



ELECTRONICS, INC.
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1N5333B thru 1N5388B Zener Diode, 5 Watt ±5% Tolerance

Features:

- Zener Voltage: 3.3V to 200V
- High Surge Current Capability

Absolute Maximum Ratings:

DC Power Dissipation ($T_L = +75^\circ\text{C}$, Lead Length = 3/8"), P_D 5W
 Derate Above 75°C 40mW/ $^\circ\text{C}$
 Forward Voltage ($I_F = 1\text{A}$), V_F 1.2V
 Operating Junction Temperature Range, T_J -55° to $+150^\circ\text{C}$
 Storage Temperature Range, T_{stg} -55° to $+150^\circ\text{C}$

Electrical Characteristics: ($T_A = +25^\circ\text{C}$ unless otherwise specified)

| Device Number | Nominal Zener Voltage $V_Z @ I_{ZT}$ (Note 1) | Test Current I_{ZT} | Max Zener Impedance | | Max Reverse Leakage Current | | Max Surge Current i_r (Note 2) | Max Voltage Regulation ΔV_Z (Note 3) | Max Regulator Current I_{ZM} |
|---------------|---|-----------------------|----------------------------|---|-----------------------------|----------|----------------------------------|--|--------------------------------|
| | | | $Z_{ZT} @ I_{ZT}$ (Note 1) | $Z_{ZK} @ I_{ZK} = 1\text{mA}$ (Note 1) | $I_R @ V_R$ | | | | |
| | | | Volts | mA | Ω | Ω | | | |
| 1N5333B | 3.3 | 380 | 3.0 | 400 | 300 | 1 | 20 | 0.85 | 1440 |
| 1N5334B | 3.6 | 350 | 2.5 | 500 | 150 | 1 | 18.7 | 0.8 | 1320 |
| 1N5335B | 3.9 | 320 | 2 | 500 | 50 | 1 | 17.6 | 0.54 | 1220 |
| 1N5336B | 4.3 | 290 | 2 | 500 | 10 | 1 | 16.4 | 0.49 | 1100 |
| 1N5337B | 4.7 | 260 | 2 | 450 | 5 | 1 | 15.3 | 0.44 | 1010 |
| 1N5338B | 5.1 | 240 | 1.5 | 400 | 1 | 1 | 14.4 | 0.39 | 930 |
| 1N5339B | 5.6 | 220 | 1 | 400 | 1 | 2 | 13.4 | 0.25 | 865 |

Note 1 Test conditions for zener voltage and impedance are as follows: I_Z is applied $40 \pm 10\text{ms}$ prior to reading. Mounting contacts are located 3/8" to 1/2" from the inside edge of mounting clips to the body of the diode ($T_A = +25^\circ\text{C} + 8^\circ, -2^\circ\text{C}$).

Note 2 Surge current is specified as the maximum allowable peak, non-recurrent square-wave current with a pulse width, PW, of 8.3ms. Mounting contact located as specified in Note 1.

Note 3 Test conditions for voltage regulation are as follows: V_Z measurements are made at 10% and then at 50% of the I_Z max value listed in the "Electrical Characteristic" table. The test current time duration for each V_Z measurement is $40 \pm 10\text{ms}$ ($T_A = +25^\circ\text{C} + 8^\circ, -2^\circ\text{C}$). Mounting contact located as specified in Note 1.

Electrical Characteristics (Cont'd): ($T_A = +25^\circ\text{C}$ unless otherwise specified)

| Device Number | Nominal Zener Voltage $V_Z @ I_{ZT}$ (Note 1) | Test Current I_{ZT} | Max Zener Impedance | | Max Reverse Leakage Current | | Max Surge Current i_r (Note 2) | Max Voltage Regulation ΔV_Z (Note 3) | Max Regulator Current I_{ZM} |
|---------------|---|-----------------------|----------------------------|---|-----------------------------|---------|----------------------------------|--|--------------------------------|
| | | | $Z_{ZT} @ I_{ZT}$ (Note 1) | $Z_{ZK} @ I_{ZK} = 1\text{mA}$ (Note 1) | I_R | @ V_R | | | |
| | Volts | mA | Ω | Ω | μA | Volts | Amps | Volt | mA |
| 1N5341B | 6.2 | 200 | 1 | 200 | 1 | 3 | 12.4 | 0.1 | 765 |
| 1N5342B | 6.8 | 175 | 1 | 200 | 10 | 5.2 | 11.5 | 0.15 | 700 |
| 1N5343B | 7.5 | 175 | 1.5 | 200 | 10 | 5.7 | 10.7 | 0.15 | 630 |
| 1N5344B | 8.2 | 150 | 1.5 | 200 | 10 | 6.2 | 10 | 0.2 | 580 |
| 1N5345B | 8.7 | 150 | 2 | 200 | 10 | 6.6 | 9.5 | 0.2 | 545 |
| 1N5346B | 9.1 | 150 | 2 | 150 | 7.5 | 6.9 | 9.2 | 0.22 | 520 |
| 1N5347B | 10 | 125 | 2 | 125 | 5 | 7.6 | 8.6 | 0.22 | 475 |
| 1N5348B | 11 | 125 | 2.5 | 125 | 5 | 8.4 | 8 | 0.25 | 430 |
| 1N5349B | 12 | 100 | 2.5 | 125 | 2 | 9.1 | 7.5 | 0.25 | 395 |
| 1N5350B | 13 | 100 | 2.5 | 100 | 1 | 9.9 | 7 | 0.25 | 365 |
| 1N5351B | 14 | 100 | 2.5 | 75 | 1 | 10.6 | 6.7 | 0.25 | 340 |
| 1N5352B | 15 | 75 | 2.5 | 75 | 1 | 11.5 | 6.3 | 0.25 | 315 |
| 1N5353B | 16 | 75 | 2.5 | 75 | 1 | 12.2 | 6 | 0.3 | 295 |
| 1N5354B | 17 | 70 | 2.5 | 75 | 0.5 | 12.9 | 5.8 | 0.35 | 280 |
| 1N5355B | 18 | 65 | 2.5 | 75 | 0.5 | 13.7 | 5.5 | 0.4 | 265 |
| 1N5356B | 19 | 65 | 3 | 75 | 0.5 | 14.4 | 5.3 | 0.4 | 250 |
| 1N5357B | 20 | 65 | 3 | 75 | 0.5 | 15.2 | 5.1 | 0.4 | 237 |
| 1N5358B | 22 | 50 | 3.5 | 75 | 0.5 | 16.7 | 4.7 | 0.45 | 216 |
| 1N5359B | 24 | 50 | 3.5 | 100 | 0.5 | 18.2 | 4.4 | 0.55 | 198 |
| 1N5360B | 25 | 50 | 4 | 110 | 0.5 | 19 | 4.3 | 0.55 | 190 |
| 1N5361B | 27 | 50 | 5 | 120 | 0.5 | 20.6 | 4.1 | 0.6 | 176 |
| 1N5362B | 28 | 50 | 6 | 130 | 0.5 | 21.2 | 3.9 | 0.6 | 170 |
| 1N5363B | 30 | 40 | 8 | 140 | 0.5 | 22.8 | 3.7 | 0.6 | 158 |
| 1N5364B | 33 | 40 | 10 | 150 | 0.5 | 25.1 | 3.5 | 0.6 | 144 |
| 1N5365B | 36 | 30 | 11 | 160 | 0.5 | 27.4 | 3.3 | 0.65 | 132 |
| 1N5366B | 39 | 30 | 14 | 170 | 0.5 | 29.7 | 3.1 | 0.65 | 122 |
| 1N5367B | 43 | 30 | 20 | 190 | 0.5 | 32.7 | 2.8 | 0.7 | 110 |
| 1N5368B | 47 | 25 | 25 | 210 | 0.5 | 35.8 | 2.7 | 0.8 | 100 |
| 1N5369B | 51 | 25 | 27 | 230 | 0.5 | 38.8 | 2.5 | 0.9 | 93 |
| 1N5370B | 56 | 20 | 35 | 280 | 0.5 | 42.6 | 2.3 | 1 | 86 |
| 1N5371B | 60 | 20 | 40 | 350 | 0.5 | 42.5 | 2.2 | 1.2 | 79 |
| 1N5372B | 62 | 20 | 42 | 400 | 0.5 | 47.1 | 2.1 | 1.35 | 76 |
| 1N5373B | 68 | 20 | 44 | 500 | 0.5 | 51.7 | 2 | 1.5 | 70 |

Note 1 Test conditions for zener voltage and impedance are as follows: I_Z is applied $40 \pm 10\text{ms}$ prior to reading. Mounting contacts are located $3/8''$ to $1/2''$ from the inside edge of mounting clips to the body of the diode ($T_A = +25^\circ\text{C} + 8^\circ, -2^\circ\text{C}$).

Note 2 Surge current is specified as the maximum allowable peak, non-recurrent square-wave current with a pulse width, PW, of 8.3ms. Mounting contact located as specified in Note 1.

Note 3 Test conditions for voltage regulation are as follows: V_Z measurements are made at 10% and then at 50% of the I_Z max value listed in the "Electrical Characteristic" table. The test current time duration for each V_Z measurement is $40 \pm 10\text{ms}$ ($T_A = +25^\circ\text{C} + 8^\circ, -2^\circ\text{C}$). Mounting contact located as specified in Note 1.

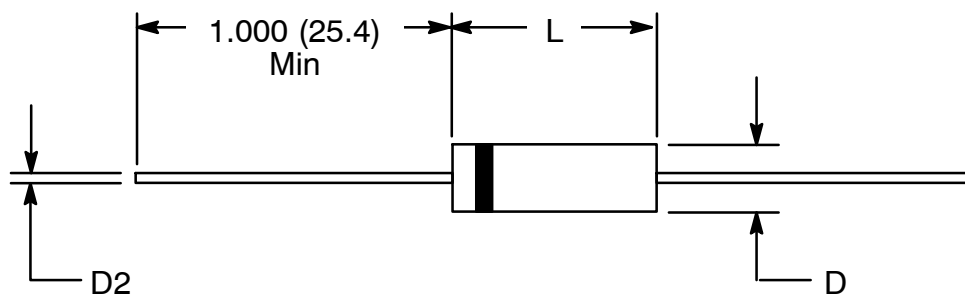
Electrical Characteristics (Cont'd): ($T_A = +25^\circ\text{C}$ unless otherwise specified)

| Device Number | Nominal Zener Voltage $V_Z @ I_{ZT}$ (Note 1) | Test Current I_{ZT} | Max Zener Impedance | | Max Reverse Leakage Current | | Max Surge Current i_r (Note 2) | Max Voltage Regulation ΔV_Z (Note 3) | Max Regulator Current I_{ZM} |
|---------------|---|-----------------------|----------------------------|---|-----------------------------|-------|----------------------------------|--|--------------------------------|
| | | | $Z_{ZT} @ I_{ZT}$ (Note 1) | $Z_{ZK} @ I_{ZK} = 1\text{mA}$ (Note 1) | $I_R @ V_R$ | | | | |
| | | | Ω | Ω | μA | Volts | | | |
| | Volts | mA | | | | | Amps | Volt | mA |
| 1N5374B | 75 | 20 | 45 | 620 | 0.5 | 56 | 1.9 | 1.6 | 63 |
| 1N5375B | 82 | 15 | 65 | 720 | 0.5 | 62.2 | 1.8 | 1.8 | 58 |
| 1N5376B | 87 | 15 | 75 | 760 | 0.5 | 66 | 1.7 | 2 | 54.5 |
| 1N5377B | 91 | 15 | 75 | 760 | 0.5 | 69.2 | 1.6 | 2.2 | 52.5 |
| 1N5378B | 100 | 12 | 90 | 800 | 0.5 | 76 | 1.5 | 2.5 | 47.5 |
| 1N5379B | 110 | 12 | 125 | 1000 | 0.5 | 83.6 | 1.4 | 2.5 | 43 |
| 1N5380B | 120 | 10 | 170 | 1150 | 0.5 | 91.2 | 1.3 | 2.5 | 39.5 |
| 1N5381B | 130 | 10 | 190 | 1250 | 0.5 | 98.8 | 1.2 | 2.5 | 36.6 |
| 1N5382B | 140 | 8 | 230 | 1500 | 0.5 | 106 | 1.2 | 2.5 | 34 |
| 1N5383B | 150 | 8 | 330 | 1500 | 0.5 | 114 | 1.1 | 3 | 31.6 |
| 1N5384B | 160 | 8 | 350 | 1650 | 0.5 | 122 | 1.1 | 3 | 29.4 |
| 1N5385B | 170 | 8 | 380 | 1750 | 0.5 | 129 | 1 | 3 | 28 |
| 1N5386B | 180 | 5 | 430 | 1750 | 0.5 | 137 | 1 | 4 | 26.4 |
| 1N5387B | 190 | 5 | 450 | 1850 | 0.5 | 144 | 0.9 | 5 | 25 |
| 1N5388B | 200 | 5 | 480 | 1850 | 0.5 | 152 | 0.9 | 5 | 23.6 |

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Color Band Denotes Cathode

| Dim | DO-15 | | DO-201 | |
|-----|-------------|--------------|-------------|-------------|
| | Min | Max | Min | Max |
| L | .216 (5.50) | .300 (7.62) | .283 (7.20) | .374 (9.50) |
| D | .102 (2.60) | .142 (3.60) | .189 (4.80) | .209 (5.30) |
| D2 | .028 (0.71) | .034 (0.864) | .037 (0.94) | .042 (1.07) |

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