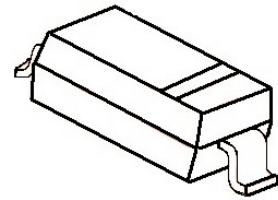


**SOD-323 Plastic-Encapsulate Zener Diode**
**Features**

- Low Zener Impedance
- 200mW; Power Dissipation of 200mW
- High Stability and High Reliability

**Mechanical Data**

- SOD-323 Small Outline Plastic Package
- Polarity: Color band denotes cathode end
- Mounting Position: Any

**SOD-323**

**Maximum Ratings & Thermal Characteristics** (Ratings at 25°C ambient temperature unless otherwise specified.)

| Parameters                                  | Symbol           | Value             | Unit |
|---------------------------------------------|------------------|-------------------|------|
| Power Dissipation                           | Pd               | 200 <sup>1)</sup> | mW   |
| Forward Voltage @IF=10mA                    | Vf               | 0.9 <sup>2)</sup> | V    |
| Thermal Resistance from Junction to Ambient | R <sub>θJA</sub> | 625               | °C/W |
| Junction Temperature                        | T <sub>J</sub>   | 150               | °C   |
| Storage temperature range                   | T <sub>STG</sub> | -65-+150          | °C   |

1) Device mounted on ceramic PCB: 7.6mm x 9.4mm x 0.87mm with pad areas 25mm<sup>2</sup>

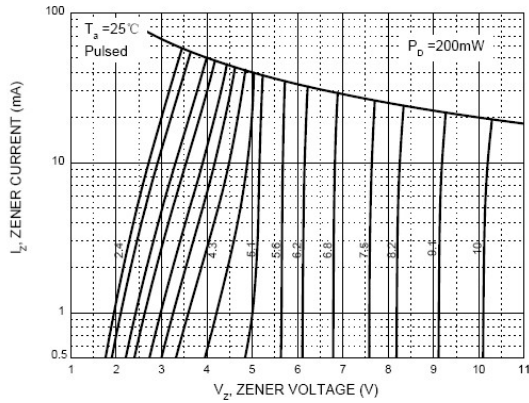
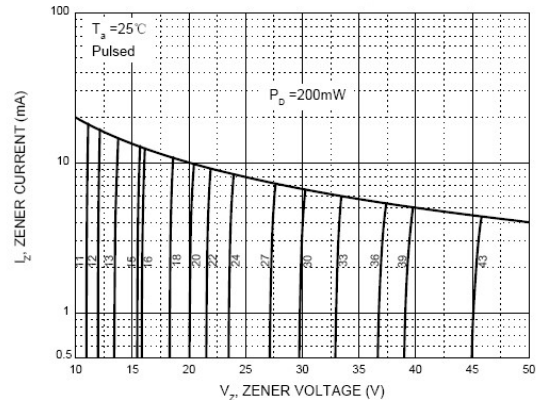
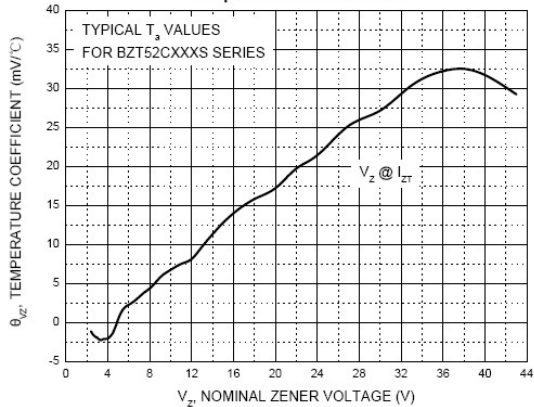
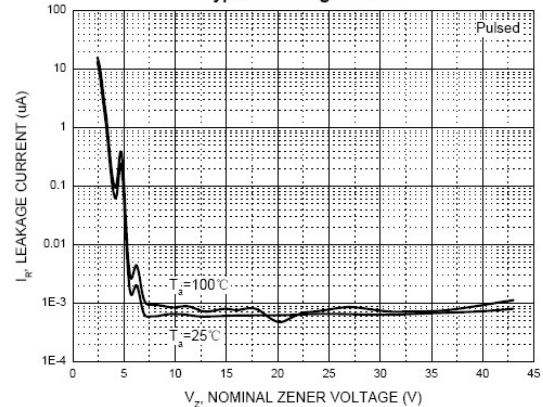
2) Short duration test pulse used to minimize self-heating effect

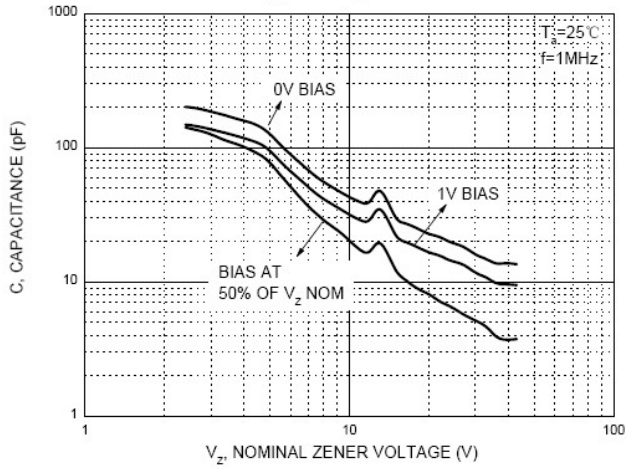
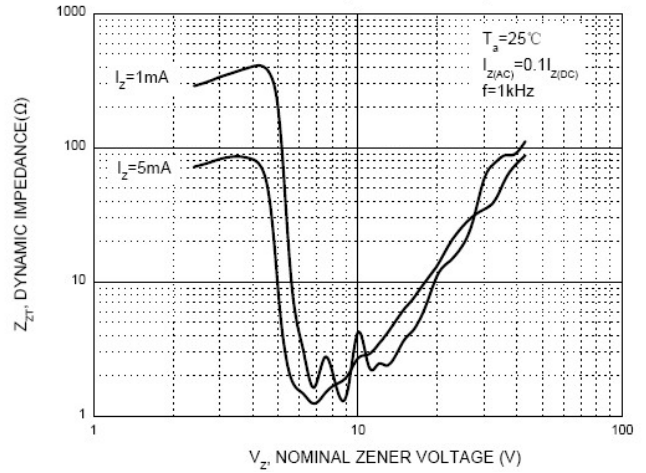
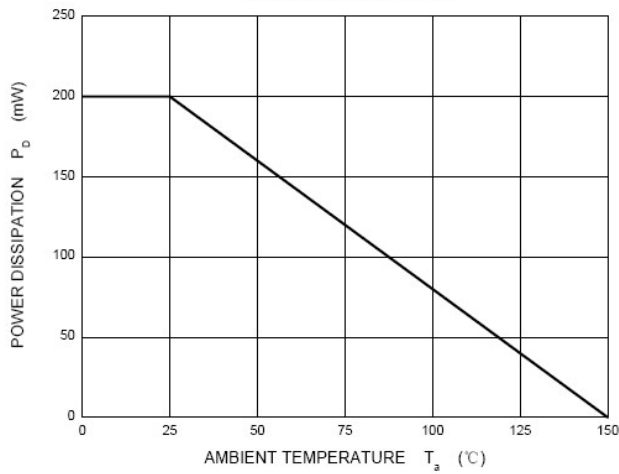
3) f=1KHz

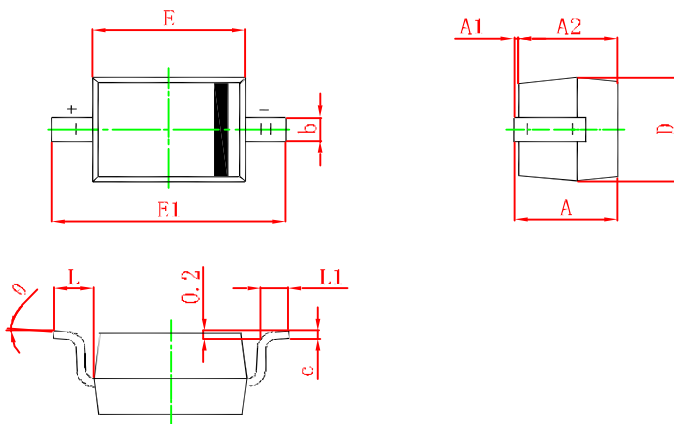
**Electrical Characteristics** (Ratings at 25°C ambient temperature unless otherwise specified).

| Device     | Marking | Zener Voltage Range |        |        |     | Maximum Zener Impedance <sup>3)</sup> |          |     | Maximum Reverse Current |     | Typical Temperature coefficient @ IZTC=mV/°C |      | Test Current IZTC |
|------------|---------|---------------------|--------|--------|-----|---------------------------------------|----------|-----|-------------------------|-----|----------------------------------------------|------|-------------------|
|            |         | Vz@Izt              |        |        | Izt | Zzt @Izt                              | Zzk @Izk | Izk | IR                      | VR  | Min                                          | Max  |                   |
|            |         | Nom(V)              | Min(V) | Max(V) |     |                                       |          |     |                         |     |                                              |      |                   |
| BZT52C2V0S | WY      | 2.0                 | 1.80   | 2.15   | 5   | 150                                   | 600      | 1.0 | 100                     | 1.0 | -3.5                                         | 0    | 5                 |
| BZT52C2V4S | WX      | 2.4                 | 2.2    | 2.6    | 5   | 100                                   | 600      | 1.0 | 50                      | 1.0 | -3.5                                         | 0    | 5                 |
| BZT52C2V7S | W1      | 2.7                 | 2.5    | 2.9    | 5   | 100                                   | 600      | 1.0 | 20                      | 1.0 | -3.5                                         | 0    | 5                 |
| BZT52C3V0S | W2      | 3.0                 | 2.8    | 3.2    | 5   | 95                                    | 600      | 1.0 | 10                      | 1.0 | -3.5                                         | 0    | 5                 |
| BZT52C3V3S | W3      | 3.3                 | 3.1    | 3.5    | 5   | 95                                    | 600      | 1.0 | 5                       | 1.0 | -3.5                                         | 0    | 5                 |
| BZT52C3V6S | W4      | 3.6                 | 3.4    | 3.8    | 5   | 90                                    | 600      | 1.0 | 5                       | 1.0 | -3.5                                         | 0    | 5                 |
| BZT52C3V9S | W5      | 3.9                 | 3.7    | 4.1    | 5   | 90                                    | 600      | 1.0 | 3                       | 1.0 | -3.5                                         | 0    | 5                 |
| BZT52C4V3S | W6      | 4.3                 | 4.0    | 4.6    | 5   | 90                                    | 600      | 1.0 | 3                       | 1.0 | -3.5                                         | 0    | 5                 |
| BZT52C4V7S | W7      | 4.7                 | 4.4    | 5.0    | 5   | 80                                    | 500      | 1.0 | 3                       | 2.0 | -3.5                                         | 0.2  | 5                 |
| BZT52C5V1S | W8      | 5.1                 | 4.8    | 5.4    | 5   | 60                                    | 480      | 1.0 | 2                       | 2.0 | -2.7                                         | 1.2  | 5                 |
| BZT52C5V6S | W9      | 5.6                 | 5.2    | 6.0    | 5   | 40                                    | 400      | 1.0 | 1                       | 2.0 | -2.0                                         | 2.5  | 5                 |
| BZT52C6V2S | WA      | 6.2                 | 5.8    | 6.6    | 5   | 10                                    | 150      | 1.0 | 3                       | 4.0 | 0.4                                          | 3.7  | 5                 |
| BZT52C6V8S | WB      | 6.8                 | 6.4    | 7.2    | 5   | 15                                    | 80       | 1.0 | 2                       | 4.0 | 1.2                                          | 4.5  | 5                 |
| BZT52C7V5S | WC      | 7.5                 | 7.0    | 7.9    | 5   | 15                                    | 80       | 1.0 | 1                       | 5.0 | 2.5                                          | 5.3  | 5                 |
| BZT52C8V2S | WD      | 8.2                 | 7.7    | 8.7    | 5   | 15                                    | 80       | 1.0 | 0.7                     | 5.0 | 3.2                                          | 6.2  | 5                 |
| BZT52C9V1S | WE      | 9.1                 | 8.5    | 9.6    | 5   | 15                                    | 100      | 1.0 | 0.5                     | 6.0 | 3.8                                          | 7.0  | 5                 |
| BZT52C10S  | WF      | 10                  | 9.4    | 10.6   | 5   | 20                                    | 150      | 1.0 | 0.2                     | 7.0 | 4.5                                          | 8.0  | 5                 |
| BZT52C11S  | WG      | 11                  | 10.4   | 11.6   | 5   | 20                                    | 150      | 1.0 | 0.1                     | 8.0 | 5.4                                          | 9.0  | 5                 |
| BZT52C12S  | WH      | 12                  | 11.4   | 12.7   | 5   | 25                                    | 150      | 1.0 | 0.1                     | 8.0 | 6.0                                          | 10.0 | 5                 |
| BZT52C13S  | WI      | 13                  | 12.4   | 14.1   | 5   | 30                                    | 170      | 1.0 | 0.1                     | 8.0 | 7.0                                          | 11.0 | 5                 |

| Device    | Marking | Zener Voltage Range |        |        |     | Maximum Zener Impedance |          |     | Maximum Reverse Current |      | Typical Temperature coefficient @ IZTC=mV/°C |      | Test Current IZTC |
|-----------|---------|---------------------|--------|--------|-----|-------------------------|----------|-----|-------------------------|------|----------------------------------------------|------|-------------------|
|           |         | Vz@Izt              |        |        | Izt | Zzt @Izt                | Zzk @Izk | Izk | IR                      | VR   | Min                                          | Max  |                   |
|           |         | Nom(V)              | Min(V) | Max(V) |     |                         |          |     |                         |      |                                              |      |                   |
| BZT52C15S | WJ      | 15                  | 13.8   | 15.6   | 5   | 30                      | 200      | 1.0 | 0.1                     | 10.5 | 9.2                                          | 13.0 | 5                 |
| BZT52C16S | WK      | 16                  | 15.3   | 17.1   | 5   | 40                      | 200      | 1.0 | 0.1                     | 11.2 | 10.4                                         | 14.0 | 5                 |
| BZT52C18S | WL      | 18                  | 16.8   | 19.1   | 5   | 45                      | 225      | 1.0 | 0.1                     | 12.6 | 12.4                                         | 16.0 | 5                 |
| BZT52C20S | WM      | 20                  | 18.8   | 21.2   | 5   | 55                      | 225      | 1.0 | 0.1                     | 14.0 | 14.4                                         | 18.0 | 5                 |
| BZT52C22S | WN      | 22                  | 20.8   | 23.3   | 5   | 55                      | 250      | 1.0 | 0.1                     | 15.4 | 16.4                                         | 20.0 | 5                 |
| BZT52C24S | WO      | 24                  | 22.8   | 25.6   | 5   | 70                      | 250      | 1.0 | 0.1                     | 16.8 | 18.4                                         | 22.0 | 5                 |
| BZT52C27S | WP      | 27                  | 25.1   | 28.9   | 2   | 80                      | 300      | 0.5 | 0.1                     | 18.9 | 21.4                                         | 25.3 | 2                 |
| BZT52C30S | WQ      | 30                  | 28.0   | 32.0   | 2   | 80                      | 300      | 0.5 | 0.1                     | 21.0 | 24.4                                         | 29.4 | 2                 |
| BZT52C33S | WR      | 33                  | 31.0   | 35.0   | 2   | 80                      | 325      | 0.5 | 0.1                     | 23.1 | 27.4                                         | 33.4 | 2                 |
| BZT52C36S | WS      | 36                  | 34.0   | 38.0   | 2   | 90                      | 350      | 0.5 | 0.1                     | 25.2 | 30.4                                         | 37.4 | 2                 |
| BZT52C39S | WT      | 39                  | 37.0   | 41.0   | 2   | 130                     | 350      | 0.5 | 0.1                     | 27.3 | 33.4                                         | 41.2 | 2                 |
| BZT52C43S | WU      | 43                  | 40.0   | 46.0   | 2   | 100                     | 700      | 1.0 | 0.1                     | 32.0 | 10.0                                         | 12.0 | 5                 |
| BZT52C47S | WV      | 47                  | 44.0   | 50.0   | 2   | 100                     | 750      | 1.0 | 0.1                     | 35.0 | 10.0                                         | 12.0 | 5                 |
| BZT52C51S | WW      | 51                  | 48.0   | 54.0   | 2   | 100                     | 750      | 1.0 | 0.1                     | 38.0 | 10.0                                         | 12.0 | 5                 |
| BZT52C56S | XW      | 56                  | 52.0   | 60.0   | 2   | 135                     | 700      | 1.0 | 0.1                     | 39.0 | 10.0                                         | 12.0 | 5                 |
| BZT52C62S | 6E      | 62                  | 58.0   | 66.0   | 2   | 200                     | 1000     | 1.0 | 0.2                     | 47.0 | 10.0                                         | 12.0 | 5                 |
| BZT52C68S | 6F      | 68                  | 64.0   | 72.0   | 2   | 250                     | 1000     | 1.0 | 0.2                     | 52.0 | 10.0                                         | 12.0 | 5                 |
| BZT52C75S | 6H      | 75                  | 70.0   | 79.0   | 2   | 300                     | 1000     | 1.0 | 0.2                     | 57   | 10.0                                         | 12.0 | 5                 |

**Zener Characteristics (Vz Up to 10 V)**

**Zener Characteristics (11 V to 43 V)**

**Temperature Coefficients**

**Typical Leakage Current**


**Typical Capacitance**

**Effect of Zener Voltage on Zener Impedance**

**Power Derating Curve**

**SOD-323 PACKAGE OUTLINE** Plastic surface mounted package

**SOD-323**


| Symbol | Min.(mm) | Max.(mm) |
|--------|----------|----------|
| A      |          | 1.000    |
| A1     | 0.000    | 0.100    |
| A2     | 0.800    | 0.900    |
| b      | 0.250    | 0.350    |
| c      | 0.080    | 0.150    |
| D      | 1.200    | 1.400    |
| E      | 1.600    | 1.800    |
| E1     | 2.500    | 2.700    |
| L      | 0.475REF |          |
| L1     | 0.250    | 0.400    |
| θ      | 0°       | 8°       |

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