

**FAIRCHILD**  
SEMICONDUCTOR®

## Zeners 1N5985B - 1N6025B

### Absolute Maximum Ratings \* T<sub>A</sub> = 25°C unless otherwise noted

| Symbol                            | Parameter  | Value       | Units |
|-----------------------------------|--|-------------|-------|
| P <sub>D</sub>                    | Power Dissipation<br>@ TL ≤ 75°C, Lead Length = 3/8" | 500         | mW    |
|                                   | Derate above 75°C                                    | 4.0         | mW/°C |
| T <sub>J</sub> , T <sub>STG</sub> | Operating and Storage Temperature Range              | -65 to +200 | °C    |

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

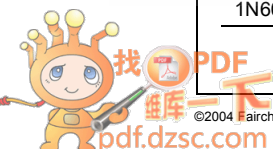
Tolerance = 5%



### Electrical Characteristics T<sub>A</sub> = 25°C unless otherwise noted

| Device  | V <sub>Z</sub> (V) @ I <sub>Z</sub> (Note 1) |      |       | Test Current<br>I <sub>Z</sub> (mA) | Zener Impedance                        |  | leakage Current        |                       | I <sub>ZM</sub> (mA)<br>(Note 2) |
|---------|--|------|-------|-------------------------------------|--|--|------------------------|-----------------------|----------------------------------|
|         | Min.   | Typ. | Max.  |                                     | Z <sub>Z</sub> @ I <sub>Z</sub><br>(Ω) | Z <sub>ZK</sub> @ I <sub>ZK</sub> = 250μA<br>(Ω) | I <sub>R</sub><br>(mA) | V <sub>R</sub><br>(V) |                                  |
| 1N5985B | 2.58   | 2.4  | 2.52  | 5                                   | 100                                    | 1800   | 100                    | 1                     | 208                              |
| 1N5986B | 2.565  | 2.7  | 2.835 | 5                                   | 100                                    | 1900   | 75                     | 1                     | 185                              |
| 1N5987B | 2.85   | 3    | 3.15  | 5                                   | 95                                     | 2000   | 50                     | 1                     | 167                              |
| 1N5988B | 3.135  | 3.3  | 3.465 | 5                                   | 95                                     | 2200   | 25                     | 1                     | 152                              |
| 1N5989B | 3.42   | 3.6  | 3.78  | 5                                   | 90                                     | 2300   | 15                     | 1                     | 139                              |
| 1N5990B | 3.705  | 3.9  | 4.095 | 5                                   | 90                                     | 2400   | 10                     | 1                     | 128                              |
| 1N5991B | 4.085  | 4.3  | 4.515 | 5                                   | 88                                     | 2500   | 5                      | 1                     | 116                              |
| 1N5992B | 4.465  | 4.7  | 4.935 | 5                                   | 70                                     | 2200   | 3                      | 1.5                   | 106                              |
| 1N5993B | 4.845  | 5.1  | 5.355 | 5                                   | 50                                     | 2050   | 2                      | 2                     | 98                               |
| 1N5994B | 5.32   | 5.6  | 5.88  | 5                                   | 25                                     | 1800   | 2                      | 3                     | 89                               |
| 1N5995B | 5.89   | 6.2  | 6.51  | 5                                   | 10                                     | 1300   | 1                      | 4                     | 81                               |
| 1N5996B | 6.46   | 6.8  | 7.14  | 5                                   | 8                                      | 750  | 1                      | 5.2                   | 74                               |
| 1N5997B | 7.125  | 7.5  | 7.875 | 5                                   | 7                                      | 600  | 0.5                    | 6                     | 67                               |
| 1N5998B | 7.79   | 8.2  | 8.61  | 5                                   | 7                                      | 600  | 0.5                    | 6.5                   | 61                               |
| 1N5999B | 8.645  | 9.1  | 9.555 | 5                                   | 10                                     | 600  | 0.1                    | 7                     | 55                               |
| 1N6000B | 9.5  | 10   | 10.5  | 5                                   | 15                                     | 600  | 0.1                    | 8                     | 50                               |
| 1N6001B | 10.45  | 11   | 11.55 | 5                                   | 18                                     | 600  | 0.1                    | 8.4                   | 45                               |
| 1N6002B | 11.4   | 12   | 12.6  | 5                                   | 22                                     | 600  | 0.1                    | 9.1                   | 42                               |
| 1N6003B | 12.35  | 13   | 13.65 | 5                                   | 25                                     | 600  | 0.1                    | 9.9                   | 38                               |
| 1N6004B | 14.25  | 15   | 15.75 | 5                                   | 32                                     | 600  | 0.1                    | 11                    | 33                               |
| 1N6005B | 15.2   | 16   | 16.8  | 5                                   | 36                                     | 600  | 0.1                    | 12                    | 31                               |
| 1N6006B | 17.1   | 18   | 18.9  | 5                                   | 42                                     | 600  | 0.1                    | 14                    | 28                               |
| 1N6007B | 19   | 20   | 21    | 5                                   | 48                                     | 600  | 0.1                    | 15                    | 25                               |
| 1N6008B | 20.9   | 22   | 23.1  | 5                                   | 55                                     | 600  | 0.1                    | 17                    | 23                               |
| 1N6009B | 22.8   | 24   | 25.2  | 5                                   | 62                                     | 600  | 0.1                    | 18                    | 21                               |
| 1N6010B | 25.65  | 27   | 28.35 | 5                                   | 70                                     | 600  | 0.1                    | 21                    | 19                               |
| 1N6011B | 28.5   | 30   | 31.5  | 5                                   | 78                                     | 600  | 0.1                    | 23                    | 17                               |
| 1N6012B | 31.35  | 33   | 34.65 | 5                                   | 88                                     | 700  | 0.1                    | 25                    | 15                               |
| 1N6013B | 34.2   | 36   | 37.8  | 5                                   | 95                                     | 700  | 0.1                    | 27                    | 14                               |
| 1N6014B | 37.05  | 39   | 40.95 | 2                                   | 130                                    | 800  | 0.1                    | 30                    | 13                               |

Zeners 1N5985B - 1N6025B



**Electrical Characteristics** (Continued)  $T_A=25^\circ\text{C}$  unless otherwise noted

| Device  | $V_Z$ (V) @ $I_Z$ (Note 1) |      |       | Test Current<br>$I_Z$ (mA) | Zener Impedance               |  | leakage Current |              | $I_{ZM}$ (mA)<br>(Note 2) |
|---------|----------------------------|------|-------|----------------------------|-------------------------------|--|-----------------|--------------|---------------------------|
|         | Min.                       | Typ. | Max.  |                            | $Z_Z$ @ $I_Z$<br>( $\Omega$ ) | $Z_{ZK}$ @ $I_{ZK} = 250\mu\text{A}$<br>( $\Omega$ ) | $I_R$<br>(mA)   | $V_R$<br>(V) |                           |
| 1N6015B | 40.85                      | 43   | 45.15 | 2                          | 150                           | 900  | 0.1             | 33           | 12                        |
| 1N6016B | 44.65                      | 47   | 49.35 | 2                          | 170                           | 1000   | 0.1             | 36           | 11                        |
| 1N6017B | 48.45                      | 51   | 53.55 | 2                          | 180                           | 1300   | 0.1             | 39           | 9.8                       |
| 1N6018B | 53.2                       | 56   | 58.8  | 2                          | 200                           | 1400   | 0.1             | 43           | 8.9                       |
| 1N6019B | 58.9                       | 62   | 65.1  | 2                          | 225                           | 1400   | 0.1             | 47           | 8                         |
| 1N6020B | 64.6                       | 68   | 71.4  | 2                          | 240                           | 1600   | 0.1             | 52           | 7.4                       |
| 1N6021B | 71.25                      | 75   | 78.75 | 2                          | 265                           | 1700   | 0.1             | 56           | 6.7                       |
| 1N6022B | 77.9                       | 82   | 86.1  | 2                          | 280                           | 2000   | 0.1             | 62           | 6.1                       |
| 1N6023B | 86.45                      | 91   | 95.55 | 2                          | 300                           | 2300   | 0.1             | 69           | 5.5                       |
| 1N6024B | 95                         | 100  | 105   | 1                          | 500                           | 2600   | 0.1             | 76           | 5                         |
| 1N6025B | 104.5                      | 110  | 115.5 | 1                          | 650                           | 3000   | 0.1             | 84           | 4.5                       |

**$V_F$  Forward Voltage = 1.2V Max @  $I_F = 200\text{mA}$**

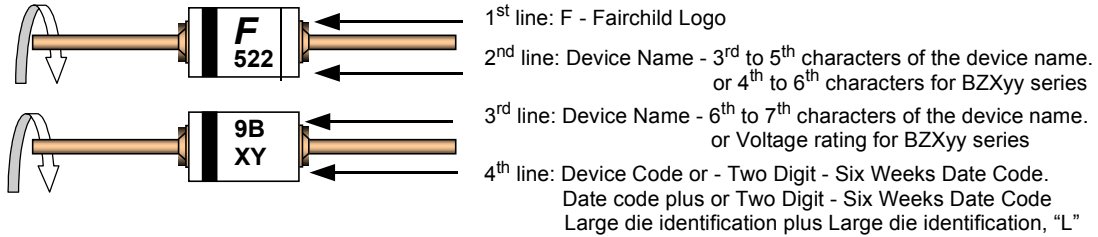
**Notes:**

- 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.
- Maximum Zener Current Ratings ( $I_{ZM}$ )  
The maximum current handling capability on a worst case basis is limited by the actual zener voltage at the operation point and the power derating curve.

**Top Mark Information**

| Device  | Line 1 | Line 2 | Line 3 | Line 4 |
|---------|--------|--------|--------|--------|
| 1N5985B | LOGO   | 598    | 5B     | XY     |
| 1N5986B | LOGO   | 598    | 6B     | XY     |
| 1N5987B | LOGO   | 598    | 7B     | XY     |
| 1N5988B | LOGO   | 598    | 8B     | XY     |
| 1N5989B | LOGO   | 598    | 9B     | XY     |
| 1N5990B | LOGO   | 599    | 0B     | XY     |
| 1N5991B | LOGO   | 599    | 1B     | XY     |
| 1N5992B | LOGO   | 599    | 2B     | XY     |
| 1N5993B | LOGO   | 599    | 3B     | XY     |
| 1N5994B | LOGO   | 599    | 4B     | XY     |
| 1N5995B | LOGO   | 599    | 5B     | XY     |
| 1N5996B | LOGO   | 599    | 6B     | XY     |
| 1N5997B | LOGO   | 599    | 7B     | XY     |
| 1N5998B | LOGO   | 599    | 8B     | XY     |
| 1N5999B | LOGO   | 599    | 9B     | XY     |
| 1N6000B | LOGO   | 600    | 0B     | XY     |
| 1N6001B | LOGO   | 600    | 1B     | XY     |
| 1N6002B | LOGO   | 600    | 2B     | XY     |
| 1N6003B | LOGO   | 600    | 3B     | XY     |
| 1N6004B | LOGO   | 600    | 4B     | XY     |
| 1N6005B | LOGO   | 600    | 5B     | XY     |
| 1N6006B | LOGO   | 600    | 6B     | XY     |
| 1N6007B | LOGO   | 600    | 7B     | XY     |
| 1N6008B | LOGO   | 600    | 8B     | XY     |
| 1N6009B | LOGO   | 600    | 9B     | XY     |
| 1N6010B | LOGO   | 601    | 0B     | XY     |
| 1N6011B | LOGO   | 601    | 1B     | XY     |
| 1N6012B | LOGO   | 601    | 2B     | XY     |
| 1N6013B | LOGO   | 601    | 3B     | XY     |
| 1N6014B | LOGO   | 601    | 4B     | XY     |
| 1N6015B | LOGO   | 601    | 5B     | XY     |
| 1N6016B | LOGO   | 601    | 6B     | XY     |
| 1N6017B | LOGO   | 601    | 7B     | XY     |
| 1N6018B | LOGO   | 601    | 8B     | XY     |
| 1N6019B | LOGO   | 601    | 9B     | XY     |
| 1N6020B | LOGO   | 602    | 0B     | XY     |
| 1N6021B | LOGO   | 602    | 1B     | XY     |
| 1N6022B | LOGO   | 602    | 2B     | XY     |
| 1N6023B | LOGO   | 602    | 3B     | XY     |
| 1N6024B | LOGO   | 602    | 4B     | XY     |
| 1N6025B | LOGO   | 602    | 5B     | XY     |

## Top Mark Information (Continued)



### General Requirements:

- 1.0 Cathod Band
- 2.0 First Line: F - Fairchild Logo
- 3.0 Second Line: Device name - For 1Nxx series: 3<sup>rd</sup> to 5<sup>th</sup> characters of the device name.  
For BZxx series: 4<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 Fourth Line: XY or XYL - Two Digit - Six Weeks Date Code  
Where: X represents the last digit of the calendar year  
Y represents the Six weeks numeric code  
L represents the Large die identification
- 6.0 Devices shall be marked as required in the device specification (PID or FSC Test Spec).
- 7.0 Maximum no. of marking lines: 4
- 8.0 Maximum no. of digits per line: 3
- 9.0 FSC logo must be 20 % taller than the alphanumeric marking and should occupy the 2 characters of the specified line.
- 10.0 Marking Font: Arial (Except FSC Logo)
- 11.0 First character of each marking line must be aligned vertically

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|                                      |                     |                  |                     |                 |
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| ActiveArray™                         | FAST®               | LittleFET™       | Power247™           | SuperFET™       |
| Bottomless™                          | FASTr™              | MICROCOUPLER™    | PowerSaver™         | SuperSOT™-3     |
| CoolFET™                             | FPST™               | MicroFET™        | PowerTrench®        | SuperSOT™-6     |
| CROSSVOLT™                           | FRFET™              | MicroPak™        | QFET®               | SuperSOT™-8     |
| DOME™                                | GlobalOptoisolator™ | MICROWIRE™       | QS™                 | SyncFET™        |
| EcoSPARK™                            | GTO™                | MSX™             | QT Optoelectronics™ | TinyLogic®      |
| E <sup>2</sup> CMOS™                 | HiSeC™              | MSXPro™          | Quiet Series™       | TINYOPTO™       |
| EnSigna™                             | PC™                 | OCX™             | RapidConfigure™     | TruTranslation™ |
| FACT™                                | ImpliedDisconnect™  | OCXPro™          | RapidConnect™       | UHC™            |
| Across the board. Around the world.™ | OPTOLOGIC®          | SILENT SWITCHER® | SMART START™        | UltraFET®       |
| The Power Franchise™                 | OPTOPLANAR™         | SPM™             |                     | VCX™            |
| Programmable Active Droop™           | PACMAN™             |                  |                     |                 |

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2. A critical component is any component of a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety or effectiveness.

## PRODUCT STATUS DEFINITIONS

### Definition of Terms

| Datasheet Identification | Product Status         | Definition  |
|--------------------------|------------------------|---|
| Advance Information      | Formative or In Design | This datasheet contains the design specifications for product development. Specifications may change in any manner without notice.  |
| Preliminary              | First Production       | This datasheet contains preliminary data, and supplementary data will be published at a later date. Fairchild Semiconductor reserves the right to make changes at any time without notice in order to improve design. |
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