

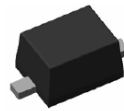
## Features

- 400mW Power Dissipation on FR-4 PCB
- Very Tight Tolerance on  $V_z$
- Ideally Suited for Automated Assembly Processes
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**

## Mechanical Data

- Case: SOD323F
- Case Material: Molded Plastic, "Green" Molding Compound; UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminal Connections: Cathode Band
- Terminals: Finish - Matte Tin Annealed over Copper Alloy leadframe. Solderable per MIL-STD-202, Method 208 <sup>Ⓔ3</sup>
- Weight: 0.01 grams (Approximate)

SOD323F



Top View

## Ordering Information (Note 4)

| Part Number<br>(Type Number)-7* | Case<br>SOD323F | Packaging<br>3,000/Tape & Reel |
|---------------------------------|-----------------|--------------------------------|
|                                 |                 |                                |

\* Example: The part number for the 3.6 Volt device would be D3Z3V6BF-7.

- Notes:
1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant.
  2. See [http://www.diodes.com/quality/lead\\_free.html](http://www.diodes.com/quality/lead_free.html) for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "Green" and Lead-free.
  3. Halogen- and Antimony-free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
  4. For packaging details, go to our website at <http://www.diodes.com/products/packages.html>.

## Marking Information



XX = Product Type Marking Code  
(See Electrical Characteristics Table)  
YM = Date Code Marking  
Y = Year (ex: X = 2010)  
M = Month (ex: 9 = September)

### Date Code Key

| Year | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 |
|------|------|------|------|------|------|------|------|------|------|------|------|
| Code | X    | Y    | Z    | A    | B    | C    | D    | E    | F    | G    | H    |

| Month | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|-------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Code  | 1   | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | O   | N   | D   |

**Maximum Ratings** (@T<sub>A</sub> = +25°C, unless otherwise specified.)

| Characteristic  | Symbol         | Value | Unit |
|-----------------|----------------|-------|------|
| Forward Voltage | V <sub>F</sub> | 0.9   | V    |

**Thermal Characteristics**

| Characteristic                                       | Symbol                            | Value       | Unit |
|--|-----------------------------------|-------------|------|
| Power Dissipation (Note 5)                           | P <sub>D</sub>                    | 400         | mW   |
| Thermal Resistance, Junction to Ambient Air (Note 5) | R <sub>θJA</sub>                  | 312.5       | °C/W |
| Operating and Storage Temperature Range              | T <sub>J</sub> , T <sub>STG</sub> | -65 to +150 | °C   |

**Electrical Characteristics** (@T<sub>A</sub> = +25°C, unless otherwise specified.)

| Type Number | Marking Code | Zener Voltage Range (Note 6)     |         |                 | Maximum Zener Impedance f = 1kHz  |                                   |                 | Maximum Reverse Current (Note 7) |                  | Typical Temperature Coefficient | Typical Total Capacitance       |
|-------------|--------------|----------------------------------|---------|-----------------|-----------------------------------|-----------------------------------|-----------------|----------------------------------|------------------|---------------------------------|---------------------------------|
|             |              | V <sub>Z</sub> @ I <sub>ZT</sub> |         | I <sub>ZT</sub> | Z <sub>ZT</sub> @ I <sub>ZT</sub> | Z <sub>ZK</sub> @ I <sub>ZK</sub> | I <sub>ZK</sub> | I <sub>R</sub>                   | @ V <sub>R</sub> | @ I <sub>ZT</sub> = 5mA         | @ V <sub>R</sub> = 0V, f = 1MHz |
|             |              | Min (V)                          | Max (V) | mA              | Ω                                 |                                   | mA              | μA                               | V                | mV/°C                           | pF                              |
| D3Z2V4BF    | L0           | 2.43                             | 2.63    | 5               | 100                               | 1000                              | 0.5             | 50                               | 1                | -1.6                            | 215                             |
| D3Z2V7BF    | L1           | 2.69                             | 2.91    | 5               | 100                               | 1000                              | 0.5             | 20                               | 1                | -1.7                            | 205                             |
| D3Z3V0BF    | L2           | 2.85                             | 3.07    | 5               | 95                                | 1000                              | 0.5             | 10                               | 1                | -1.7                            | 195                             |
| D3Z3V3BF    | L3           | 3.32                             | 3.53    | 5               | 95                                | 1000                              | 0.5             | 5                                | 1                | -1.9                            | 145                             |
| D3Z3V6BF    | L4           | 3.60                             | 3.85    | 5               | 90                                | 500                               | 1.0             | 5                                | 1                | -2.4                            | 185                             |
| D3Z3V9BF    | L5           | 3.89                             | 4.16    | 5               | 90                                | 500                               | 1.0             | 3                                | 1                | -2.5                            | 175                             |
| D3Z4V3BF    | L6           | 4.17                             | 4.48    | 5               | 90                                | 600                               | 1.0             | 3                                | 1                | -2.5                            | 165                             |
| D3Z4V7BF    | L7           | 4.55                             | 4.75    | 5               | 90                                | 600                               | 1.0             | 2                                | 1                | -1.1                            | 150                             |
| D3Z5V1BF    | GM, L8       | 4.96                             | 5.20    | 5               | 60                                | 250                               | 0.5             | 2                                | 1.5              | 0.3                             | 145                             |
| D3Z5V6BF    | L9           | 5.48                             | 5.73    | 5               | 50                                | 100                               | 0.5             | 1                                | 2.5              | 1.7                             | 20                              |
| D3Z6V2BF    | LA           | 6.06                             | 6.33    | 5               | 50                                | 80                                | 0.5             | 0.5                              | 3                | 2.5                             | 95                              |
| D3Z6V8BF    | LB           | 6.65                             | 6.93    | 5               | 40                                | 60                                | 0.5             | 0.5                              | 3.5              | 3.4                             | 82                              |
| D3Z7V5BF    | LC           | 7.28                             | 7.60    | 5               | 10                                | 60                                | 0.5             | 0.5                              | 4                | 4.0                             | 70                              |
| D3Z8V2BF    | LD           | 8.02                             | 8.36    | 5               | 10                                | 60                                | 0.5             | 0.5                              | 5                | 4.6                             | 57                              |
| D3Z9V1BF    | LE           | 8.85                             | 9.23    | 5               | 10                                | 60                                | 0.5             | 0.5                              | 6                | 5.0                             | 50                              |
| D3Z10BF     | LF           | 9.77                             | 10.21   | 5               | 10                                | 60                                | 0.5             | 0.1                              | 7                | 6.1                             | 45                              |
| D3Z11BF     | LG           | 10.78                            | 11.22   | 5               | 10                                | 60                                | 0.5             | 0.1                              | 8                | 7.4                             | 41                              |
| D3Z12BF     | LH           | 11.74                            | 12.24   | 5               | 10                                | 80                                | 0.5             | 0.1                              | 9                | 8.2                             | 36                              |
| D3Z13BF     | LJ           | 12.91                            | 13.49   | 5               | 10                                | 80                                | 0.5             | 0.1                              | 10               | 9.4                             | 33                              |
| D3Z15BF     | LK           | 14.34                            | 14.98   | 5               | 15                                | 80                                | 0.5             | 0.05                             | 11               | 12.1                            | 28                              |
| D3Z16BF     | LL           | 15.85                            | 16.51   | 5               | 20                                | 80                                | 0.5             | 0.05                             | 12               | 13.7                            | 25                              |
| D3Z18BF     | LM           | 17.56                            | 18.35   | 5               | 20                                | 80                                | 0.5             | 0.05                             | 13               | 15.8                            | 24                              |
| D3Z20BF     | LN           | 19.52                            | 20.39   | 5               | 20                                | 100                               | 0.5             | 0.05                             | 15               | 16.4                            | 22                              |
| D3Z22BF     | LP           | 21.54                            | 22.47   | 5               | 25                                | 100                               | 0.5             | 0.05                             | 17               | 18.4                            | 20                              |
| D3Z24BF     | LQ           | 23.72                            | 24.78   | 5               | 30                                | 120                               | 0.5             | 0.05                             | 19               | 20.4                            | 18                              |
| D3Z27BF     | LR           | 26.19                            | 27.53   | 5               | 40                                | 150                               | 0.5             | 0.05                             | 21               | 18.0                            | 17                              |
| D3Z30BF     | LS           | 29.19                            | 30.69   | 5               | 40                                | 200                               | 0.5             | 0.05                             | 23               | 28.6                            | 17                              |
| D3Z33BF     | LT           | 32.15                            | 33.79   | 5               | 40                                | 250                               | 0.5             | 0.05                             | 25               | 32.2                            | 15                              |
| D3Z36BF     | LU           | 35.07                            | 36.87   | 5               | 60                                | 300                               | 0.5             | 0.05                             | 27               | 34.9                            | 14                              |

- Notes:
5. Device mounted on FR-4 PCB with suggested pad layout, board size 35mm \* 25mm.
  6. The Zener voltage is measured <40ms after power is supplied.
  7. Short duration pulse test used to minimize self-heating effect.

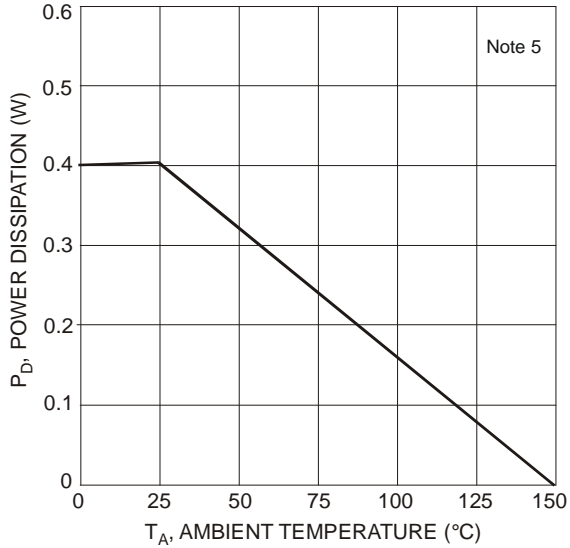


Fig. 1 Power Derating Curve

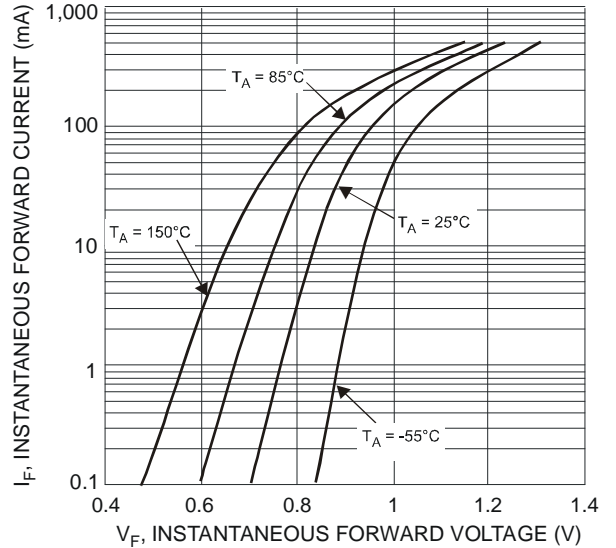


Fig. 2 Typical Forward Characteristics

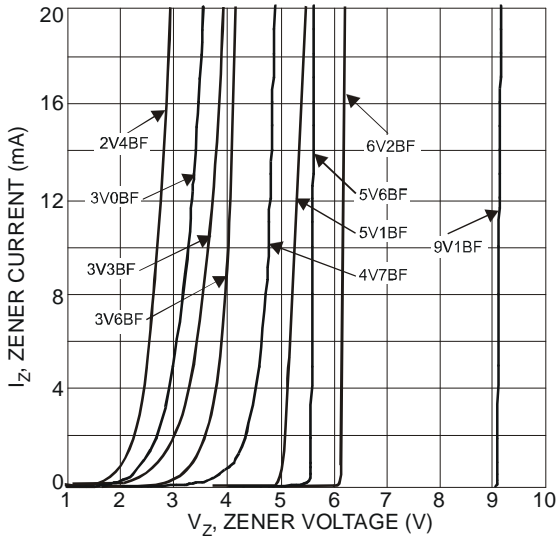


Fig. 3 Typical Zener Breakdown Characteristics

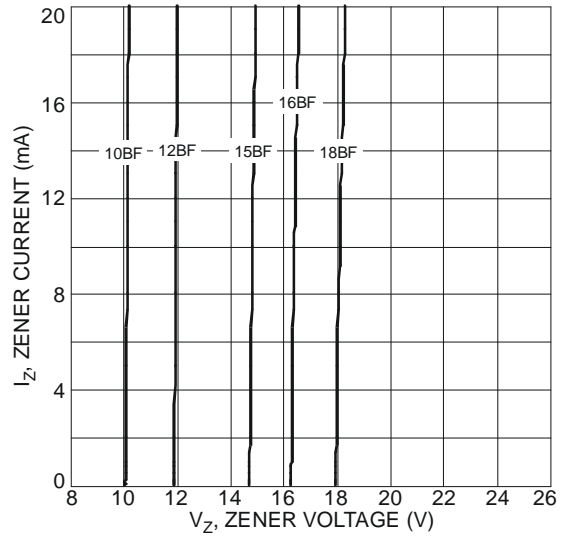


Fig. 4 Typical Zener Breakdown Characteristics

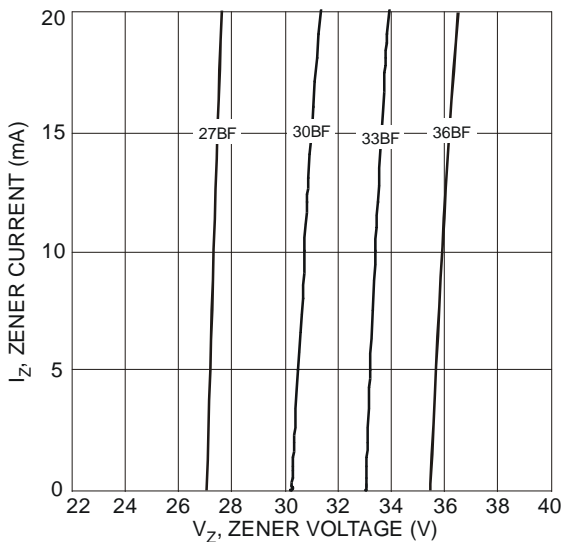
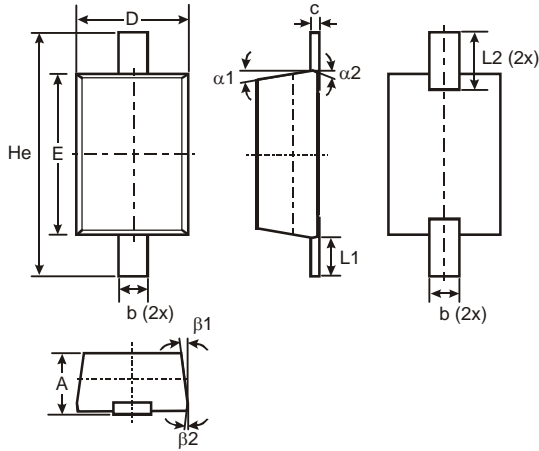


Fig. 5 Typical Zener Breakdown Characteristics

**Package Outline Dimensions**

Please see AP02001 at [http://www.diodes.com/\\_files/datasheets/ap02001.pdf](http://www.diodes.com/_files/datasheets/ap02001.pdf) for the latest version.

**SOD323F**

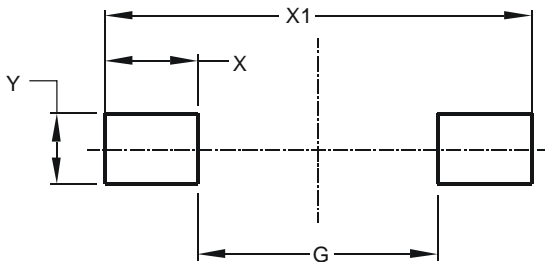


| SOD323F              |      |      |      |
|----------------------|------|------|------|
| Dim                  | Min  | Max  | Typ  |
| A                    | 0.60 | 0.75 | –    |
| b                    | 0.25 | 0.35 | –    |
| c                    | 0.05 | 0.26 | –    |
| D                    | 1.15 | 1.35 | 1.25 |
| E                    | 1.60 | 1.80 | 1.70 |
| He                   | 2.30 | 2.70 | 2.50 |
| L1                   | 0.30 | 0.50 | 0.40 |
| L2                   | 0.41 | 0.61 | 0.51 |
| alpha1               | –    | –    | 7°   |
| alpha2               | –    | –    | 3°   |
| beta1                | –    | –    | 7°   |
| beta2                | –    | –    | 3°   |
| All Dimensions in mm |      |      |      |

**Suggested Pad Layout**

Please see AP02001 at [http://www.diodes.com/\\_files/datasheets/ap02001.pdf](http://www.diodes.com/_files/datasheets/ap02001.pdf) for the latest version.

**SOD323F**



| Dimensions | Value (in mm) |
|------------|---------------|
| G          | 1.280         |
| X          | 0.710         |
| X1         | 2.700         |
| Y          | 0.403         |

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