

# Central<sup>TM</sup> Semiconductor Corp.

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Manufacturers of World Class Discrete Semiconductors

1N5333B THRU 1N5388B

5.0 W ZENER DIODE  
3.3 VOLTS to 200 VOLTS  
5% TOLERANCE

AXIAL LEAD EPOXY CASE

## DESCRIPTION

The Central Semiconductor 1N5333B Series Silicon Zener Diode is a high quality voltage regulator for use in industrial, commercial, entertainment and computer applications.

## ABSOLUTE MAXIMUM RATINGS

Power Dissipation (@  $T_L = 75^\circ\text{C}$ )  
Operating and Storage Temperature  
Tolerance "B Suffix"

## SYMBOL

$P_D$  5.0  
 $T_J, T_{STG}$  -65 to +200  
 $\pm 5$

## UNIT

W  
 $^\circ\text{C}$   
%

**ELECTRICAL CHARACTERISTICS** ( $T_A = 25^\circ\text{C}$ ),  $V_F = 1.2\text{V MAX}$  @  $I_F = 1.0\text{A}$  FOR ALL TYPES.

| TYPE    | Zener Voltage  | Test Current | Maximum Zener Impedance |                   |     | Maximum Reverse Current |       | Maximum Surge Current (Note 1) | Maximum Voltage Regulation (Note 2) | Maximum Regulator Current |
|---------|----------------|--------------|-------------------------|-------------------|-----|-------------------------|-------|--------------------------------|-------------------------------------|---------------------------|
|         | $V_Z @ I_{ZT}$ | $I_{ZT}$     | $Z_{ZT} @ I_{ZT}$       | $Z_{ZK} @ I_{ZK}$ |     | $I_R @ V_R$             |       | $I_r$                          | $\Delta V_Z$                        | $I_{ZM}$                  |
|         | Volts          | mA           | $\Omega$                | $\Omega$          | mA  | $\mu\text{A}$           | Volts | A                              | Volts                               | mA                        |
| 1N5333B | 3.3            | 380          | 3.0                     | 400               | 1.0 | 300                     | 1.0   | 20                             | 0.85                                | 1440                      |
| 1N5334B | 3.6            | 350          | 2.5                     | 500               | 1.0 | 150                     | 1.0   | 18.7                           | 0.80                                | 1320                      |
| 1N5335B | 3.9            | 320          | 2.0                     | 500               | 1.0 | 50                      | 1.0   | 17.6                           | 0.54                                | 1220                      |
| 1N5336B | 4.3            | 290          | 2.0                     | 500               | 1.0 | 10                      | 1.0   | 16.4                           | 0.49                                | 1100                      |
| 1N5337B | 4.7            | 260          | 2.0                     | 450               | 1.0 | 5.0                     | 1.0   | 15.3                           | 0.44                                | 1010                      |
| 1N5338B | 5.1            | 240          | 1.5                     | 400               | 1.0 | 1.0                     | 1.0   | 14.4                           | 0.39                                | 930                       |
| 1N5339B | 5.6            | 220          | 1.0                     | 400               | 1.0 | 1.0                     | 2.0   | 13.4                           | 0.25                                | 865                       |
| 1N5340B | 6.0            | 200          | 1.0                     | 300               | 1.0 | 1.0                     | 3.0   | 12.7                           | 0.19                                | 790                       |
| 1N5341B | 6.2            | 200          | 1.0                     | 200               | 1.0 | 1.0                     | 3.0   | 12.4                           | 0.10                                | 765                       |
| 1N5342B | 6.8            | 175          | 1.0                     | 200               | 1.0 | 10                      | 5.2   | 11.5                           | 0.15                                | 700                       |
| 1N5343B | 7.5            | 175          | 1.5                     | 200               | 1.0 | 10                      | 5.7   | 10.7                           | 0.15                                | 630                       |
| 1N5344B | 8.2            | 150          | 1.5                     | 200               | 1.0 | 10                      | 6.2   | 10.0                           | 0.20                                | 580                       |
| 1N5345B | 8.7            | 150          | 2.0                     | 200               | 1.0 | 10                      | 6.6   | 9.5                            | 0.20                                | 545                       |
| 1N5346B | 9.1            | 150          | 2.0                     | 150               | 1.0 | 7.5                     | 6.9   | 9.2                            | 0.22                                | 520                       |
| 1N5347B | 10             | 125          | 2.0                     | 125               | 1.0 | 5.0                     | 7.6   | 8.6                            | 0.22                                | 475                       |
| 1N5348B | 11             | 125          | 2.5                     | 125               | 1.0 | 5.0                     | 8.4   | 8.0                            | 0.25                                | 430                       |
| 1N5349B | 12             | 100          | 2.5                     | 125               | 1.0 | 2.0                     | 9.1   | 7.5                            | 0.25                                | 395                       |
| 1N5350B | 13             | 100          | 2.5                     | 100               | 1.0 | 1.0                     | 9.9   | 7.0                            | 0.25                                | 365                       |
| 1N5351B | 14             | 100          | 2.5                     | 75                | 1.0 | 1.0                     | 10.6  | 6.7                            | 0.25                                | 340                       |
| 1N5352B | 15             | 75           | 2.5                     | 75                | 1.0 | 1.0                     | 11.5  | 6.3                            | 0.25                                | 315                       |
| 1N5353B | 16             | 75           | 2.5                     | 75                | 1.0 | 1.0                     | 12.2  | 6.0                            | 0.30                                | 295                       |
| 1N5354B | 17             | 70           | 2.5                     | 75                | 1.0 | 0.5                     | 12.9  | 5.8                            | 0.35                                | 280                       |
| 1N5355B | 18             | 65           | 2.5                     | 75                | 1.0 | 0.5                     | 13.7  | 5.5                            | 0.40                                | 264                       |
| 1N5356B | 19             | 65           | 3.0                     | 75                | 1.0 | 0.5                     | 14.4  | 5.3                            | 0.40                                | 250                       |
| 1N5357B | 20             | 65           | 3.0                     | 75                | 1.0 | 0.5                     | 15.2  | 5.1                            | 0.40                                | 237                       |
| 1N5358B | 22             | 50           | 3.5                     | 75                | 1.0 | 0.5                     | 16.7  | 4.7                            | 0.45                                | 216                       |
| 1N5359B | 24             | 50           | 3.5                     | 100               | 1.0 | 0.5                     | 18.2  | 4.4                            | 0.55                                | 198                       |
| 1N5360B | 25             | 50           | 4.0                     | 110               | 1.0 | 0.5                     | 19.0  | 4.3                            | 0.55                                | 190                       |
| 1N5361B | 27             | 50           | 5.0                     | 120               | 1.0 | 0.5                     | 20.6  | 4.1                            | 0.60                                | 176                       |
| 1N5362B | 28             | 50           | 6.0                     | 130               | 1.0 | 0.5                     | 21.2  | 3.9                            | 0.60                                | 170                       |
| 1N5363B | 30             | 40           | 8.0                     | 140               | 1.0 | 0.5                     | 22.8  | 3.7                            | 0.60                                | 158                       |

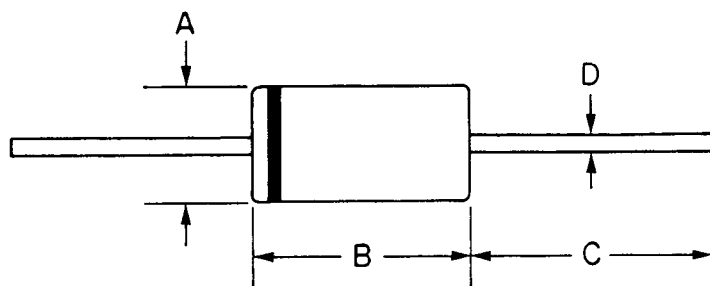
See reverse for notes and outline drawing.

**ELECTRICAL CHARACTERISTICS** ( $T_A = 25^\circ\text{C}$ ),  $V_F = 1.2\text{V MAX @ } I_F = 1.0\text{ A}$  FOR ALL TYPES.

| TYPE    | Zener Voltage  | Test Current | Maximum Zener Impedance |                   |     | Maximum Reverse Current |       | Maximum Surge Current (Note 1) | Maximum Voltage Regulation (Note 2) | Maximum Regulator Current |
|---------|----------------|--------------|-------------------------|-------------------|-----|-------------------------|-------|--------------------------------|-------------------------------------|---------------------------|
|         | $V_Z @ I_{ZT}$ | $I_{ZT}$     | $Z_{ZT} @ I_{ZT}$       | $Z_{ZK} @ I_{ZK}$ |     | $I_R @ V_R$             |       | $I_r$                          | $\Delta V_Z$                        | $I_{ZM}$                  |
|         | Volts          | mA           | $\Omega$                | $\Omega$          | mA  | $\mu\text{A}$           | Volts | A                              | Volts                               | mA                        |
| 1N5364B | 33             | 40           | 10                      | 150               | 1.0 | 0.5                     | 25.1  | 3.5                            | 0.65                                | 144                       |
| 1N5365B | 36             | 30           | 11                      | 160               | 1.0 | 0.5                     | 27.4  | 3.3                            | 0.65                                | 132                       |
| 1N5366B | 39             | 30           | 14                      | 170               | 1.0 | 0.5                     | 29.7  | 3.1                            | 0.65                                | 122                       |
| 1N5367B | 43             | 30           | 20                      | 190               | 1.0 | 0.5                     | 32.7  | 2.8                            | 0.70                                | 110                       |
| 1N5368B | 47             | 25           | 25                      | 210               | 1.0 | 0.5                     | 35.8  | 2.7                            | 0.80                                | 100                       |
| 1N5369B | 51             | 25           | 27                      | 230               | 1.0 | 0.5                     | 38.8  | 2.5                            | 0.90                                | 93.0                      |
| 1N5370B | 56             | 20           | 35                      | 280               | 1.0 | 0.5                     | 42.6  | 2.3                            | 1.00                                | 86.0                      |
| 1N5371B | 60             | 20           | 40                      | 350               | 1.0 | 0.5                     | 45.5  | 2.2                            | 1.20                                | 79.0                      |
| 1N5372B | 62             | 20           | 42                      | 400               | 1.0 | 0.5                     | 47.1  | 2.1                            | 1.35                                | 76.0                      |
| 1N5373B | 68             | 20           | 44                      | 500               | 1.0 | 0.5                     | 51.7  | 2.0                            | 1.50                                | 70.0                      |
| 1N5374B | 75             | 20           | 45                      | 620               | 1.0 | 0.5                     | 56.0  | 1.9                            | 1.60                                | 63.0                      |
| 1N5375B | 82             | 15           | 65                      | 720               | 1.0 | 0.5                     | 62.2  | 1.8                            | 1.80                                | 58.0                      |
| 1N5376B | 87             | 15           | 75                      | 760               | 1.0 | 0.5                     | 66.0  | 1.7                            | 2.00                                | 54.5                      |
| 1N5377B | 91             | 15           | 75                      | 760               | 1.0 | 0.5                     | 69.2  | 1.6                            | 2.20                                | 52.5                      |
| 1N5378B | 100            | 12           | 90                      | 800               | 1.0 | 0.5                     | 76.0  | 1.5                            | 2.50                                | 47.5                      |
| 1N5379B | 110            | 12           | 125                     | 1000              | 1.0 | 0.5                     | 83.6  | 1.4                            | 2.50                                | 43.0                      |
| 1N5380B | 120            | 10           | 170                     | 1150              | 1.0 | 0.5                     | 91.2  | 1.3                            | 2.50                                | 39.5                      |
| 1N5381B | 130            | 10           | 190                     | 1250              | 1.0 | 0.5                     | 98.8  | 1.2                            | 2.50                                | 36.6                      |
| 1N5382B | 140            | 8.0          | 230                     | 1500              | 1.0 | 0.5                     | 106   | 1.2                            | 2.50                                | 34.0                      |
| 1N5383B | 150            | 8.0          | 330                     | 1500              | 1.0 | 0.5                     | 114   | 1.1                            | 3.00                                | 31.6                      |
| 1N5384B | 160            | 8.0          | 350                     | 1650              | 1.0 | 0.5                     | 122   | 1.1                            | 3.00                                | 29.4                      |
| 1N5385B | 170            | 8.0          | 380                     | 1750              | 1.0 | 0.5                     | 129   | 1.0                            | 3.00                                | 28.0                      |
| 1N5386B | 180            | 5.0          | 430                     | 1750              | 1.0 | 0.5                     | 137   | 1.0                            | 4.00                                | 26.4                      |
| 1N5387B | 190            | 5.0          | 450                     | 1850              | 1.0 | 0.5                     | 144   | 0.9                            | 5.00                                | 25.0                      |
| 1N5388B | 200            | 5.0          | 480                     | 1850              | 1.0 | 0.5                     | 152   | 0.9                            | 5.00                                | 23.6                      |

**Note 1: Surge Current ( $I_r$ )**—Maximum allowable peak, non-recurrent square wave current ( $PW=8.3\text{ms}$ )

**Note 2: Voltage Regulation ( $\Delta V_Z$ )**— $V_Z$  Measurements are made at 10% and then at 50% of the  $I_Z$  max value listed in the electrical characteristics table. The test current time duration for each  $V_Z$  measurement is  $40 \pm 10\text{ ms}$ . ( $T_A = 25^\circ\text{C}$ )



|     | INCHES    | MILLIMETERS |
|-----|-----------|-------------|
| DIM |           |             |
| A   | 0.145 MAX | 3.68 MAX    |
| B   | 0.350 MAX | 8.89 MAX    |
| C   | 1.0 MIN   | 25.4 MIN    |
| D   | 0.043 MAX | 1.09 MAX    |