



1N957B THRU 1N992B

0.5W SILICON ZENER DIODES

FEATURES

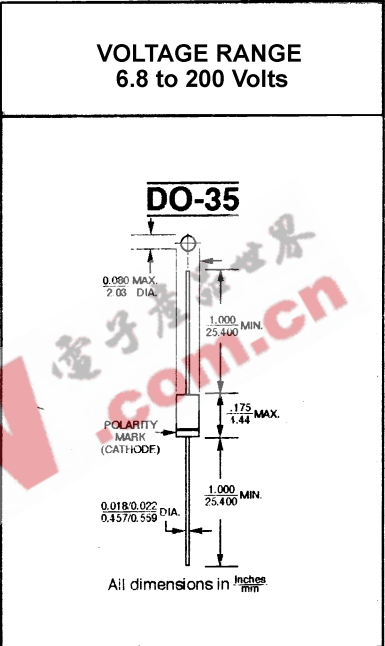
- * 6.8 to 200V zener voltage range
- * Metallurgically bonded device types
- * Consult factory for voltages above 200V

MECHANICAL CHARACTERISTICS

- * CASE: Hermetically sealed glass case. DO - 35.
- * FINISH: All external surfaces are corrosion resistant and leads solderable.
- * THERMAL RESISTANCE: 200°C/W (Typical) junction to lead at 0.375 inches from body. Metallurgically bonded DO - 35, exhibit less than 100°C/W at zero distance from body.
- * POLARITY: banded end is cathode.
- * WEIGHT: 0.2 grams
- * MOUNTING POSITIONS: Any

MAXIMUM RATINGS

Steady State Power Dissipation: 500mW
 Operating and Storage temperature: - 65°C to + 175°C
 Derating Factor Above 50°C: 4.0mW/°C
 Forward Voltage @ 200mA: 1.5 Volts



ELECTRICAL CHARACTERISTICS @ 25°C

| JEDEC TYPE NO. (Note 1) | NOMINAL ZENER VOLTAGE (Note 2) V _Z | ZENER TEST CURRENT I _{ZT} | MAX. ZENER IMPEDANCE (Note 3) | | | MAX. DC ZENER CURRENT (Note 4) I _{ZM} | MAX. SURGE CURRENT (RECURRENT) (Note 5) I _Z (SURGE) | MAX. REVERSE LEAKAGE CURRENT I _R @ I _R | | MAX. TEMP. COEFFICIENT %/°C |
|-------------------------|---|------------------------------------|-----------------------------------|-----------------------------------|------|--|--|--|-------|-----------------------------|
| | | | Z _{ZT} @ Z _{ZT} | Z _{ZK} @ Z _{ZK} | OHMS | | | OHMS | μA | |
| 1N957B | 6.8 | 18.5 | 4.5 | 700 | 1.0 | 55 | 300 | 150 | 5.2 | +0.05 |
| 1N958B | 7.5 | 16.5 | 5.5 | 700 | .5 | 50 | 275 | 75 | 5.7 | 0.068 |
| 1N959B | 8.2 | 15.0 | 6.5 | 700 | .5 | 45 | 250 | 50 | 6.2 | +0.065 |
| 1N960B | 9.1 | 14.0 | 7.5 | 700 | .5 | 41 | 225 | 25 | 6.9 | +0.068 |
| 1N961B | 10 | 12.5 | 8.5 | 700 | .25 | 38 | 200 | 10 | 7.6 | +0.075 |
| 1N962B | 11 | 11.5 | 9.5 | 700 | .25 | 32 | 175 | 5 | 8.4 | +0.076 |
| 1N963B | 12 | 10.5 | 11.5 | 700 | .25 | 31 | 160 | 5 | 9.1 | 0.077 |
| 1N964B | 13 | 9.5 | 13.0 | 700 | .25 | 28 | 150 | 5 | 9.9 | 0.079 |
| 1N965B | 15 | 8.5 | 16 | 700 | .25 | 25 | 130 | 5 | 11.4 | +0.082 |
| 1N966B | 16 | 7.8 | 17 | 700 | .25 | 24 | 120 | 5 | 12.2 | +0.083 |
| 1N967B | 18 | 7.0 | 21 | 750 | .25 | 20 | 110 | 5 | 13.7 | +0.085 |
| 1N968B | 20 | 6.2 | 25 | 750 | .25 | 18 | 100 | 5 | 15.2 | +0.086 |
| 1N969B | 22 | 5.6 | 29 | 750 | .25 | 16 | 90 | 5 | 16.7 | +0.087 |
| 1N970B | 24 | 5.2 | 33 | 750 | .25 | 15 | 80 | 5 | 18.2 | +0.088 |
| 1N971B | 27 | 4.6 | 41 | 750 | .25 | 13 | 70 | 5 | 20.6 | +0.090 |
| 1N972B | 30 | 4.2 | 49 | 1000 | .25 | 12 | 65 | 5 | 22.8 | +0.091 |
| 1N973B | 33 | 3.8 | 58 | 1000 | .25 | 11 | 60 | 5 | 25.1 | +0.092 |
| 1N974B | 36 | 3.4 | 70 | 1000 | .25 | 10 | 55 | 5 | 27.4 | +0.093 |
| 1N975B | 39 | 3.2 | 80 | 1000 | .25 | 9.5 | 46 | 5 | 29.7 | +0.094 |
| 1N976B | 43 | 3.0 | 93 | 1500 | .25 | 8.8 | 44 | 5 | 32.7 | +0.095 |
| 1N977B | 47 | 2.7 | 105 | 1500 | .25 | 7.9 | 40 | 5 | 35.8 | +0.095 |
| 1N978B | 51 | 2.5 | 125 | 1500 | .25 | 7.4 | 37 | 5 | 38.8 | +0.096 |
| 1N979B | 56 | 2.2 | 150 | 2000 | .25 | 6.8 | 35 | 5 | 42.6 | +0.096 |
| 1N980B | 62 | 2.0 | 185 | 2000 | .25 | 6.0 | 30 | 5 | 47.1 | +0.097 |
| 1N981B | 68 | 1.8 | 230 | 2000 | .25 | 5.5 | 28 | 5 | 51.7 | +0.097 |
| 1N982B | 75 | 1.7 | 270 | 2000 | .25 | 5.0 | 26 | 5 | 56.0 | +0.098 |
| 1N983B | 82 | 1.5 | 330 | 3000 | .25 | 4.6 | 23 | 5 | 62.2 | +0.098 |
| 1N984B | 91 | 1.4 | 400 | 3000 | .25 | 4.1 | 21 | 5 | 69.2 | +0.099 |
| 1N985B | 100 | 1.3 | 500 | 3000 | .25 | 3.7 | 18 | 5 | 76.0 | +0.11 |
| 1N986B | 110 | 1.1 | 750 | 4000 | .25 | 3.3 | 16 | 5 | 83.6 | +0.11 |
| 1N987B | 120 | 1.0 | 900 | 4500 | .25 | 3.1 | 15 | 5 | 91.2 | +0.11 |
| 1N988B | 130 | 0.95 | 1100 | 5000 | .25 | 2.7 | 13 | 5 | 98.8 | +0.11 |
| 1N989B | 150 | 0.85 | 1500 | 6000 | .25 | 2.4 | 12 | 5 | 114.0 | +0.11 |
| 1N990B | 160 | 0.80 | 1700 | 6500 | .25 | 2.2 | 11 | 5 | 121.6 | +0.11 |
| 1N991B | 180 | 0.68 | 2200 | 7100 | .25 | 2.0 | 10 | 5 | 136.8 | +0.11 |
| 1N992B | 200 | 0.65 | 2500 | 8000 | 0.25 | 1.8 | 9 | 5 | 152.0 | +0.11 |

*** JEDEC Registered Data**

NOTE 4 The values of I_{ZM} are calculated for a ± 5% tolerance on nominal zener voltage. Allowance has been made for the rise in zener voltage above V_{ZT} which results from zener impedance and the increase in junction temperature as power dissipation approaches 400mW. In the case of individual diodes I_{ZM} is that value of current which results in a dissipation of 400 mW at 75°C lead temperature at 3/8" from body.

NOTE 5 Surge is 1/2 square wave or equivalent sine wave pulse of 1/120 sec. duration.

NOTE 1 The JEDEC type numbers shown (B suffix) have a ± 5% tolerance on nominal zener voltage. The suffix A is used to identify ± 10% tolerance; suffix C is used to identify ± 2%; and suffix D is used to identify ± 1% tolerance; no suffix indicates ± 20% tolerance.

NOTE 2 Zener voltage (V_Z) is measured after the test current has been applied for 20 ± 5 seconds. The device shall be suspended by its leads with the inside edge of the mounting clips between .375" and .500" from the body. Mounting clips shall be maintained at a temperature of 25 + 8/ - 2°C.

NOTE 3 The zener impedance is derived from the 60 cycle A. C. voltage, which results when an A. C. current having an R. M. S. value equal to 10% of the D. C. zener current (I_{ZT} or I_{ZK}) is superimposed on I_{ZT} or I_{ZT}. Zener impedance is measured at 2 points to insure a sharp knee on the breakdown curve and to eliminate unstable units.



RATINGS AND CHARACTERISTIC CURVES (1N957B THRU 1N992B)

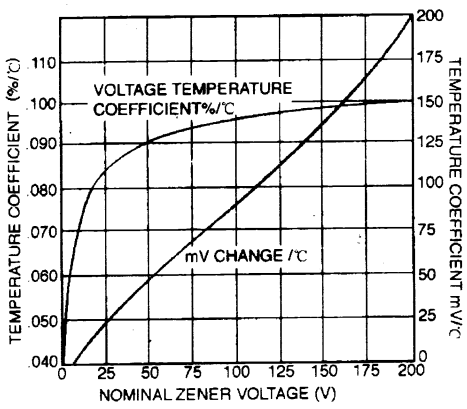


FIGURE 1

ZENER VOLTAGE TEMPERATURE COEFF. vs. ZENER VOLTAGE

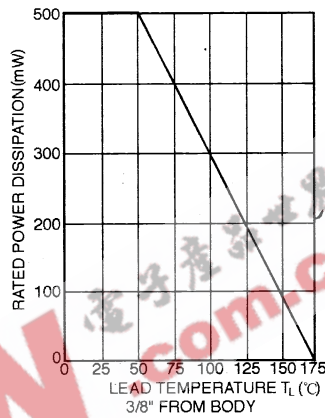


FIGURE 2 POWER DERATING CURVE

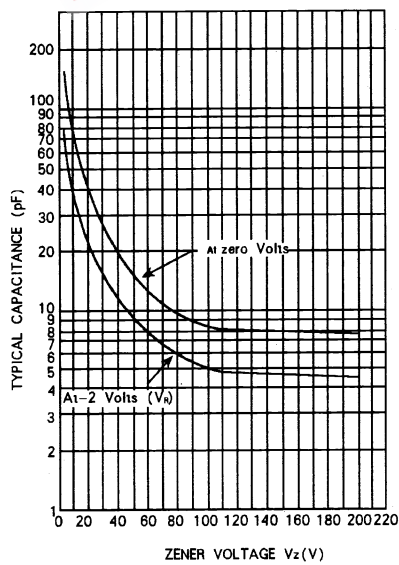


FIGURE 3

CAPACITANCE vs. ZENER VOLTAGE (TYPICAL)