note 3) mA | Typical Temperature Coefficient of Zener Voltage α_{VZ} %/°C |
|-------------|--|--------------------------------------|-------------------------------------|---------------|------------------------------------|---------------|---------------------------------|---------------|----------------|---------------|--|---|
| | | | $Z_{ZT} @ I_{ZT}$ Ohms | | $Z_{ZK} @ I_{ZK} = 0.25mA$ 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 |

DIGITRON SEMICONDUCTORS

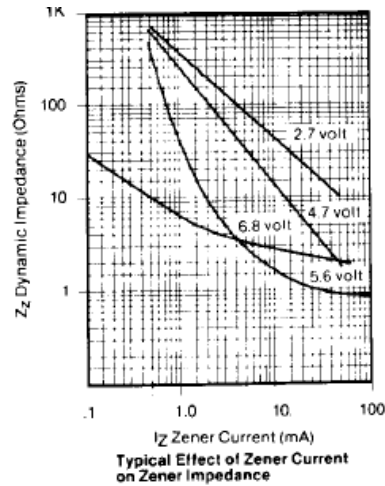
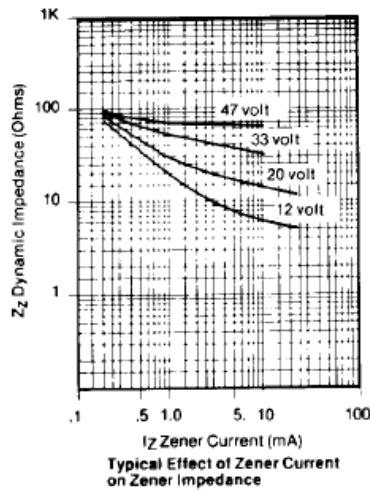
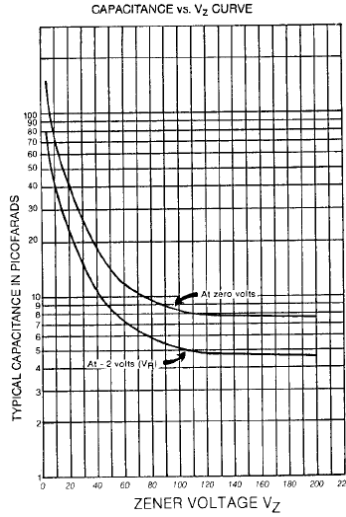
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500mW ZENER DIODES

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 (I_{ZT} or I_{ZK}) is superimposed on I_{ZT} or I_{ZK} .

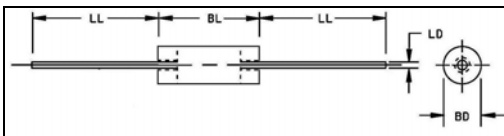
Note 2: Voltage measurements to be performed 20 seconds after application of the DC test current.

Note 3: The maximum zener current I_{ZM} is for the nominal voltages. The following formula can be used to determine the worst case current for any tolerance device:
 $I_{ZM} = P/V_{ZM}$, where V_{ZM} is the high end of the voltage tolerance specified and P is the rated power of the device.



MECHANICAL CHARACTERISTICS

| | |
|------------------|---------------------------------|
| Case: | Hermetically sealed glass DO-35 |
| Polarity: | Cathode band |
| Marking: | Body Painted, alpha-numeric |



| | Dimensions | | | |
|-----------|------------|-------|-------------|-------|
| | Inches | | Millimeters | |
| | Min | Max | Min | Max |
| BD | - | 0.080 | - | 2.030 |
| BL | - | 0.175 | - | 4.440 |
| LD | 0.018 | 0.022 | 0.457 | 0.559 |
| LL | 1.000 | - | 25.400 | - |

Available Non-RoHS (standard) or RoHS compliant (add PBF suffix).

Available as "HR" (high reliability) screened per MIL-PRF-19500, JANTX level. Add "HR" suffix to base part number.