

SOD-323 SURFACE MOUNT SILICON ZENER DIODES

Features

- Low Zener Impedance
- Power Dissipation of 200mW
- High Stability and High Reliability
- Meets MSL level 1, per J-STD-020, LF maximum peak of 260°C

Applications

Zener diode is generally used as reference voltage sources in regulated power supplies or as protective diode in overvoltage protection circuits.

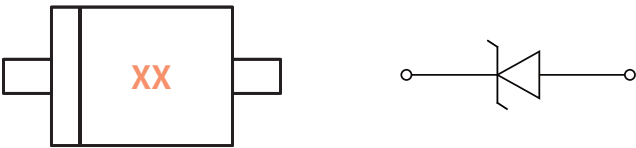
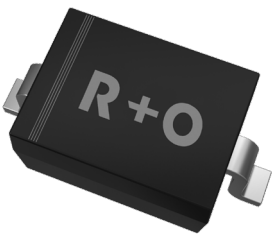
Mechanical Data

- Case: SOD-323
- Molding compound meets UL 94V-0 flammability rating, RoHS-compliant, halogen-free
- Terminals: Solder plated, solderable per MIL-STD-750, Method 2026
- Polarity: Cathode line denotes the cathode end

Function Diagram

Zener Diode  
2.0 to 75 Volts  
Power Dissipation  
0.2 Watts

SOD-323



Maximum Ratings (Ta=25°C Unless otherwise specified)

| PARAMETER                           | SYMBOL           | UNIT  | VALUE      |
|-------------------------------------|------------------|-------|------------|
| Power Dissipation                   | $P_D$            | mW    | 200        |
| Forward Voltage @ $I_F=10\text{mA}$ | $V_F$            | V     | 0.9        |
| Storage Temperature                 | $T_{\text{stg}}$ | °C    | -55 ~ +150 |
| Junction Temperature                | $T_J$            | °C    | -55 ~ +150 |
| Typical Thermal Resistance          | $R_{\theta J-A}$ | °C /W | 417        |

Electrical Parameter

| SYMBOL   | PARAMETER                          |
|----------|------------------------------------|
| $V_Z$    | Reverse zener voltage @ $I_{ZT}$   |
| $I_{ZT}$ | Reverse current                    |
| $Z_{ZT}$ | Maximum Zener Impedance @ $I_{ZT}$ |
| $I_{ZK}$ | Reverse Current                    |
| $Z_{ZK}$ | Maximum Zener Impedance @ $I_{ZK}$ |
| $I_R$    | Reverse leakage current @ $V_R$    |
| $V_R$    | Reverse voltage                    |
| $I_F$    | Forward current                    |
| $V_F$    | Forward voltage @ $I_F$            |

BZT52C2V0S THRU BZT52C75S

SURFACE MOUNT ZENER DIODES

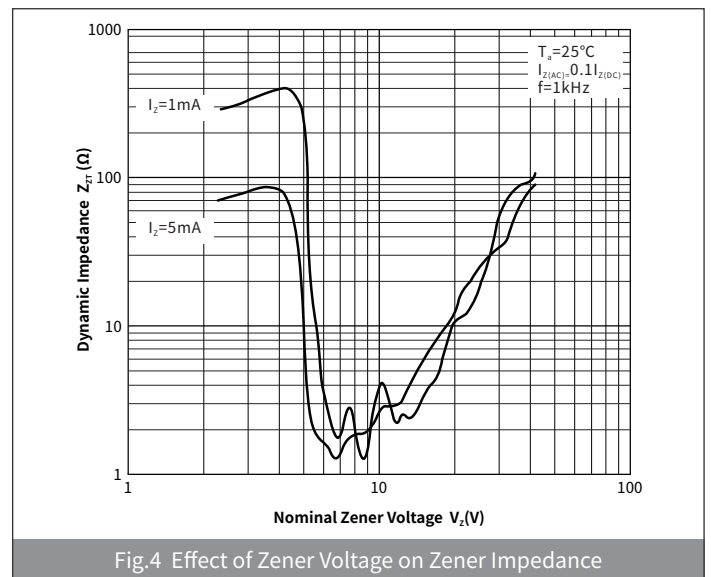
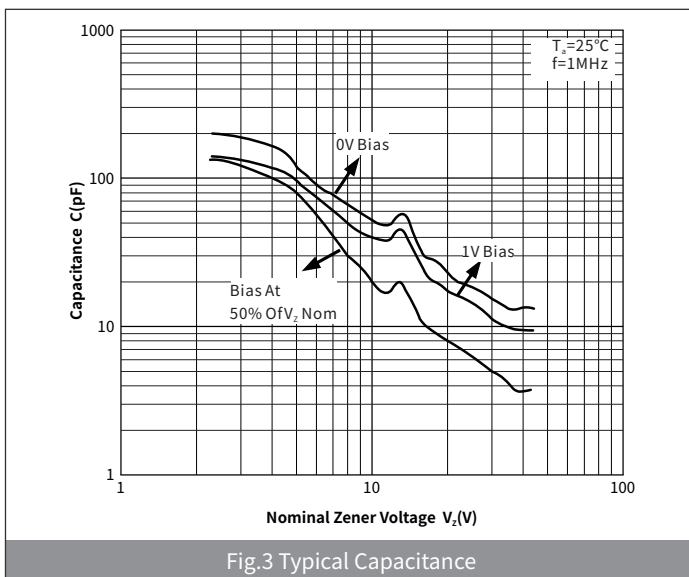
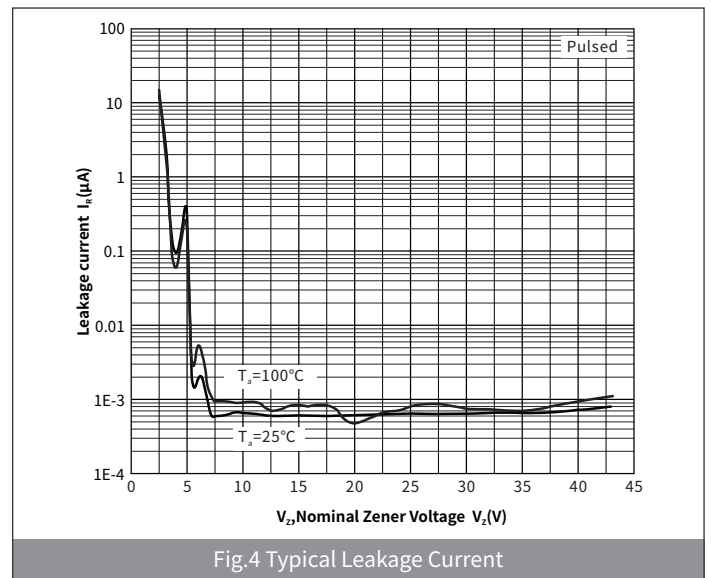
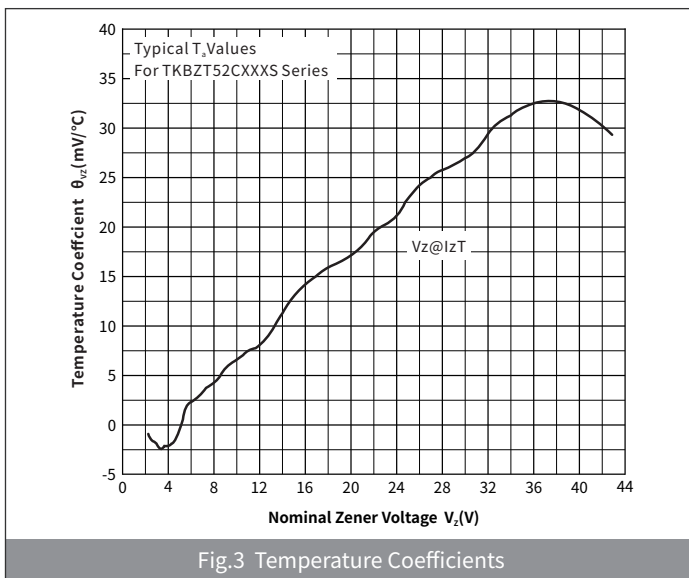
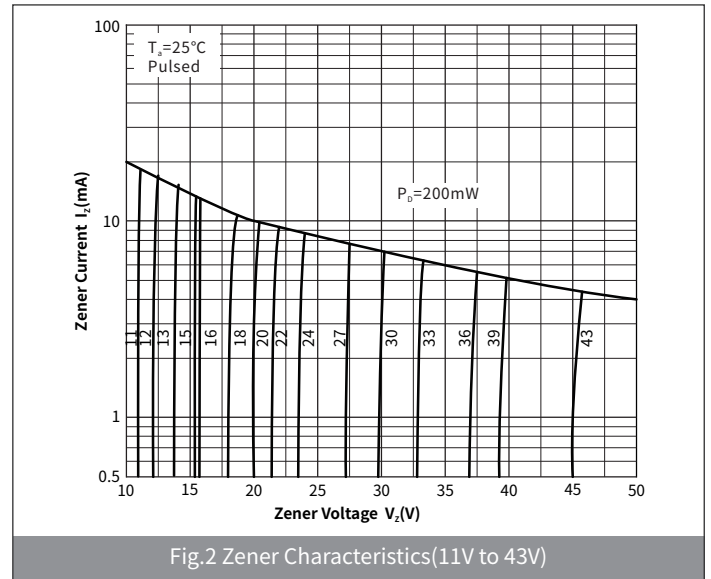
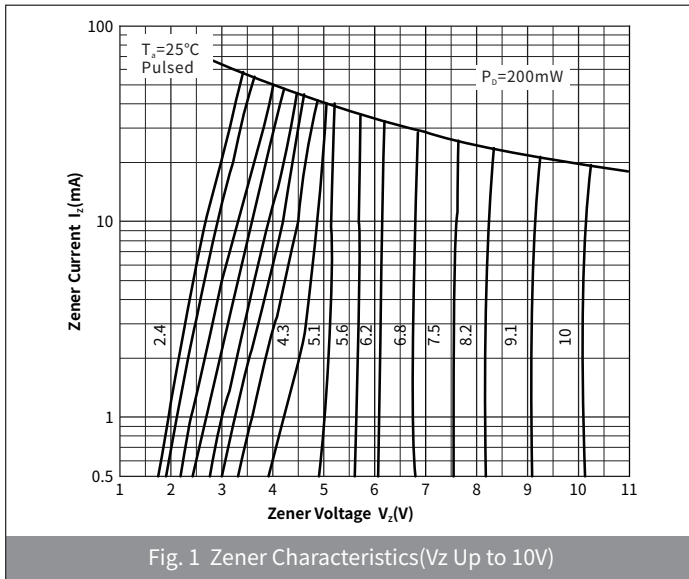
● Electrical Characteristics (Ta=25°C Unless otherwise noted)

| Type Number | Marking | Nominal Zener Voltage |      |      |                 | Zener Impedance                  |                                  |                 | Leakage Current                |                    | Typical Temperature coefficient<br>@ I <sub>ZTC</sub> (mV/°C ) |      |
|-------------|---------|-----------------------|------|------|-----------------|----------------------------------|----------------------------------|-----------------|--------------------------------|--------------------|----------------------------------------------------------------|------|
|             |         | V <sub>Z</sub> (V)    |      |      | 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> |                    |                                                                |      |
|             |         | Min.                  | Nom. | Max. | (mA)            | (Ω)                              |                                  | (mA)            | I <sub>R</sub> (μA)            | V <sub>R</sub> (V) | Min.                                                           | Max. |
| BZT52C2V0S  | WY      | 1.80                  | 2.0  | 2.15 | 5               | 150                              | 600                              | 1.0             | 100                            | 1.0                | -3.5                                                           | 0    |
| BZT52C2V4S  | WX      | 2.2                   | 2.4  | 2.6  | 5               | 100                              | 600                              | 1.0             | 50                             | 1.0                | -3.5                                                           | 0    |
| BZT52C2V7S  | W1      | 2.5                   | 2.7  | 2.9  | 5               | 100                              | 600                              | 1.0             | 20                             | 1.0                | -3.5                                                           | 0    |
| BZT52C3V0S  | W2      | 2.8                   | 3.0  | 3.2  | 5               | 95                               | 600                              | 1.0             | 10                             | 1.0                | -3.5                                                           | 0    |
| BZT52C3V3S  | W3      | 3.1                   | 3.3  | 3.5  | 5               | 95                               | 600                              | 1.0             | 5                              | 1.0                | -3.5                                                           | 0    |
| BZT52C3V6S  | W4      | 3.4                   | 3.6  | 3.8  | 5               | 90                               | 600                              | 1.0             | 5                              | 1.0                | -3.5                                                           | 0    |
| BZT52C3V9S  | W5      | 3.7                   | 3.9  | 4.1  | 5               | 90                               | 600                              | 1.0             | 3                              | 1.0                | -3.5                                                           | 0    |
| BZT52C4V3S  | W6      | 4.0                   | 4.3  | 4.6  | 5               | 90                               | 600                              | 1.0             | 3                              | 1.0                | -3.5                                                           | 0    |
| BZT52C4V7S  | W7      | 4.4                   | 4.7  | 5.0  | 5               | 80                               | 500                              | 1.0             | 3                              | 2.0                | -3.5                                                           | 0.2  |
| BZT52C5V1S  | W8      | 4.8                   | 5.1  | 5.4  | 5               | 60                               | 480                              | 1.0             | 2                              | 2.0                | -2.7                                                           | 1.2  |
| BZT52C5V6S  | W9      | 5.2                   | 5.6  | 6.0  | 5               | 40                               | 400                              | 1.0             | 1                              | 2.0                | -2.0                                                           | 2.5  |
| BZT52C6V2S  | WA      | 5.8                   | 6.2  | 6.6  | 5               | 10                               | 150                              | 1.0             | 3                              | 4.0                | 0.4                                                            | 3.7  |
| BZT52C6V8S  | WB      | 6.4                   | 6.8  | 7.2  | 5               | 15                               | 80                               | 1.0             | 2                              | 4.0                | 1.2                                                            | 4.5  |
| BZT52C7V5S  | WC      | 7.0                   | 7.5  | 7.9  | 5               | 15                               | 80                               | 1.0             | 1                              | 5.0                | 2.5                                                            | 5.3  |
| BZT52C8V2S  | WD      | 7.7                   | 8.2  | 8.7  | 5               | 15                               | 80                               | 1.0             | 0.7                            | 5.0                | 3.2                                                            | 6.2  |
| BZT52C9V1S  | WE      | 8.5                   | 9.1  | 9.6  | 5               | 15                               | 100                              | 1.0             | 0.5                            | 6.0                | 3.8                                                            | 7.0  |
| BZT52C10S   | WF      | 9.4                   | 10   | 10.6 | 5               | 20                               | 150                              | 1.0             | 0.2                            | 7.0                | 4.5                                                            | 8.0  |
| BZT52C11S   | WG      | 10.4                  | 11   | 11.6 | 5               | 20                               | 150                              | 1.0             | 0.1                            | 8.0                | 5.4                                                            | 9.0  |
| BZT52C12S   | WH      | 11.4                  | 12   | 12.7 | 5               | 25                               | 150                              | 1.0             | 0.1                            | 8.0                | 6.0                                                            | 10.0 |
| BZT52C13S   | WI      | 12.4                  | 13   | 14.1 | 5               | 30                               | 170                              | 1.0             | 0.1                            | 8.0                | 7.0                                                            | 11.0 |
| BZT52C15S   | WJ      | 13.8                  | 15   | 15.6 | 5               | 30                               | 200                              | 1.0             | 0.1                            | 10.5               | 9.2                                                            | 13.0 |
| BZT52C16S   | WK      | 15.3                  | 16   | 17.1 | 5               | 40                               | 200                              | 1.0             | 0.1                            | 11.2               | 10.4                                                           | 14.0 |
| BZT52C18S   | WL      | 16.8                  | 18   | 19.1 | 5               | 45                               | 225                              | 1.0             | 0.1                            | 12.6               | 12.4                                                           | 16.0 |
| BZT52C20S   | WM      | 18.8                  | 20   | 21.2 | 5               | 55                               | 225                              | 1.0             | 0.1                            | 14.0               | 14.4                                                           | 18.0 |
| BZT52C22S   | WN      | 20.8                  | 22   | 23.3 | 5               | 55                               | 250                              | 1.0             | 0.1                            | 15.4               | 16.4                                                           | 20.0 |
| BZT52C24S   | WO      | 22.8                  | 24   | 25.6 | 5               | 70                               | 250                              | 1.0             | 0.1                            | 16.8               | 18.4                                                           | 22.0 |
| BZT52C27S   | WP      | 25.1                  | 27   | 28.9 | 2               | 80                               | 300                              | 0.5             | 0.1                            | 18.9               | 21.4                                                           | 25.3 |
| BZT52C30S   | WQ      | 28.0                  | 30   | 32.0 | 2               | 80                               | 300                              | 0.5             | 0.1                            | 21.0               | 24.4                                                           | 29.4 |
| BZT52C33S   | WR      | 31.0                  | 33   | 35.0 | 2               | 80                               | 325                              | 0.5             | 0.1                            | 23.1               | 27.4                                                           | 33.4 |
| BZT52C36S   | WS      | 34.0                  | 36   | 38.0 | 2               | 90                               | 350                              | 0.5             | 0.1                            | 25.2               | 30.4                                                           | 37.4 |
| BZT52C39S   | WT      | 37.0                  | 39   | 41.0 | 2               | 130                              | 350                              | 0.5             | 0.1                            | 27.3               | 33.4                                                           | 41.2 |
| BZT52C43S   | WU      | 40.0                  | 43   | 46.0 | 5               | 100                              | 700                              | 1.0             | 0.1                            | 32.0               | 10.0                                                           | 12.0 |
| BZT52C47S   | WV      | 44.0                  | 47   | 50.0 | 5               | 100                              | 750                              | 1.0             | 0.1                            | 35.0               | 10.0                                                           | 12.0 |
| BZT52C51S   | WW      | 48.0                  | 51   | 54.0 | 5               | 100                              | 750                              | 1.0             | 0.1                            | 38.0               | 10.0                                                           | 12.0 |
| BZT52C56S   | XW      | 52.0                  | 56   | 60.0 | 5               | 135                              | 700                              | 1.0             | 0.1                            | 39.0               | 10.0                                                           | 12.0 |
| BZT52C62S   | 6E      | 58.0                  | 62   | 66.0 | 5               | 200                              | 1000                             | 1.0             | 0.2                            | 47.0               | 10.0                                                           | 12.0 |
| BZT52C68S   | 6F      | 64.0                  | 68   | 72.0 | 5               | 250                              | 1000                             | 1.0             | 0.2                            | 52.0               | 10.0                                                           | 12.0 |
| BZT52C75S   | 6H      | 70.0                  | 75   | 79.0 | 5               | 300                              | 1000                             | 1.0             | 0.2                            | 57                 | 10.0                                                           | 12.0 |

# BZT52C2V0S THRU BZT52C75S

SURFACE MOUNT ZENER DIODES

## ● Ratings And Characteristics Curves ( $T_a=25^\circ\text{C}$ Unless otherwise specified)



# BZT52C2V0S THRU BZT52C75S

SURFACE MOUNT ZENER DIODES

## ● Ordering Information

| PACKAGE | PACKAGE CODE | UNIT WEIGHT(g) | REEL(pcs) | BOX(pcs) | CARTON(pcs) | DELIVERY MODE |
|---------|--------------|----------------|-----------|----------|-------------|---------------|
| SOD-323 | R1           | 0.0048         | 3000      | 45000    | 180000      | 7"            |

## ● Package Outline Dimensions (SOD-323)

| Symbol         | Dimensions  |      |          |       |
|----------------|-------------|------|----------|-------|
|                | Millimeters |      | Inches   |       |
|                | Min.        | Max. | Min.     | Max.  |
| A              | 1.60        | 1.80 | 0.063    | 0.071 |
| B              | 0.25        | 0.40 | 0.010    | 0.016 |
| C              | 2.30        | 2.80 | 0.091    | 0.110 |
| D              | 0.80        | 1.10 | 0.031    | 0.043 |
| D <sub>1</sub> | 0.80        | 0.90 | 0.031    | 0.035 |
| E              | 1.20        | 1.40 | 0.047    | 0.055 |
| F              | 0.08        | 0.18 | 0.003    | 0.007 |
| L              | 0.475REF    |      | 0.019REF |       |
| L <sub>1</sub> | 0.25        | 0.40 | 0.010    | 0.016 |
| H              | -           | 0.14 | -        | 0.006 |

## ● Suggested Pad Layout

| Symbol | Dimensions  |      |        |       |
|--------|-------------|------|--------|-------|
|        | Millimeters |      | Inches |       |
|        | Min.        | Max. | Min.   | Max.  |
| X      | 0.65        | 0.75 | 0.026  | 0.030 |
| Y      | 0.65        | 0.75 | 0.026  | 0.030 |
| Z      | 2.10        | 2.20 | 0.084  | 0.088 |