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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  $75^\circ\text{C}$  ..... 40mW/ $^\circ\text{C}$   
Forward Voltage ( $I_F = 1\text{A}$ ),  $V_F$  ..... 1.2V  
Operating Junction Temperature Range,  $T_J$  .....  $-65^\circ$  to  $+200^\circ\text{C}$   
Storage Temperature Range,  $T_{stg}$  .....  $-65^\circ$  to  $+200^\circ\text{C}$

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

| Device Number | Nominal Zener Voltage<br>V <sub>Z</sub> @ I <sub>ZT</sub><br>(Note 1) | Test Current<br>I <sub>ZT</sub> | Max Zener Impedance                           |                                                     | Max Reverse Leakage Current     |       | Max Surge Current<br>i <sub>r</sub><br>(Note 2) | Max Voltage Regulation<br>ΔV <sub>Z</sub><br>(Note 3) | Max Regulator Current<br>I <sub>ZM</sub> |
|---------------|-----------------------------------------------------------------------|---------------------------------|-----------------------------------------------|-----------------------------------------------------|---------------------------------|-------|-------------------------------------------------|-------------------------------------------------------|------------------------------------------|
|               |                                                                       |                                 | Z <sub>ZT</sub> @ I <sub>ZT</sub><br>(Note 1) | Z <sub>ZK</sub> @ I <sub>ZK</sub> = 1mA<br>(Note 1) | I <sub>R</sub> @ V <sub>R</sub> |       |                                                 |                                                       |                                          |
|               | Volts                                                                 | mA                              | Ω                                             | Ω                                                   | μA                              | Volts | Amps                                            | Volt                                                  | mA                                       |
| 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.

| Device Number | Nominal Zener Voltage<br>V <sub>Z</sub> @ I <sub>ZT</sub><br>(Note 1) | Test Current<br>I <sub>ZT</sub> | Max Zener Impedance                           |                                                     | Max Reverse Leakage Current |       | Max Surge Current<br>i <sub>r</sub><br>(Note 2) | Max Voltage Regulation<br>ΔV <sub>Z</sub><br>(Note 3) | Max Regulator Current<br>I <sub>ZM</sub> |
|---------------|-----------------------------------------------------------------------|---------------------------------|-----------------------------------------------|-----------------------------------------------------|-----------------------------|-------|-------------------------------------------------|-------------------------------------------------------|------------------------------------------|
|               |                                                                       |                                 | Z <sub>ZT</sub> @ I <sub>ZT</sub><br>(Note 1) | Z <sub>ZK</sub> @ I <sub>ZK</sub> = 1mA<br>(Note 1) |                             |       |                                                 |                                                       |                                          |
|               | 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                                       |

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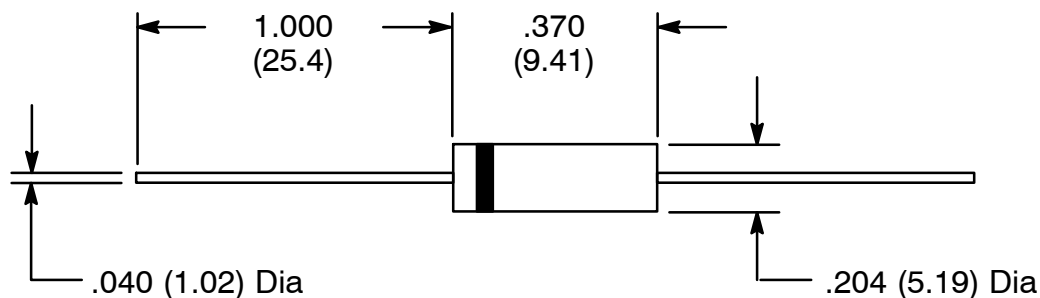
Note 3 Test conditions for voltage regulation are as follows:  $V_Z$  measurements are made at 10% and then at 50% of the  $I_Z$  max value listed in the "Electrical Characteristic" table. The test current time duration for each  $V_Z$  measurement is  $40 \pm 10ms$  ( $T_A = +25^\circ C + 8^\circ, -2^\circ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

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|               | Volts                                                                 | mA                              | Ω                                             | Ω                                                   | μA                          | Volts | Amps                                            | Volt                                                  | mA                                       |
| 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                                       |
| 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