

## SOD-323 Plastic-Encapsulate Diodes

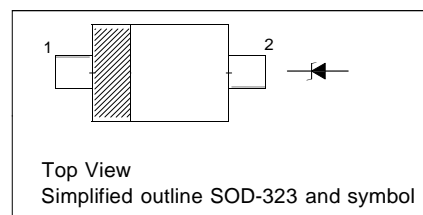
### BZT52C2V4S-BZT52C39S ZENER DIODE

#### FEATURES

- Planar die construction
- 200mW power dissipation on ceramic PBC
- General purpose, medium current
- Ideally suited for automated assembly processes
- Available in lead free version

#### PINNING

| PIN | DESCRIPTION |
|-----|-------------|
| 1   | Cathode     |
| 2   | Anode       |



#### Maximum Ratings (T<sub>a</sub>=25°C unless otherwise specified )

| Characteristic                                   | Symbol           | Value   | Unit |
|--|------------------|---------|------|
| Forward Voltage (Note 2) @ I <sub>F</sub> = 10mA | V <sub>F</sub>   | 0.9     | V    |
| Power Dissipation(Note 1)                        | P <sub>D</sub>   | 200     | mW   |
| Thermal Resistance ( Junction to Ambient)        | R <sub>θJA</sub> | 625     | °C/W |
| Operating Temperature                            | T <sub>op</sub>  | 150     | °C   |
| Storage Temperature Range                        | T <sub>stg</sub> | -5~+150 | °C   |



Electrical Characteristics(T<sub>a</sub> = 25°C unless otherwise specified )

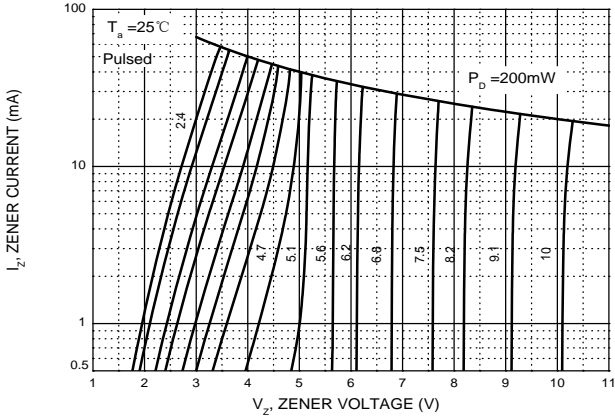
| TYPE       | Marking | Zener Voltage Range (Note 2)    |        |        |                 | Maximum Zener Impedance (Note 3) |                                  |                 | Maximum Reverse Current (Note 2) |                | Typical Temperature Coefficient @I <sub>ZTC</sub> mV/°C |      | Test Current I <sub>ZTC</sub> |
|------------|---------|---------------------------------|--------|--------|-----------------|----------------------------------|----------------------------------|-----------------|----------------------------------|----------------|---|------|-------------------------------|
|            |         | 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> | Min   | Max  | mA                            |
|            |         | Nom(V)                          | Min(V) | Max(V) | (mA)            | Ω                                |                                  | (mA)            | μA                               | V              |   |      |                               |
| BZT52C2V4S | WX      | 2.4                             | 2.20   | 2.60   | 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  | 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                             |
| BZT52C15S  | WJ      | 15                              | 13.8   | 15.6   | 5               | 30                               | 200                              | 1.0             | 0.1                              | 10.5           | 9.2   | 13   | 5                             |
| BZT52C16S  | WK      | 16                              | 15.3   | 17.1   | 5               | 40                               | 200                              | 1.0             | 0.1                              | 11.2           | 10.4  | 14   | 5                             |
| BZT52C18S  | WL      | 18                              | 16.8   | 19.1   | 5               | 45                               | 225                              | 1.0             | 0.1                              | 12.6           | 12.4  | 16   | 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                             |

- Notes: 1. Device mounted on ceramic PCBK7.6mm 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.

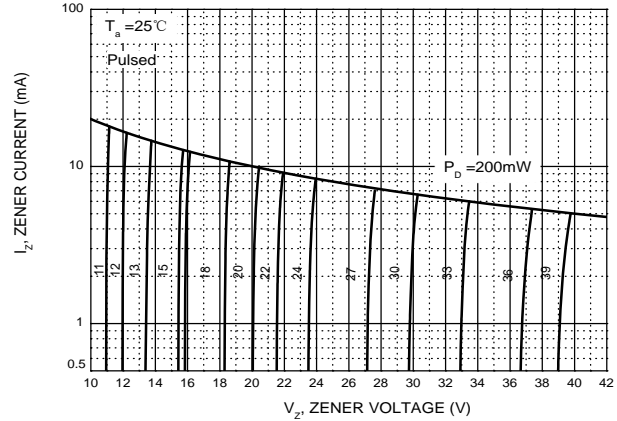


# Typical Characteristics BZT52C2V4S-39S

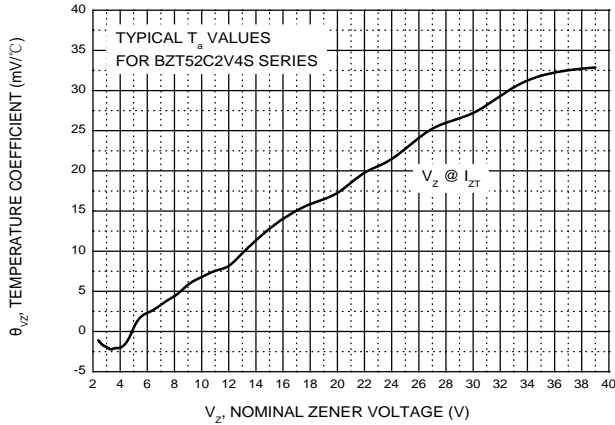
### Zener Characteristics ( $V_z$ Up to 10 V)



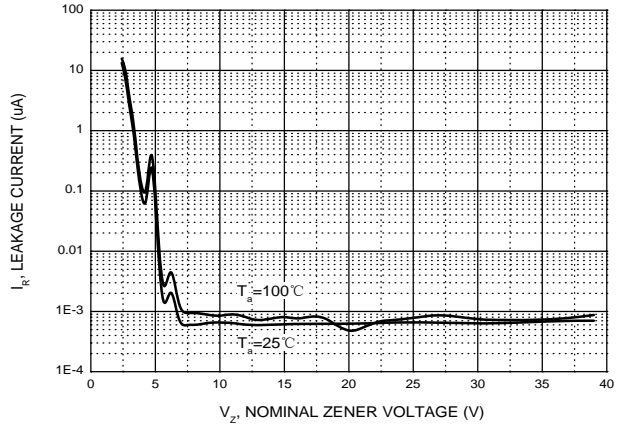
### Zener Characteristics (11 V to 39 V)



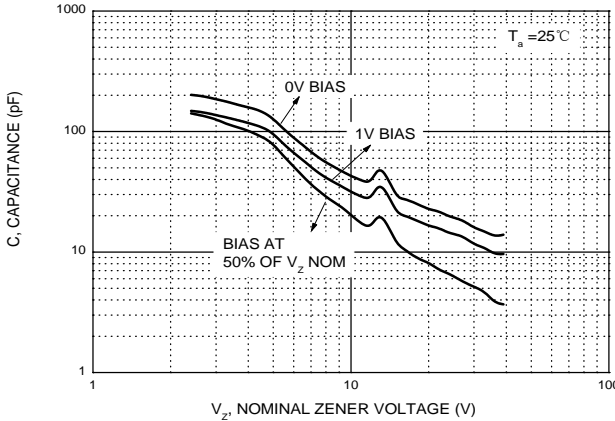
### Temperature Coefficients



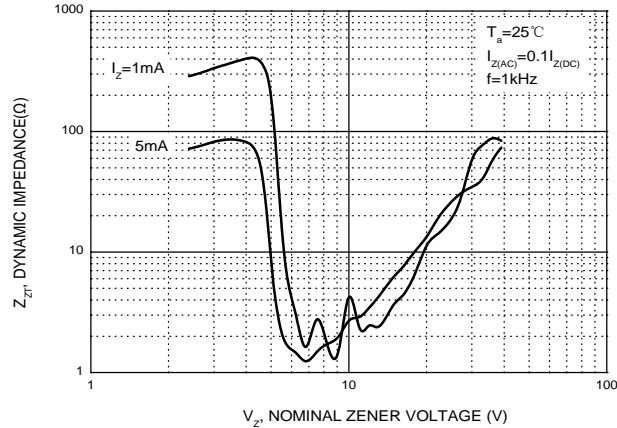
### Typical Leakage Current



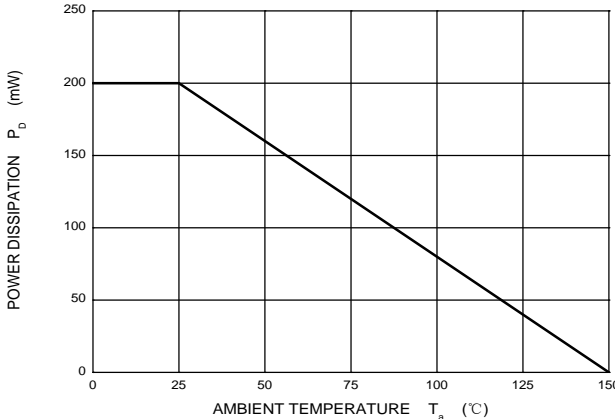
### Typical Capacitance



### Effect of Zener Voltage on Zener Impedance



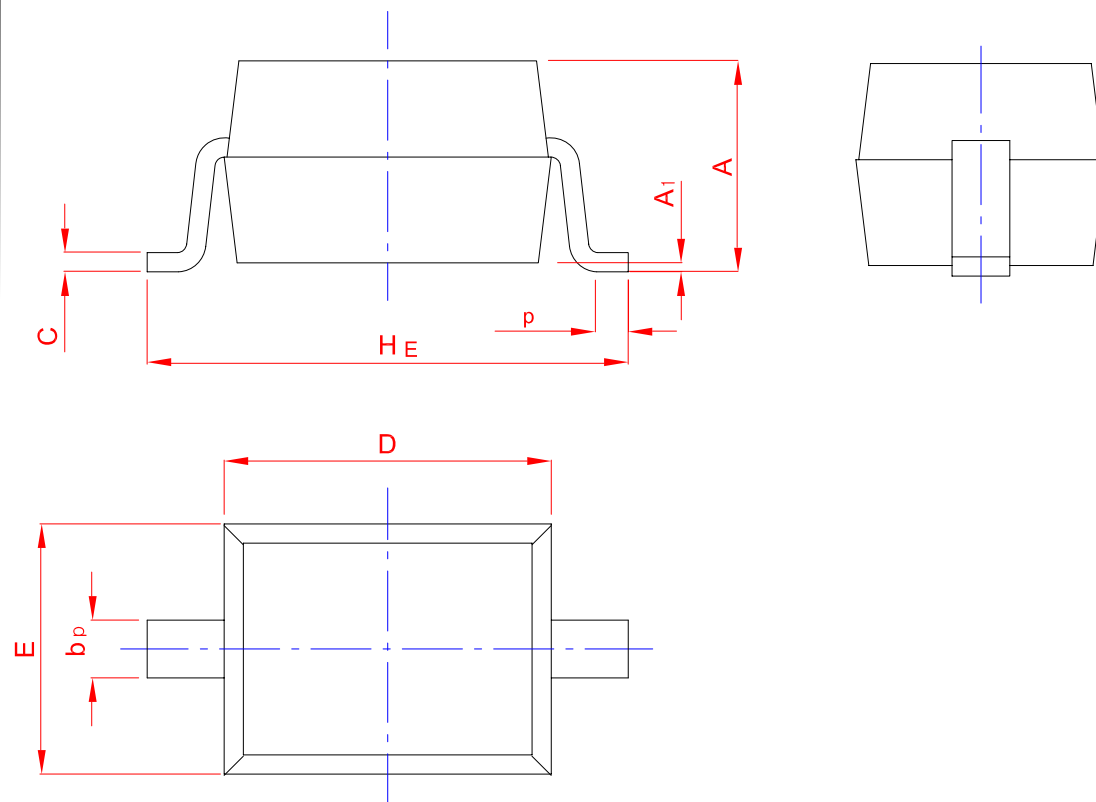
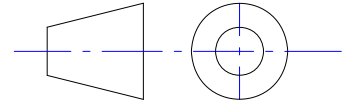
### Power Derating Curve



## PACKAGE OUTLINE

Plastic surface mounted package; 2 leads

SOD-323



| UNIT | A    | b <sub>p</sub> | C    | D    | E    | H <sub>E</sub> | A <sub>1</sub> | L <sub>p</sub> |
|------|------|----------------|------|------|------|----------------|----------------|----------------|
| mm   | 1.20 | 0.40           | 0.15 | 1.80 | 1.35 | 2.80           | 0.10           | 0.50           |
|      | 0.90 | 0.25           | 0.10 | 1.60 | 1.15 | 2.30           | 0.01           | 0.20           |

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