

## Features

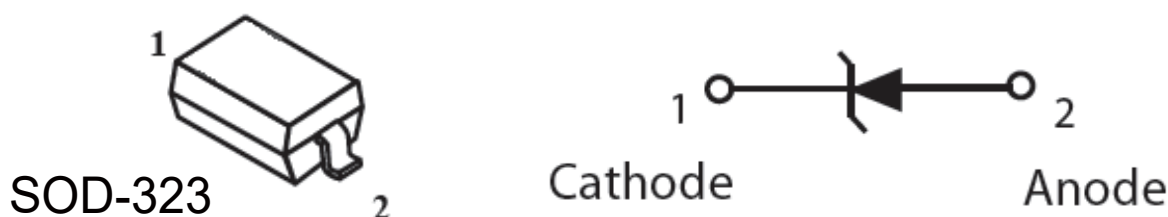
- Total power dissipation: Max. 200mW
- Wide zener reverse voltage range 2.0 V to 47V
- Small plastic package suitable for surface mounted design
- 5% high-precision regulated voltage stability
- High reliability chip and packaging process



## Applications

Low-power voltage regulator is mainly used for circuit voltage adjustment of mobile phones, hand-held devices and high-density computer motherboards.

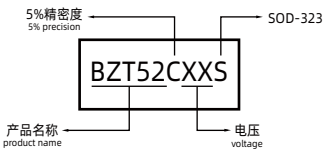
## Schematic diagram of package die



## Schematic diagram of package die

| Parameter                                                     | Symbol          | Value      | Value |
|---------------------------------------------------------------|-----------------|------------|-------|
| Power Dissipation                                             | $P_D$           | 200        | mW    |
| Forward Voltage at $I_F = 10\text{ mA}$                       | $V_F$           | 0.9        | V     |
| Typical thermal resistance junction to ambient <sup>(1)</sup> | $R_{\theta JA}$ | 625        | °C/W  |
| Operating and Storage Temperature Range                       | $T_J, T_{stg}$  | -55 ~ +150 | °C    |

## Ordering information

| Product ID | Pack    | Naming rule                                                                         | voltage | Qty(PCS) |
|------------|---------|-------------------------------------------------------------------------------------|---------|----------|
| BZT52CXXS  | SOD-323 |  | 2V-47V  | 3000     |

## Electrical Characteristics (T<sub>A</sub>=25℃, unless otherwise noted)

| Type       | Marking | Zener Voltage Range <sup>(2)</sup>    |         |         |                 | Maximum Zener Impedance <sup>(3)</sup> |                                  |                 | Reverse Current <sup>(2)</sup> |                 | Typical temperature coefficient<br>@I <sub>ZT</sub><br>mV/°C |      | Test current<br>I <sub>ZT</sub> |
|------------|---------|---------------------------------------|---------|---------|-----------------|----------------------------------------|----------------------------------|-----------------|--------------------------------|-----------------|--------------------------------------------------------------|------|---------------------------------|
|            |         | V <sub>ZT</sub> (at 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 (V)                               | Nom (V) | Max (V) | (mA)            | (Ω)                                    |                                  | (mA)            | μA                             | V               | MIN                                                          | MAX  |                                 |
| BZT52C2V0S | WY      | 1.91                                  | 2.0     | 2.09    | 5               | 100                                    | 600                              | 1               | 150                            | 1.0             | -3.5                                                         | 0    | 5                               |
| BZT52C2V4S | WX      | 2.2                                   | 2.4     | 2.6     | 5               | 100                                    | 600                              | 1               | 50                             | 1.0             | -3.5                                                         | 0    | 5                               |
| BZT52C2V7S | W1      | 2.5                                   | 2.7     | 2.9     | 5               | 100                                    | 600                              | 1               | 20                             | 1.0             | -3.5                                                         | 0    | 5                               |
| BZT52C3V0S | W2      | 2.8                                   | 3.0     | 3.2     | 5               | 95                                     | 600                              | 1               | 10                             | 1.0             | -3.5                                                         | 0    | 5                               |
| BZT52C3V3S | W3      | 3.1                                   | 3.3     | 3.5     | 5               | 95                                     | 600                              | 1               | 5.0                            | 1.0             | -3.5                                                         | 0    | 5                               |
| BZT52C3V6S | W4      | 3.4                                   | 3.6     | 3.8     | 5               | 90                                     | 600                              | 1               | 5.0                            | 1.0             | -3.5                                                         | 0    | 5                               |
| BZT52C3V9S | W5      | 3.7                                   | 3.9     | 4.1     | 5               | 90                                     | 600                              | 1               | 3.0                            | 1.0             | -3.5                                                         | 0    | 5                               |
| BZT52C4V3S | W6      | 4.0                                   | 4.3     | 4.6     | 5               | 90                                     | 600                              | 1               | 3.0                            | 1.0             | -3.5                                                         | 0    | 5                               |
| BZT52C4V7S | W7      | 4.4                                   | 4.7     | 5.0     | 5               | 80                                     | 500                              | 1               | 3.0                            | 2.0             | -3.5                                                         | 0.2  | 5                               |
| BZT52C5V1S | W8      | 4.8                                   | 5.1     | 5.4     | 5               | 60                                     | 480                              | 1               | 2.0                            | 2.0             | -2.7                                                         | 1.2  | 5                               |
| BZT52C5V6S | W9      | 5.2                                   | 5.6     | 6.0     | 5               | 40                                     | 400                              | 1               | 1.0                            | 2.0             | -2                                                           | 2.5  | 5                               |
| BZT52C6V2S | WA      | 5.8                                   | 6.2     | 6.6     | 5               | 10                                     | 150                              | 1               | 3.0                            | 4.0             | 0.4                                                          | 3.7  | 5                               |
| BZT52C6V8S | WB      | 6.4                                   | 6.8     | 7.2     | 5               | 15                                     | 80                               | 1               | 2.0                            | 4.0             | 1.2                                                          | 4.5  | 5                               |
| BZT52C7V5S | WC      | 7.0                                   | 7.5     | 7.9     | 5               | 15                                     | 80                               | 1               | 1.0                            | 5.0             | 2.5                                                          | 5.3  | 5                               |
| BZT52C8V2S | WD      | 7.7                                   | 8.2     | 8.7     | 5               | 15                                     | 80                               | 1               | 0.7                            | 5.0             | 3.2                                                          | 6.2  | 5                               |
| BZT52C9V1S | WE      | 8.5                                   | 9.1     | 9.6     | 5               | 15                                     | 100                              | 1               | 0.5                            | 6.0             | 3.8                                                          | 7.0  | 5                               |
| BZT52C10S  | WF      | 9.4                                   | 10      | 10.6    | 5               | 20                                     | 150                              | 1               | 0.2                            | 7.0             | 4.5                                                          | 8.0  | 5                               |
| BZT52C11S  | WG      | 10.4                                  | 11      | 11.6    | 5               | 20                                     | 150                              | 1               | 0.1                            | 8.0             | 5.4                                                          | 9.0  | 5                               |
| BZT52C12S  | WH      | 11.4                                  | 12      | 12.7    | 5               | 25                                     | 150                              | 1               | 0.1                            | 8.0             | 6.0                                                          | 10.0 | 5                               |
| BZT52C13S  | WI      | 12.4                                  | 13      | 14.1    | 5               | 30                                     | 170                              | 1               | 0.1                            | 8.0             | 7.0                                                          | 11.0 | 5                               |
| BZT52C15S  | WJ      | 13.8                                  | 15      | 15.6    | 5               | 30                                     | 200                              | 1               | 0.1                            | 10.5            | 9.2                                                          | 13.0 | 5                               |
| BZT52C16S  | WK      | 15.3                                  | 16      | 17.1    | 5               | 40                                     | 200                              | 1               | 0.1                            | 11.2            | 10.4                                                         | 14.0 | 5                               |
| BZT52C18S  | WL      | 16.8                                  | 18      | 19.1    | 5               | 45                                     | 225                              | 1               | 0.1                            | 12.6            | 12.4                                                         | 16.0 | 5                               |
| BZT52C20S  | WM      | 18.8                                  | 20      | 21.2    | 5               | 55                                     | 225                              | 11              | 0.1                            | 14.0            | 14.4                                                         | 18.0 | 5                               |
| BZT52C22S  | WN      | 20.8                                  | 22      | 23.3    | 5               | 55                                     | 250                              | 1               | 0.1                            | 15.4            | 16.4                                                         | 20.0 | 5                               |
| BZT52C24S  | WO      | 22.8                                  | 24      | 25.6    | 5               | 70                                     | 250                              | 1               | 0.1                            | 16.8            | 18.4                                                         | 22.0 | 5                               |
| BZT52C27S  | WP      | 25.1                                  | 27      | 28.9    | 2               | 80                                     | 300                              | 0.5             | 0.1                            | 18.9            | 21.4                                                         | 25.3 | 2                               |
| BZT52C30S  | WQ      | 28.0                                  | 30      | 32.0    | 2               | 80                                     | 300                              | 0.5             | 0.1                            | 21.0            | 24.4                                                         | 29.4 | 2                               |
| BZT52C33S  | WR      | 31.0                                  | 33      | 35.0    | 2               | 80                                     | 325                              | 0.5             | 0.1                            | 23.1            | 27.4                                                         | 33.4 | 2                               |
| BZT52C36S  | WS      | 34.0                                  | 36      | 38.0    | 2               | 90                                     | 350                              | 0.5             | 0.1                            | 25.2            | 30.4                                                         | 37.4 | 2                               |
| BZT52C39S  | WT      | 37.0                                  | 39      | 41.0    | 2               | 130                                    | 350                              | 0.5             | 0.1                            | 27.3            | 33.4                                                         | 41.2 | 2                               |
| BZT52C43S  | WU      | 40.0                                  | 43      | 46.0    | 2.5             | 130                                    | 500                              | 1               | 2                              | 33              | 37.6                                                         | 46.6 | 2.5                             |
| BZT52C47S  | WV      | 44.0                                  | 47      | 50.0    | 2.5             | 150                                    | 500                              | 1               | 2                              | 36              | 42.0                                                         | 51.8 | 2.5                             |

### NOTES:

- (1) f=1KHz
- (2) Short duration test pulse used to minimize self-heating effect.
- (3) V<sub>ZT</sub> is tested with pulses 20ms.

## Typical Characteristics

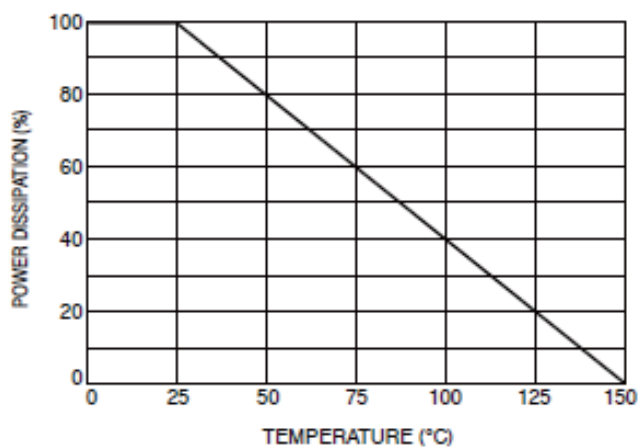


Fig.1 Maximum continuous power loss

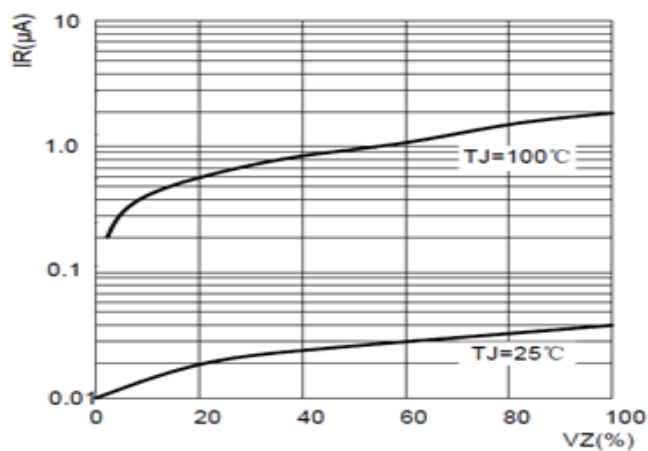


Fig.2 Typical reverse characteristic

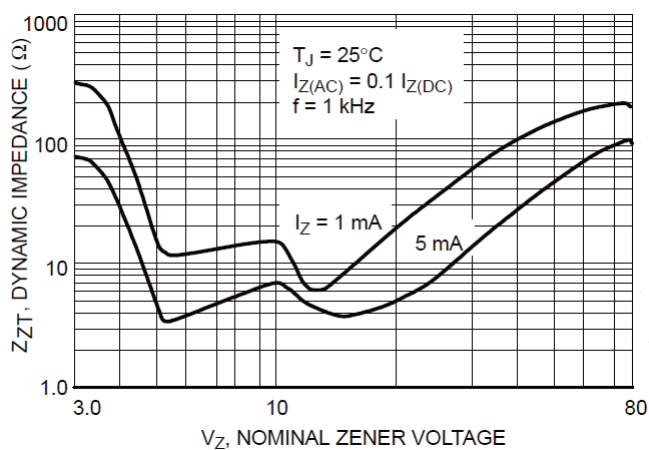


Fig.3 Reverse voltage and impedance characteristic curve

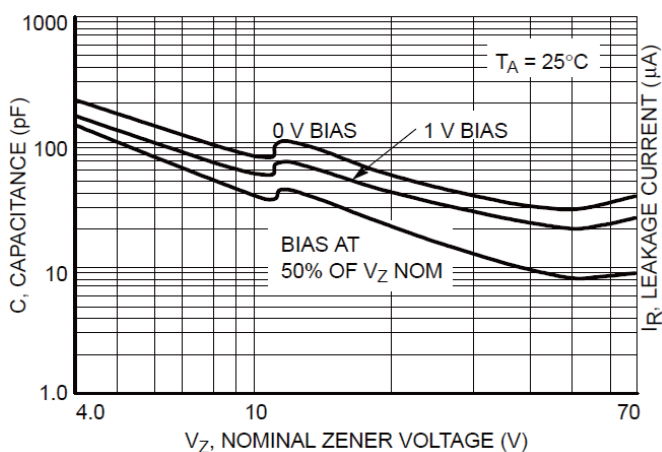
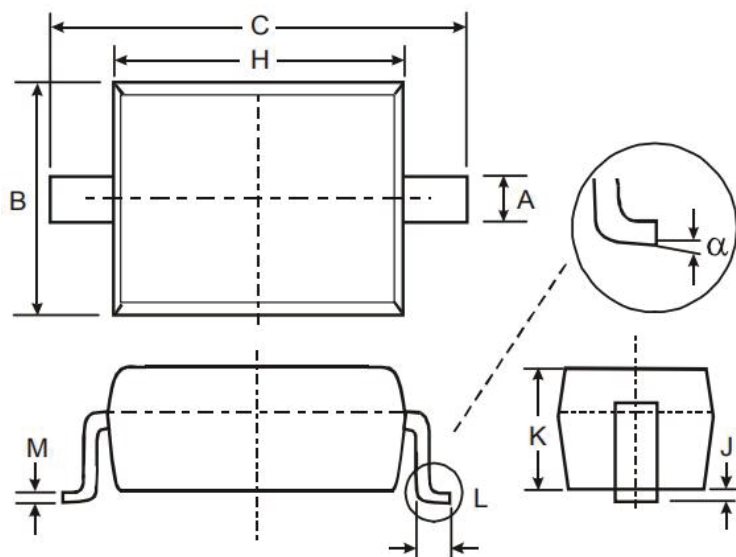


Fig.4 Typical capacitance characteristic curve

## Package Outline Dimensions

SOD323



| SYMBOL   | MILLIMETERS |      |
|----------|-------------|------|
|          | MIN         | MAX  |
| A        | 0.25        | 0.35 |
| B        | 1.20        | 1.40 |
| C        | 2.40        | 2.70 |
| H        | 1.60        | 1.80 |
| J        | 0.01        | 0.15 |
| K        | 0.80        | 1.00 |
| L        | 0.20        | 0.40 |
| M        | 0.08        | 0.15 |
| $\alpha$ | 0°          | 8°   |

## Soldering Footprint (mm)

