

# 1N5221B - 1N5263B

## Zener Diodes

Tolerance = 5%



**DO-35 Glass case**  
COLOR BAND DENOTES CATHODE

### Absolute Maximum Ratings\* $T_A = 25^\circ\text{C}$ unless otherwise noted

| Symbol    | Parameter                                            | Value       | Units                      |
|-----------|------------------------------------------------------|-------------|----------------------------|
| $P_D$     | Power Dissipation<br>Derate above $50^\circ\text{C}$ | 500<br>4.0  | mW<br>mW/ $^\circ\text{C}$ |
| $T_{STG}$ | Storage Temperature Range                            | -65 to +200 | $^\circ\text{C}$           |
| $T_J$     | Operating Junction Temperature Range                 | -65 to +200 | $^\circ\text{C}$           |
|           | Lead Temperature (1/16" from case for 10 seconds)    | +230        | $^\circ\text{C}$           |

\* These ratings are limiting values above which the serviceability of the diode may be impaired.

\*\* Non-recurrent square wave  $PW = 8.3\text{ms}$ ,  $T_A = 50$  degrees C.

### Electrical Characteristics $T_A = 25^\circ\text{C}$ unless otherwise noted

| Device  | $V_Z$ (V) @ $I_Z$ (Note 1) |      |       | $Z_Z$ ( $\Omega$ ) @ $I_Z$ (mA) |    | $Z_{ZK}$ ( $\Omega$ ) @ $I_{ZK}$ (mA) |      | $I_R$ ( $\mu\text{A}$ ) @ $V_R$ (V) |     | $T_C$ (%/ $^\circ\text{C}$ ) |
|---------|----------------------------|------|-------|---------------------------------|----|---------------------------------------|------|-------------------------------------|-----|------------------------------|
|         | Min.                       | Typ. | Max.  |                                 |    |                                       |      |                                     |     |                              |
| 1N5221B | 2.28                       | 2.4  | 2.52  | 30                              | 20 | 1,200                                 | 0.25 | 100                                 | 1.0 | -0.085                       |
| 1N5222B | 2.375                      | 2.5  | 2.625 | 30                              | 20 | 1,250                                 | 0.25 | 100                                 | 1.0 | -0.085                       |
| 1N5223B | 2.565                      | 2.7  | 2.835 | 30                              | 20 | 1,300                                 | 0.25 | 75                                  | 1.0 | -0.080                       |
| 1N5224B | 2.66                       | 2.8  | 2.94  | 30                              | 20 | 1,400                                 | 0.25 | 75                                  | 1.0 | -0.080                       |
| 1N5225B | 2.85                       | 3    | 3.15  | 29                              | 20 | 1,600                                 | 0.25 | 50                                  | 1.0 | -0.075                       |
| 1N5226B | 3.135                      | 3.3  | 3.465 | 28                              | 20 | 1,600                                 | 0.25 | 25                                  | 1.0 | -0.07                        |
| 1N5227B | 3.42                       | 3.6  | 3.78  | 24                              | 20 | 1,700                                 | 0.25 | 15                                  | 1.0 | -0.065                       |
| 1N5228B | 3.705                      | 3.9  | 4.095 | 23                              | 20 | 1,900                                 | 0.25 | 10                                  | 1.0 | -0.06                        |
| 1N5229B | 4.085                      | 4.3  | 4.515 | 22                              | 20 | 2,000                                 | 0.25 | 5.0                                 | 1.0 | +/-0.055                     |
| 1N5230B | 4.465                      | 4.7  | 4.935 | 19                              | 20 | 1,900                                 | 0.25 | 2.0                                 | 1.0 | +/-0.03                      |
| 1N5231B | 4.845                      | 5.1  | 5.355 | 17                              | 20 | 1,600                                 | 0.25 | 5.0                                 | 2.0 | +/-0.03                      |
| 1N5232B | 5.32                       | 5.6  | 5.88  | 11                              | 20 | 1,600                                 | 0.25 | 5.0                                 | 3.0 | 0.038                        |
| 1N5233B | 5.7                        | 6    | 6.3   | 7.0                             | 20 | 1,600                                 | 0.25 | 5.0                                 | 3.5 | 0.038                        |
| 1N5234B | 5.89                       | 6.2  | 6.51  | 7.0                             | 20 | 1,000                                 | 0.25 | 5.0                                 | 4.0 | 0.045                        |
| 1N5235B | 6.46                       | 6.8  | 7.14  | 5.0                             | 20 | 750                                   | 0.25 | 3.0                                 | 5.0 | 0.05                         |
| 1N5236B | 7.125                      | 7.5  | 7.875 | 6.0                             | 20 | 500                                   | 0.25 | 3.0                                 | 6.0 | 0.058                        |
| 1N5237B | 7.79                       | 8.2  | 8.61  | 8.0                             | 20 | 500                                   | 0.25 | 3.0                                 | 6.5 | 0.062                        |
| 1N5238B | 8.265                      | 8.7  | 9.135 | 8.0                             | 20 | 600                                   | 0.25 | 3.0                                 | 6.5 | 0.065                        |
| 1N5239B | 8.645                      | 9.1  | 9.555 | 10                              | 20 | 600                                   | 0.25 | 3.0                                 | 7.0 | 0.068                        |
| 1N5240B | 9.5                        | 10   | 10.5  | 17                              | 20 | 600                                   | 0.25 | 3.0                                 | 8.0 | 0.075                        |

| Device  | $V_Z$ (V) @ $I_Z$ (Note 1) |      |       | $Z_Z$ ( $\Omega$ ) @ $I_Z$ (mA) |     | $Z_{ZK}$ ( $\Omega$ ) @ $I_{ZK}$ (mA) |      | $I_R$ ( $\mu$ A) @ $V_R$ (V) |     | $T_C$ (%/°C) |
|---------|----------------------------|------|-------|---------------------------------|-----|---------------------------------------|------|------------------------------|-----|--------------|
|         | Min.                       | Typ. | Max.  |                                 |     |                                       |      |                              |     |              |
| 1N5241B | 10.45                      | 11   | 11.55 | 22                              | 20  | 600                                   | 0.25 | 2.0                          | 8.4 | 0.076        |
| 1N5242B | 11.4                       | 12   | 12.6  | 30                              | 20  | 600                                   | 0.25 | 1.0                          | 9.1 | 0.077        |
| 1N5243B | 12.35                      | 13   | 13.65 | 13                              | 9.5 | 600                                   | 0.25 | 0.5                          | 9.9 | 0.079        |
| 1N5244B | 13.3                       | 14   | 14.7  | 15                              | 9.0 | 600                                   | 0.25 | 0.1                          | 10  | 0.080        |
| 1N5245B | 14.25                      | 15   | 15.75 | 16                              | 8.5 | 600                                   | 0.25 | 0.1                          | 11  | 0.082        |
| 1N5246B | 15.2                       | 16   | 16.8  | 17                              | 7.8 | 600                                   | 0.25 | 0.1                          | 12  | 0.083        |
| 1N5247B | 16.15                      | 17   | 17.85 | 19                              | 7.4 | 600                                   | 0.25 | 0.1                          | 13  | 0.084        |
| 1N5248B | 17.1                       | 18   | 18.9  | 21                              | 7.0 | 600                                   | 0.25 | 0.1                          | 14  | 0.085        |
| 1N5247B | 18.05                      | 19   | 19.95 | 23                              | 6.6 | 600                                   | 0.25 | 0.1                          | 14  | 0.085        |
| 1N5250B | 19                         | 20   | 21    | 25                              | 6.2 | 600                                   | 0.25 | 0.1                          | 15  | 0.086        |
| 1N5251B | 20.9                       | 22   | 23.1  | 29                              | 5.6 | 600                                   | 0.25 | 0.1                          | 17  | 0.087        |
| 1N5252B | 22.8                       | 24   | 25.2  | 33                              | 5.2 | 600                                   | 0.25 | 0.1                          | 18  | 0.088        |
| 1N5253B | 23.75                      | 25   | 26.25 | 35                              | 5.0 | 600                                   | 0.25 | 0.1                          | 19  | 0.088        |
| 1N5254B | 25.65                      | 27   | 28.35 | 41                              | 4.6 | 600                                   | 0.25 | 0.1                          | 21  | 0.089        |
| 1N5255B | 26.6                       | 28   | 29.4  | 44                              | 4.5 | 600                                   | 0.25 | 0.1                          | 21  | 0.090        |
| 1N5256B | 28.5                       | 30   | 31.5  | 49                              | 4.2 | 600                                   | 0.25 | 0.1                          | 23  | 0.09         |
| 1N5257B | 31.35                      | 33   | 34.65 | 58                              | 3.8 | 700                                   | 0.25 | 0.1                          | 25  | 0.092        |
| 1N5258B | 34.2                       | 36   | 37.8  | 70                              | 3.4 | 700                                   | 0.25 | 0.1                          | 27  | 0.093        |
| 1N5259B | 37.05                      | 39   | 40.95 | 80                              | 3.2 | 800                                   | 0.25 | 0.1                          | 30  | 0.094        |
| 1N5260B | 40.85                      | 43   | 45.15 | 93                              | 3.0 | 900                                   | 0.25 | 0.1                          | 33  | 0.095        |
| 1N5261B | 44.65                      | 47   | 49.35 | 105                             | 2.7 | 1000                                  | 0.25 | 0.1                          | 36  | 0.095        |
| 1N5262B | 48.45                      | 51   | 53.55 | 125                             | 2.5 | 1100                                  | 0.25 | 0.1                          | 39  | 0.096        |
| 1N5263B | 53.2                       | 56   | 58.8  | 150                             | 2.2 | 1300                                  | 0.25 | 0.1                          | 43  | 0.096        |

**$V_F$  Forward Voltage = 1.2V Max. @  $I_F$  = 200mA**

**Notes:**1. Zener Voltage ( $V_Z$ )

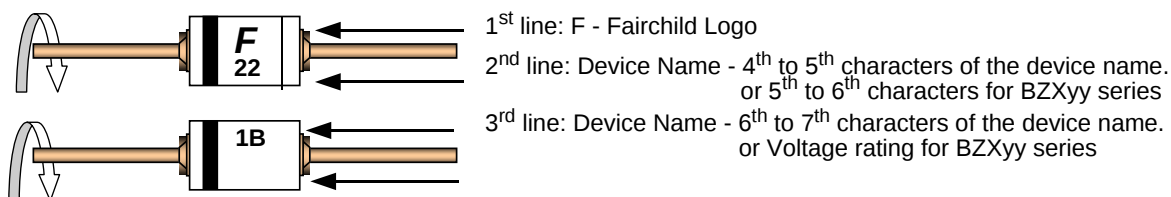
The zener voltage is measured with the device junction in the thermal equilibrium at the lead temperature ( $T_L$ ) at  $30^\circ\text{C} \pm 1^\circ\text{C}$  and 3/8" lead length

**Top Mark Information**

| Device  | Line 1 | Line 2 | Line 3 |
|---------|--------|--------|--------|
| 1N5221B | LOGO   | 22     | 1B     |
| 1N5222B | LOGO   | 22     | 2B     |
| 1N5223B | LOGO   | 22     | 3B     |
| 1N5224B | LOGO   | 22     | 4B     |
| 1N5225B | LOGO   | 22     | 5B     |
| 1N5226B | LOGO   | 22     | 6B     |
| 1N5227B | LOGO   | 22     | 7B     |
| 1N5228B | LOGO   | 22     | 8B     |
| 1N5229B | LOGO   | 22     | 9B     |
| 1N5230B | LOGO   | 23     | 0B     |
| 1N5231B | LOGO   | 23     | 1B     |
| 1N5232B | LOGO   | 23     | 2B     |
| 1N5233B | LOGO   | 23     | 3B     |
| 1N5234B | LOGO   | 23     | 4B     |
| 1N5235B | LOGO   | 23     | 5B     |
| 1N5236B | LOGO   | 23     | 6B     |
| 1N5237B | LOGO   | 23     | 7B     |
| 1N5238B | LOGO   | 23     | 8B     |
| 1N5239B | LOGO   | 23     | 9B     |
| 1N5240B | LOGO   | 24     | 0B     |

| Device  | Line 1 | Line 2 | Line 3 |
|---------|--------|--------|--------|
| 1N5241B | LOGO   | 24     | 1B     |
| 1N5242B | LOGO   | 24     | 2B     |
| 1N5243B | LOGO   | 24     | 3B     |
| 1N5244B | LOGO   | 24     | 4B     |
| 1N5245B | LOGO   | 24     | 5B     |
| 1N5246B | LOGO   | 24     | 6B     |
| 1N5247B | LOGO   | 24     | 7B     |
| 1N5248B | LOGO   | 24     | 8B     |
| 1N5247B | LOGO   | 24     | 9B     |
| 1N5250B | LOGO   | 25     | 0B     |
| 1N5251B | LOGO   | 25     | 1B     |
| 1N5252B | LOGO   | 25     | 2B     |
| 1N5253B | LOGO   | 25     | 3B     |
| 1N5254B | LOGO   | 25     | 4B     |
| 1N5255B | LOGO   | 25     | 5B     |
| 1N5256B | LOGO   | 25     | 6B     |
| 1N5257B | LOGO   | 25     | 7B     |
| 1N5258B | LOGO   | 25     | 8B     |
| 1N5259B | LOGO   | 25     | 9B     |
| 1N5260B | LOGO   | 26     | 0B     |
| 1N5261B | LOGO   | 26     | 1B     |
| 1N5262B | LOGO   | 26     | 2B     |
| 1N5263B | LOGO   | 26     | 3B     |

### Top Mark Information (Continued)



### General Requirements:

- 1.0 Cathode Band
- 2.0 First Line: F - Fairchild Logo
- 3.0 Second Line: Device name - For 1Nxx series: 4<sup>th</sup> to 5<sup>th</sup> characters of the device name.  
For BZxx series: 5<sup>th</sup> to 6<sup>th</sup> characters of the device name.
- 4.0 Third Line: Device name - For 1Nxx series: 6<sup>th</sup> to 7<sup>th</sup> characters of the device name.  
For BZXyy series: Voltage rating
- 5.0 Devices shall be marked as required in the device specification (PID or FSC Test Spec).
- 6.0 Maximum no. of marking lines: 3
- 7.0 Maximum no. of digits per line: 2
- 8.0 FSC logo must be 20 % taller than the alphanumeric marking and should occupy the 2 characters of the specified line.
- 9.0 Marking Font: Arial (Except FSC Logo)
- 10.0 First character of each marking line must be aligned vertically.
- 11.0 All device markings must be based on Fairchild device specification.



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| AX-CAP™*                                                                            | FRFET®                                                                              | PowerXS™                                                                            | the                                                                                   |
| BitSiC®                                                                             | Global Power Resource™                                                              | Programmable Active Droop™                                                          | <b>power</b> ™                                                                        |
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| EcoSPARK®                                                                           | MicroFET™                                                                           | SMART START™                                                                        | TinyWire™                                                                             |
| EfficientMax™                                                                       | MicroPak™                                                                           | SPM®                                                                                | TranSiC®                                                                              |
| ESBC™                                                                               | MicroPak2™                                                                          | STEALTH™                                                                            | TriFault Detect™                                                                      |
|  ™ | MillerDrive™                                                                        | SuperFET®                                                                           | TRUECURRENT®*                                                                         |
| Fairchild®                                                                          | MotionMax™                                                                          | SuperSOT™.3                                                                         | µSerDes™                                                                              |
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|--------------------------|-----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
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