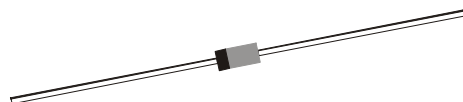


## SILICON PLANAR ZENER DIODES

1N5223B to 1N5279B  
2.7V to 180V



DO- 35  
Glass Axial Package

### FEATURES

The zeners with glass passivated junction in the hermetically sealed glass package with double studs, provides excellent stability, reliability and better power dissipation.

### ABSOLUTE MAXIMUM RATINGS

| DESCRIPTION                       | SYMBOL    | VALUE        | UNIT  |
|-----------------------------------|-----------|--------------|-------|
| DC Power Dissipation              | $P_D$     | 500          | mW    |
| Power Derating above 75°C         |           | 4.0          | mW/°C |
| Operating and Storage Temperature | $T_{stg}$ | - 65 to +200 | °C    |

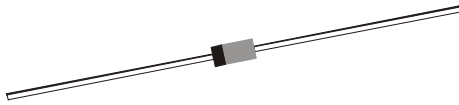
### ELECTRICAL CHARACTERISTICS ( $T_a=25^\circ\text{C}$ unless specified otherwise)

Forward Voltage at  $I_F=200\text{mA}$   $V_F < 1.1\text{V}$

No Suffix  $\pm 20\%$  tolerance, Suffix 'A'  $\pm 10\%$  tolerance, and Suffix 'B'  $\pm 5\%$  tolerance

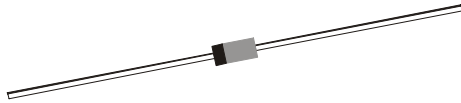
| Device<br>(Note 1) | Nominal<br>Voltage<br>V <sub>Z</sub> at I <sub>ZT</sub> | Test<br>Current<br>I <sub>ZT</sub> | Max Zener<br>Impedance<br>A & B Suffix only<br>(Note 2) |                                               | Max Reverse Leakage Current      |     | Max Zener<br>Voltage<br>Temp. Coeff.<br>qV <sub>Z</sub> (Note 3)<br><br>(A&B Suffix only)<br>a V <sub>Z</sub> (% /°C) |
|--------------------|---------------------------------------------------------|------------------------------------|---------------------------------------------------------|-----------------------------------------------|----------------------------------|-----|-----------------------------------------------------------------------------------------------------------------------|
|                    |                                                         |                                    | Z <sub>ZT</sub> at<br>I <sub>ZT</sub>                   | Z <sub>ZK</sub> at<br>I <sub>ZK</sub> =0.25mA | I <sub>R</sub> at V <sub>R</sub> |     |                                                                                                                       |
|                    |                                                         |                                    | W                                                       | W                                             | mA                               | V   |                                                                                                                       |
|                    |                                                         |                                    | W                                                       | W                                             | mA                               | V   |                                                                                                                       |
| 1N5223B            | 2.7                                                     | 20                                 | 30                                                      | 1300                                          | 75                               | 1.0 | -0.080                                                                                                                |
| 1N5224B            | 2.8                                                     | 20                                 | 30                                                      | 1400                                          | 75                               | 1.0 | -0.080                                                                                                                |
| 1N5225B            | 3.0                                                     | 20                                 | 29                                                      | 1600                                          | 50                               | 1.0 | -0.075                                                                                                                |
| 1N5226B            | 3.3                                                     | 20                                 | 28                                                      | 1600                                          | 25                               | 1.0 | -0.070                                                                                                                |
| 1N5227B            | 3.6                                                     | 20                                 | 24                                                      | 1700                                          | 15                               | 1.0 | -0.065                                                                                                                |
| 1N5228B            | 3.9                                                     | 20                                 | 23                                                      | 1900                                          | 10                               | 1.0 | -0.060                                                                                                                |
| 1N5229B            | 4.3                                                     | 20                                 | 22                                                      | 2000                                          | 5.0                              | 1.0 | +/-0.055                                                                                                              |
| 1N5230B            | 4.7                                                     | 20                                 | 19                                                      | 1900                                          | 5.0                              | 2.0 | +/-0.030                                                                                                              |
| 1N5231B            | 5.1                                                     | 20                                 | 17                                                      | 1600                                          | 5.0                              | 2.0 | +/-0.030                                                                                                              |
| 1N5232B            | 5.6                                                     | 20                                 | 11                                                      | 1600                                          | 5.0                              | 3.0 | 0.038                                                                                                                 |
| 1N5233B            | 6.0                                                     | 20                                 | 7                                                       | 1600                                          | 5.0                              | 3.5 | 0.038                                                                                                                 |
| 1N5234B            | 6.2                                                     | 20                                 | 7                                                       | 1000                                          | 5.0                              | 4.0 | 0.045                                                                                                                 |
| 1N5235B            | 6.8                                                     | 20                                 | 5                                                       | 750                                           | 3.0                              | 5.0 | 0.050                                                                                                                 |
| 1N5236B            | 7.5                                                     | 20                                 | 6                                                       | 500                                           | 3.0                              | 6.0 | 0.058                                                                                                                 |
| 1N5237B            | 8.2                                                     | 20                                 | 8                                                       | 500                                           | 3.0                              | 6.5 | 0.062                                                                                                                 |
| 1N5238B            | 8.7                                                     | 20                                 | 8                                                       | 600                                           | 3.0                              | 6.5 | 0.065                                                                                                                 |
| 1N5239B            | 9.1                                                     | 20                                 | 10                                                      | 600                                           | 3.0                              | 7.0 | 0.068                                                                                                                 |
| 1N5240B            | 10                                                      | 20                                 | 17                                                      | 600                                           | 3.0                              | 8.0 | 0.075                                                                                                                 |
| 1N5241B            | 11                                                      | 20                                 | 22                                                      | 600                                           | 2.0                              | 8.4 | 0.076                                                                                                                 |
| 1N5242B            | 12                                                      | 20                                 | 30                                                      | 600                                           | 1.0                              | 9.1 | 0.077                                                                                                                 |

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Glass Axial PackageELECTRICAL CHARACTERISTICS ( $T_a=25^\circ\text{C}$  unless specified otherwise)Forward Voltage at  $I_F=200\text{mA}$   $V_F < 1.1\text{V}$ No Suffix  $\pm 20\%$  tolerance, Suffix 'A'  $\pm 10\%$  tolerance, and Suffix 'B'  $\pm 5\%$  tolerance

| Device<br>(Note 1) | Nominal<br>Voltage<br>V <sub>Z</sub> at I <sub>ZT</sub> | Test<br>Current<br>I <sub>ZT</sub> | Max Zener<br>Impedance<br>A & B Suffix only<br>(Note 2) |                                               | Max Reverse Leakage Current<br><br>I <sub>R</sub> at V <sub>R</sub> |     | Max Zener<br>Voltage<br>Temp. Coeff.<br>qV <sub>Z</sub> (Note 3) |
|--------------------|---------------------------------------------------------|------------------------------------|---------------------------------------------------------|-----------------------------------------------|---------------------------------------------------------------------|-----|------------------------------------------------------------------|
|                    |                                                         |                                    | Z <sub>ZT</sub> at<br>I <sub>ZT</sub>                   | Z <sub>ZK</sub> at<br>I <sub>ZK</sub> =0.25mA |                                                                     |     | (A&B Suffix only)                                                |
|                    |                                                         |                                    | W                                                       | W                                             | mA                                                                  | V   | a V <sub>Z</sub> (% /°C)                                         |
|                    | V                                                       | mA                                 |                                                         |                                               |                                                                     |     |                                                                  |
| 1N5243B            | 13                                                      | 9.5                                | 13                                                      | 600                                           | 0.5                                                                 | 9.9 | 0.079                                                            |
| 1N5244B            | 14                                                      | 9.0                                | 15                                                      | 600                                           | 0.1                                                                 | 10  | 0.082                                                            |
| 1N5245B            | 15                                                      | 8.5                                | 16                                                      | 600                                           | 0.1                                                                 | 11  | 0.082                                                            |
| 1N5246B            | 16                                                      | 7.8                                | 17                                                      | 600                                           | 0.1                                                                 | 12  | 0.083                                                            |
| 1N5247B            | 17                                                      | 7.4                                | 19                                                      | 600                                           | 0.1                                                                 | 13  | 0.084                                                            |
| 1N5248B            | 18                                                      | 7.0                                | 21                                                      | 600                                           | 0.1                                                                 | 14  | 0.085                                                            |
| 1N5249B            | 19                                                      | 6.6                                | 23                                                      | 600                                           | 0.1                                                                 | 14  | 0.086                                                            |
| 1N5250B            | 20                                                      | 6.2                                | 25                                                      | 600                                           | 0.1                                                                 | 15  | 0.086                                                            |
| 1N5251B            | 22                                                      | 5.6                                | 29                                                      | 600                                           | 0.1                                                                 | 17  | 0.087                                                            |
| 1N5252B            | 24                                                      | 5.2                                | 33                                                      | 600                                           | 0.1                                                                 | 18  | 0.088                                                            |
| 1N5253B            | 25                                                      | 5.0                                | 35                                                      | 600                                           | 0.1                                                                 | 19  | 0.089                                                            |
| 1N5254B            | 27                                                      | 4.6                                | 41                                                      | 600                                           | 0.1                                                                 | 21  | 0.090                                                            |
| 1N5255B            | 28                                                      | 4.5                                | 44                                                      | 600                                           | 0.1                                                                 | 21  | 0.091                                                            |
| 1N5256B            | 30                                                      | 4.2                                | 49                                                      | 600                                           | 0.1                                                                 | 23  | 0.091                                                            |
| 1N5257B            | 33                                                      | 3.8                                | 58                                                      | 700                                           | 0.1                                                                 | 25  | 0.092                                                            |
| 1N5258B            | 36                                                      | 3.4                                | 70                                                      | 700                                           | 0.1                                                                 | 27  | 0.093                                                            |
| 1N5259B            | 39                                                      | 3.2                                | 80                                                      | 800                                           | 0.1                                                                 | 30  | 0.094                                                            |
| 1N5260B            | 43                                                      | 3.0                                | 93                                                      | 900                                           | 0.1                                                                 | 33  | 0.095                                                            |
| 1N5261B            | 47                                                      | 2.7                                | 105                                                     | 1000                                          | 0.1                                                                 | 36  | 0.095                                                            |
| 1N5262B            | 51                                                      | 2.5                                | 125                                                     | 1100                                          | 0.1                                                                 | 39  | 0.096                                                            |
| 1N5263B            | 56                                                      | 2.2                                | 150                                                     | 1300                                          | 0.1                                                                 | 43  | 0.096                                                            |
| 1N5264B            | 60                                                      | 2.1                                | 170                                                     | 1400                                          | 0.1                                                                 | 46  | 0.097                                                            |
| 1N5265B            | 62                                                      | 2.0                                | 185                                                     | 1400                                          | 0.1                                                                 | 47  | 0.097                                                            |
| 1N5266B            | 68                                                      | 1.8                                | 230                                                     | 1600                                          | 0.1                                                                 | 52  | 0.097                                                            |
| 1N5267B            | 75                                                      | 1.7                                | 270                                                     | 1700                                          | 0.1                                                                 | 56  | 0.098                                                            |
| 1N5268B            | 82                                                      | 1.5                                | 330                                                     | 2000                                          | 0.1                                                                 | 62  | 0.098                                                            |
| 1N5269B            | 87                                                      | 1.4                                | 370                                                     | 2200                                          | 0.1                                                                 | 68  | 0.099                                                            |

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ELECTRICAL CHARACTERISTICS ( $T_a=25^\circ\text{C}$  unless specified otherwise)Forward Voltage at  $I_F=200\text{mA}$        $V_F < 1.1\text{ V}$ No Suffix  $\pm 20\%$  tolerance, Suffix 'A'  $\pm 10\%$  tolerance, and Suffix 'B'  $\pm 5\%$  tolerance

| Device<br>(Note 1) | Nominal<br>Voltage<br>$V_Z$ @ $I_{ZT}$ | Test<br>Current<br>$I_{ZT}$ | Max Zener<br>Impedance<br>A & B Suffix only<br>(Note 2)<br>$Z_{ZT}$ @ $I_{ZT}$ $Z_{ZK}$ @ $I_{ZK}=0.25\text{mA}$ |      | Max Reverse Leakage Current<br>$I_R$ at $V_R$ |     | Max Zener<br>Voltage<br>Temp. Coeff.<br>$qV_Z$ (Note 3)<br><br>(A&B Suffix only)<br>a $V_Z$ (% / $^\circ\text{C}$ ) |
|--------------------|----------------------------------------|-----------------------------|------------------------------------------------------------------------------------------------------------------|------|-----------------------------------------------|-----|---------------------------------------------------------------------------------------------------------------------|
|                    |                                        |                             |                                                                                                                  |      |                                               |     |                                                                                                                     |
|                    | V                                      | mA                          | W                                                                                                                | W    | mA                                            | V   |                                                                                                                     |
| 1N5270B            | 91                                     | 1.4                         | 400                                                                                                              | 2300 | 0.1                                           | 69  | 0.099                                                                                                               |
| 1N5271B            | 100                                    | 1.3                         | 500                                                                                                              | 2600 | 0.1                                           | 76  | 0.099                                                                                                               |
| 1N5272B            | 110                                    | 1.1                         | 750                                                                                                              | 3000 | 0.1                                           | 84  | 0.11                                                                                                                |
| 1N5273B            | 120                                    | 1.0                         | 900                                                                                                              | 4000 | 0.1                                           | 91  | 0.11                                                                                                                |
| 1N5274B            | 130                                    | 0.95                        | 1100                                                                                                             | 4500 | 0.1                                           | 99  | 0.11                                                                                                                |
| 1N5275B            | 140                                    | 0.90                        | 1300                                                                                                             | 4500 | 0.1                                           | 106 | 0.11                                                                                                                |
| 1N5276B            | 150                                    | 0.85                        | 1500                                                                                                             | 5000 | 0.1                                           | 114 | 0.11                                                                                                                |
| 1N5277B            | 160                                    | 0.80                        | 1700                                                                                                             | 5500 | 0.1                                           | 122 | 0.11                                                                                                                |
| 1N5278B            | 170                                    | 0.74                        | 1900                                                                                                             | 5500 | 0.1                                           | 129 | 0.11                                                                                                                |
| 1N5279B            | 180                                    | 0.68                        | 2200                                                                                                             | 6000 | 0.1                                           | 137 | 0.11                                                                                                                |

NOTE 1: The electrical characteristics are measured after allowing the device to stabilize for 20 seconds when mounted with a 9.525 mm (3/8") minimum lead length from the case.

NOTE 2: The zener impedance is derived from the 50 Hz AC voltage, which results when AC current having an RMS value equal to 10% of the DC zener current ( $I_{ZT}$  or  $I_{ZK}$ ) is superimposed on  $I_{ZT}$  or  $I_{ZK}$ . Zener impedance is measured at two points to insure a sharp knee on the breakdown curve, thereby, eliminating unstable units.

NOTE 3: Temperature coefficient ( $qV_Z$ ).

Test conditions for temperature coefficient are as follows.

a.  $I_{ZT}=7.5\text{mA}$ ,  $T_J=25^\circ\text{C}$

$T_2=125^\circ\text{C}$ (1N5223A, B thru 1N5242A, B )

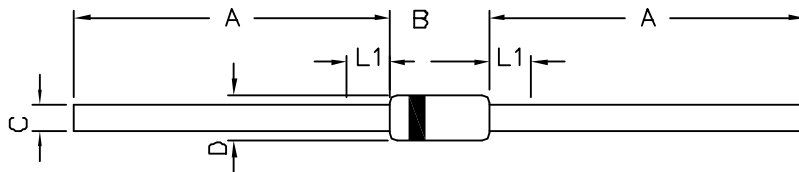
b.  $I_{ZT}=\text{Rated } I_{ZT}$ ,  $T_J=25^\circ\text{C}$

$T_2=125^\circ\text{C}$ (1N5243A, B thru 1N5279A, B )

Device to be temperature stabilized with current applied prior to reading breakdown voltage at the specified ambient temperature

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Glass Axial Package

DO-35 Glass Axial Package

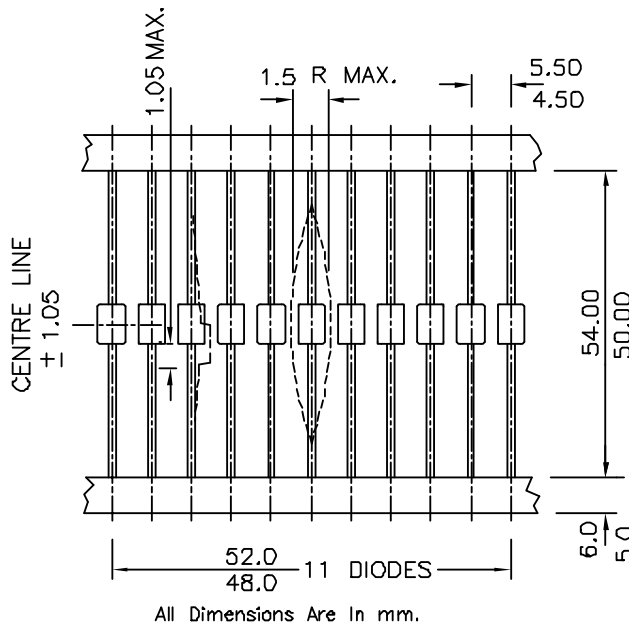


NOTES:—

Cathode is marked by Band.  
All Dimensions Are In mm.

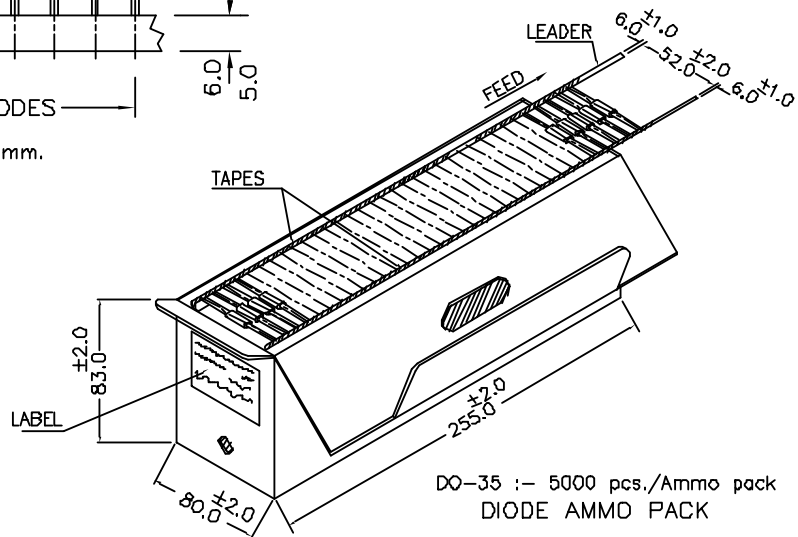
| DIM | MIN   | MAX   |
|-----|-------|-------|
| A   | 25.40 | 38.10 |
| B   | 3.05  | 5.08  |
| C   | 0.46  | 0.55  |
| D   | 1.53  | 2.28  |
| L1  | —     | 1.27  |

DO-35, 52mm Taping Specification



52mm Taping Specification

1. T & A Indicates Axial Tape & Ammo packing (52 mm Tape Specing)
2. 300 mm (min) leader tape on every spool.
3. No. of empty places allowed 0.25% without consecutive empty places.
4. Ends of leads shall preferably not protrude beyond the tapes.
5. Components shall be held sufficiently in the tape or tapes so that they can not come free in normal handling.



on request also available in 26 mm Tape and Ammo Pack

Packing Detail

| PACKAGE   | STANDARD PACK |                | INNER CARTON BOX |      | OUTER CARTON BOX |        |       |
|-----------|---------------|----------------|------------------|------|------------------|--------|-------|
|           | Details       | Net Weight/Qty | Size             | Qty  | Size             | Qty    | Qty   |
| DO-35 T&A | 5K/ammo box   | 0.88kg/5K pcs  | 10"X3.5"X3.5"    | 5.0K | 12.7"X12.7"X20"  | 125.0K | 25Kgs |

### **Disclaimer**

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