

## Surface mount zener diode

## BZT52C2V0S-BZT52C75S

### FEATURES

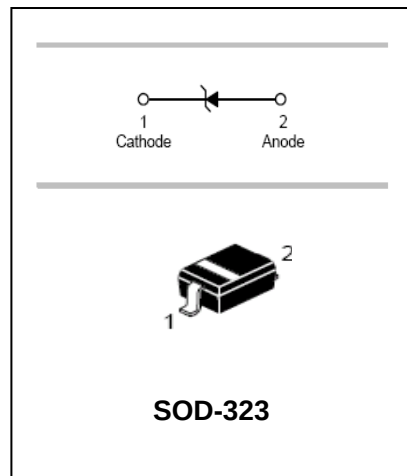
- Planar die construction
- General purpose, medium current
- Ideally suited for automated assembly processes



Lead-free

### APPLICATIONS

- Zener diode
- Ultra-small surface mount package



### ORDERING INFORMATION

| Type No.             | Marking     | Package Code |
|----------------------|-------------|--------------|
| BZT52C2V0S-BZT52C75S | See table 2 | SOD-323      |

### MAXIMUM RATING @ Ta=25°C unless otherwise specified

| Characteristic                              | Symbol           | Value       | Unit |
|---------------------------------------------|------------------|-------------|------|
| Forward Voltage @ I <sub>F</sub> =10mA      | V <sub>F</sub>   | 0.9         | V    |
| Power Dissipation                           | P <sub>d</sub>   | 200         | mW   |
| Thermal resistance, junction to ambient air | R <sub>θJA</sub> | 625         | °C/W |
| Junction temperature                        | T <sub>j</sub>   | 150         | °C   |
| Storage temperature range                   | T <sub>stg</sub> | -65 to +150 | °C   |

Notes: 1. Valid provided that device terminals are kept at ambient temperature.

2. Short duration test pulse used in minimize self-heating effect.

3. f = 1KHz.



## Surface mount zener diode

## BZT52C2V0S-BZT52C75S

### ELECTRICAL CHARACTERISTICS @ Ta=25°C unless otherwise specified

| Type Number | Marking Code | Zener Voltage Range             |        |        |                 | Maximum Zener Impedance          |                                  |                 | Maximum Reverse Current |                 | Temperature Coefficient of zener voltage @ 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> | mV/°C                                                       |      |
|             |              | Nom(V)                          | Min(V) | Max(V) | mA              | Ω                                |                                  | mA              | μA                      | V               | Min                                                         | Max  |
| BZT52C2V0S  | WY           | 2.0                             | 1.91   | 2.09   | 5               | 100                              | 600                              | 1.0             | 150                     | 1.0             | -3.5                                                        | 0    |
| BZT52C2V4S  | WX           | 2.4                             | 2.2    | 2.60   | 5               | 100                              | 600                              | 1.0             | 50                      | 1.0             | -3.5                                                        | 0    |
| BZT52C2V7S  | W1           | 2.7                             | 2.5    | 2.9    | 5               | 100                              | 600                              | 1.0             | 20                      | 1.0             | -3.5                                                        | 0    |
| BZT52C3V0S  | W2           | 3.0                             | 2.8    | 3.2    | 5               | 95                               | 600                              | 1.0             | 10                      | 1.0             | -3.5                                                        | 0    |
| BZT52C3V3S  | W3           | 3.3                             | 3.1    | 3.5    | 5               | 95                               | 600                              | 1.0             | 5                       | 1.0             | -3.5                                                        | 0    |
| BZT52C3V6S  | W4           | 3.6                             | 3.4    | 3.8    | 5               | 90                               | 600                              | 1.0             | 5                       | 1.0             | -3.5                                                        | 0    |
| BZT52C3V9S  | W5           | 3.9                             | 3.7    | 4.1    | 5               | 90                               | 600                              | 1.0             | 3                       | 1.0             | -3.5                                                        | 0    |
| BZT52C4V3S  | W6           | 4.3                             | 4.0    | 4.6    | 5               | 90                               | 600                              | 1.0             | 3                       | 1.0             | -3.5                                                        | 0    |
| BZT52C4V7S  | W7           | 4.7                             | 4.4    | 5.0    | 5               | 80                               | 500                              | 1.0             | 3                       | 2.0             | -3.5                                                        | 0.2  |
| BZT52C5V1S  | W8           | 5.1                             | 4.8    | 5.4    | 5               | 60                               | 480                              | 1.0             | 2                       | 2.0             | -2.7                                                        | 1.2  |
| BZT52C5V6S  | W9           | 5.6                             | 5.2    | 6.0    | 5               | 40                               | 400                              | 1.0             | 1                       | 2.0             | -2.0                                                        | 2.5  |
| BZT52C6V2S  | WA           | 6.2                             | 5.8    | 6.6    | 5               | 10                               | 150                              | 1.0             | 3                       | 4.0             | 0.4                                                         | 3.7  |
| BZT52C6V8S  | WB           | 6.8                             | 6.4    | 7.2    | 5               | 15                               | 80                               | 1.0             | 2                       | 4.0             | 1.2                                                         | 4.5  |
| BZT52C7V5S  | WC           | 7.5                             | 7.0    | 7.9    | 5               | 15                               | 80                               | 1.0             | 1                       | 5.0             | 2.5                                                         | 5.3  |
| BZT52C8V2S  | WD           | 8.2                             | 7.7    | 8.7    | 5               | 15                               | 80                               | 1.0             | 0.7                     | 5.0             | 3.2                                                         | 6.2  |
| BZT52C9V1S  | WE           | 9.1                             | 8.5    | 9.6    | 5               | 15                               | 100                              | 1.0             | 0.5                     | 6.0             | 3.8                                                         | 7.0  |
| BZT52C10S   | WF           | 10                              | 9.4    | 10.6   | 5               | 20                               | 150                              | 1.0             | 0.2                     | 7.0             | 4.5                                                         | 8.0  |
| BZT52C11S   | WG           | 11                              | 10.4   | 11.6   | 5               | 20                               | 150                              | 1.0             | 0.1                     | 8.0             | 5.4                                                         | 9.0  |
| BZT52C12S   | WH           | 12                              | 11.4   | 12.7   | 5               | 25                               | 150                              | 1.0             | 0.1                     | 8.0             | 6.0                                                         | 10.0 |
| BZT52C13S   | WI           | 13                              | 12.4   | 14.1   | 5               | 30                               | 170                              | 1.0             | 0.1                     | 8.0             | 7.0                                                         | 11.0 |
| BZT52C15S   | WJ           | 15                              | 13.8   | 15.6   | 5               | 30                               | 200                              | 1.0             | 0.1                     | 10.5            | 9.2                                                         | 13.0 |
| BZT52C16S   | WK           | 16                              | 15.3   | 17.1   | 5               | 40                               | 200                              | 1.0             | 0.1                     | 11.2            | 10.4                                                        | 14.0 |
| BZT52C18S   | WL           | 18                              | 16.8   | 19.1   | 5               | 45                               | 225                              | 1.0             | 0.1                     | 12.6            | 12.4                                                        | 16.0 |
| BZT52C20S   | WM           | 20                              | 18.8   | 21.2   | 5               | 55                               | 225                              | 1.0             | 0.1                     | 14.0            | 14.4                                                        | 18.0 |
| BZT52C22S   | WN           | 22                              | 20.8   | 23.3   | 5               | 55                               | 250                              | 1.0             | 0.1                     | 15.4            | 16.4                                                        | 20.0 |
| BZT52C24S   | WO           | 24                              | 22.8   | 25.6   | 5               | 70                               | 250                              | 1.0             | 0.1                     | 16.8            | 18.4                                                        | 22.0 |
| BZT52C27S   | WP           | 27                              | 25.1   | 28.9   | 2               | 80                               | 300                              | 0.5             | 0.1                     | 18.9            | 21.4                                                        | 25.3 |
| BZT52C30S   | WQ           | 30                              | 28.0   | 32.0   | 2               | 80                               | 300                              | 0.5             | 0.1                     | 21.0            | 24.4                                                        | 29.4 |
| BZT52C33S   | WR           | 33                              | 31.0   | 35.0   | 2               | 80                               | 325                              | 0.5             | 0.1                     | 23.1            | 27.4                                                        | 33.4 |
| BZT52C36S   | WS           | 36                              | 34.0   | 38.0   | 2               | 90                               | 350                              | 0.5             | 0.1                     | 25.2            | 30.4                                                        | 37.4 |
| BZT52C39S   | WT           | 39                              | 37.0   | 41.0   | 2               | 130                              | 350                              | 0.5             | 0.1                     | 27.3            | 33.4                                                        | 41.2 |
| BZT52C43S   | WU           | 43                              | 40.0   | 46.0   | 5               | 100                              | 700                              | 1.0             | 0.1                     | 32              | 10.0                                                        | 12.0 |
| BZT52C47S   | WV           | 47                              | 44.0   | 50.0   | 5               | 100                              | 750                              | 1.0             | 0.1                     | 35              | 10.0                                                        | 12.0 |
| BZT52C51S   | WW           | 51                              | 48.0   | 54.0   | 5               | 100                              | 750                              | 1.0             | 0.1                     | 38              | 10.0                                                        | 12.0 |

## Surface mount zener diode

## BZT52C2V0S-BZT52C75S

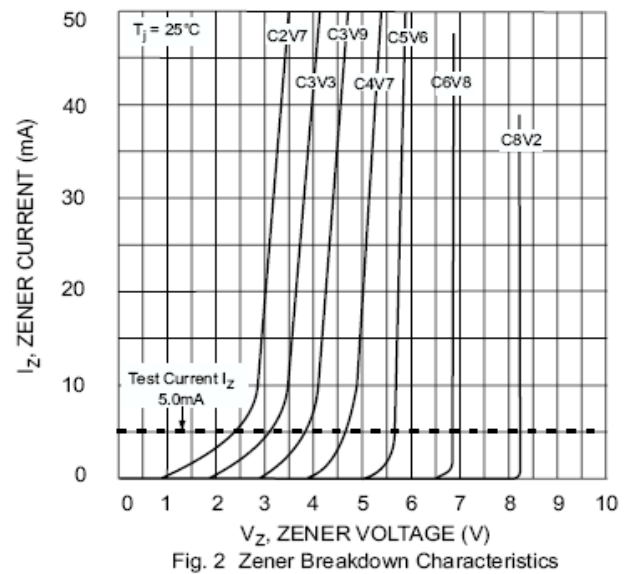
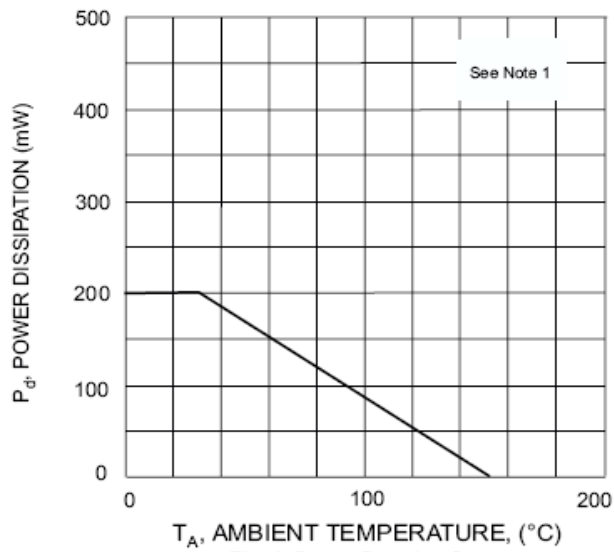
| Type Number | Marking Code | Zener Voltage Range |        |        |          | Maximum Zener Impedance |                   |          | Maximum Reverse |         | Temperature Coefficient of zener voltage @ $I_{ZTC}$ mV/°C |      |
|-------------|--------------|---------------------|--------|--------|----------|-------------------------|-------------------|----------|-----------------|---------|------------------------------------------------------------|------|
|             |              | $V_Z @ I_{ZT}$      |        |        | $I_{ZT}$ | $Z_{ZT} @ I_{ZT}$       | $Z_{ZK} @ I_{ZK}$ | $I_{ZK}$ | $I_R$           | @ $V_R$ |                                                            |      |
|             |              | Nom(V)              | Min(V) | Max(V) | mA       | $\Omega$                |                   | mA       | $\mu A$         | V       | Min                                                        | Max  |
| BZT52C56S   | WX           | 56                  | 53.2   | 58.8   | 2        | 200                     | 400               | 0.5      | 0.045           | 39.2    | 10.0                                                       | 12.0 |
| BZT52C62S   | WY           | 62                  | 58.9   | 65.1   | 2        | 215                     | 423               | 0.5      | 0.045           | 43.4    | 10.0                                                       | 12.0 |
| BZT52C68S   | WZ           | 68                  | 64.6   | 71.4   | 2        | 240                     | 447               | 0.5      | 0.045           | 47.6    | 10.0                                                       | 12.0 |
| BZT52C75S   | 6H           | 75                  | 71.25  | 78.75  | 2        | 255                     | 470               | 0.5      | 0.045           | 52.5    | 10.0                                                       | 12.0 |

Notes: 1. Valid provided that device terminals are kept at ambient temperature.

2. Tested with pulses, period=5ms, pulse width = 300 $\mu$ s.

3. f = 1KHz.

### TYPICAL CHARACTERISTICS @ $T_a=25^\circ\text{C}$ unless otherwise specified



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## BZT52C2V0S-BZT52C75S

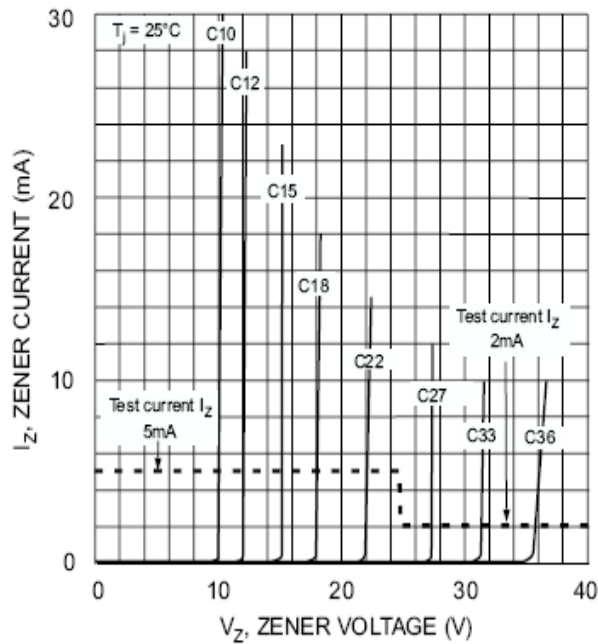


Fig. 3 Zener Breakdown Characteristics

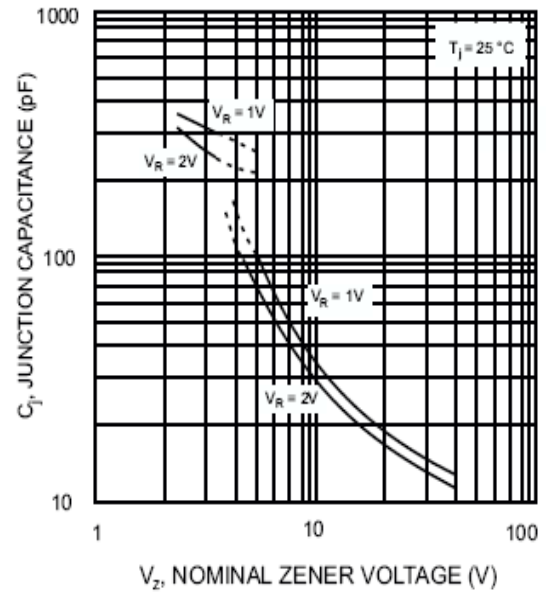
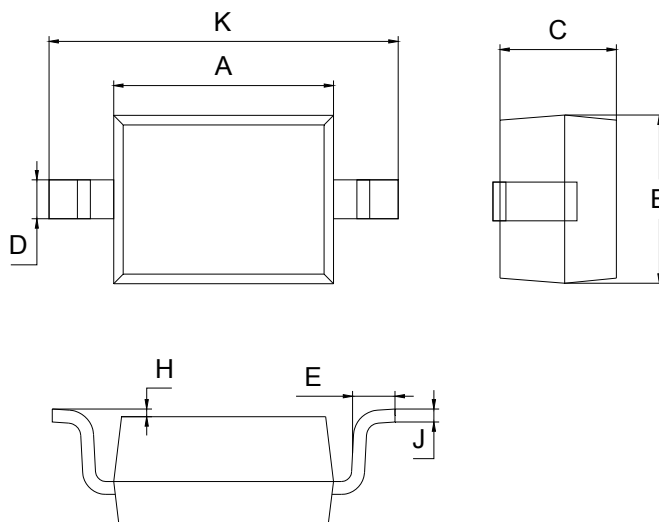


Fig. 4 Junction Capacitance vs Nominal Zener Voltage

## PACKAGE OUTLINE

Plastic surface mounted package

SOD-323



| SOD-323              |              |      |
|----------------------|--------------|------|
| Dim                  | Min          | Max  |
| A                    | 1.60         | 1.80 |
| B                    | 1.20         | 1.40 |
| C                    | 0.9 Typical  |      |
| D                    | 0.30 Typical |      |
| E                    | 0.22         | 0.42 |
| H                    | 0.02         | 0.1  |
| J                    | 0.1 Typical  |      |
| K                    | 2.55         | 2.75 |
| All Dimensions in mm |              |      |



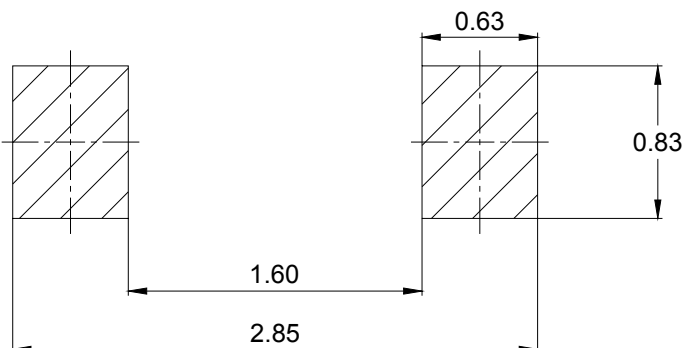
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**Surface mount zener diode**

**BZT52C2V0S-BZT52C75S**

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**SOLDERING FOOTPRINT**



Unit : mm

**PACKAGE INFORMATION**

| Device               | Package | Shipping       |
|----------------------|---------|----------------|
| BZT52C2V0S-BZT52C75S | SOD-323 | 3000/Tape&Reel |