

**BZT52C2V4S THRU BZT52C75S**  
PLASTIC-ENCAPSULATE ZENER DIODE



|                |              |              |        |                |                             |
|----------------|--------------|--------------|--------|----------------|-----------------------------|
| <b>VOLTAGE</b> | 2.4~75 Volts | <b>POWER</b> | 200 mW | <b>SOD-323</b> | <b>Marking and Polarity</b> |
|----------------|--------------|--------------|--------|----------------|-----------------------------|

**FEATURES**

- Low Zener Impedance
- Power Dissipation of 200mW
- High Stability and High Reliability
- Zener Voltage Tolerance: ± 5%(C Series)

**MECHANICAL DATA**

**Package:** SOD-323  
**Epoxy UL:** 94V-0  
**Mounting position:** Any  
**Weight:** approx. 0.004g

**Remark:**

- ①. xx=Modle code,xx=WX~X5
- ②. White band denotes cathode

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

| Parameter   | Symbol           | Value       | Unit |
|---|------------------|-------------|------|
| Power Dissipation (Note1)                             | P <sub>D</sub>   | 200         | mW   |
| Maximum instantaneous forward voltage@IF=10mA (Note2) | V <sub>F</sub>   | 1.0         | V    |
| Operating Temperature Range                           | T <sub>OPR</sub> | -55~+150    | °C   |
| Storage temperature range                             | T <sub>STG</sub> | -55~+150    | °C   |
| Thermal Resistance, Junction to Ambient Air           | R <sub>θJA</sub> | 400 (Note1) | °C/W |

- Notes: 1. Device mounted on ceramic PCB; 7.6mm x 9.4mm x 0.87mm with pad areas 25mm<sup>2</sup>  
2. Pulse width < 10 ms

**BZT52C2V4S THRU BZT52C75S**  
PLASTIC-ENCAPSULATE ZENER DIODE



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

| Device     | Marking | Zener Voltage Range |        |        |     | Maximum Zener Impedance |          |      | Maximum Reverse Current |      |
|------------|---------|---------------------|--------|--------|-----|-------------------------|----------|------|-------------------------|------|
|            |         | V <sub>z@Izt</sub>  |        |        | Izt | Zzt @Izt                | Zzk @Izk | Izk  | IR                      | VR   |
|            |         | Min(V)              | Nom(V) | Max(V) | mA  | Ω                       |          | mA   | uA                      | V    |
| BZT52C2V4S | WX      | 2.28                | 2.4    | 2.52   | 5   | 100                     | 600      | 1.0  | 50                      | 1.0  |
| BZT52C2V7S | W1      | 2.57                | 2.7    | 2.84   | 5   | 100                     | 600      | 1.0  | 20                      | 1.0  |
| BZT52C3V0S | W2      | 2.85                | 3.0    | 3.15   | 5   | 95                      | 600      | 1.0  | 10                      | 1.0  |
| BZT52C3V3S | W3      | 3.14                | 3.3    | 3.47   | 5   | 95                      | 600      | 1.0  | 5                       | 1.0  |
| BZT52C3V6S | W4      | 3.42                | 3.6    | 3.78   | 5   | 90                      | 600      | 1.0  | 5                       | 1.0  |
| BZT52C3V9S | W5      | 3.71                | 3.9    | 4.10   | 5   | 90                      | 600      | 1.0  | 3                       | 1.0  |
| BZT52C4V3S | W6      | 4.09                | 4.3    | 4.52   | 5   | 90                      | 600      | 1.0  | 3                       | 1.0  |
| BZT52C4V7S | W7      | 4.47                | 4.7    | 4.94   | 5   | 80                      | 500      | 1.0  | 3                       | 2.0  |
| BZT52C5V1S | W8      | 4.85                | 5.1    | 5.36   | 5   | 60                      | 480      | 1.0  | 2                       | 2.0  |
| BZT52C5V6S | W9      | 5.32                | 5.6    | 5.88   | 5   | 40                      | 400      | 1.0  | 1                       | 2.0  |
| BZT52C6V2S | WA      | 5.89                | 6.2    | 6.51   | 5   | 10                      | 150      | 1.0  | 3                       | 4.0  |
| BZT52C6V8S | WB      | 6.46                | 6.8    | 7.14   | 5   | 15                      | 80       | 1.0  | 2                       | 4.0  |
| BZT52C7V5S | WC      | 7.13                | 7.5    | 7.88   | 5   | 15                      | 80       | 1.0  | 1                       | 5.0  |
| BZT52C8V2S | WD      | 7.79                | 8.2    | 8.61   | 5   | 15                      | 80       | 1.0  | 0.7                     | 5.0  |
| BZT52C9V1S | WE      | 8.65                | 9.1    | 9.56   | 5   | 15                      | 100      | 1.0  | 0.5                     | 6.0  |
| BZT52C10S  | WF      | 9.50                | 10.0   | 10.50  | 5   | 20                      | 150      | 1.0  | 0.2                     | 7.0  |
| BZT52C11S  | WG      | 10.45               | 11.0   | 11.55  | 5   | 20                      | 150      | 1.0  | 0.1                     | 8.0  |
| BZT52C12S  | WH      | 11.40               | 12.0   | 12.60  | 5   | 25                      | 150      | 1.0  | 0.1                     | 8.0  |
| BZT52C13S  | WI      | 12.35               | 13.0   | 13.65  | 5   | 30                      | 170      | 1.0  | 0.1                     | 8.0  |
| BZT52C15S  | WJ      | 14.25               | 15.0   | 15.75  | 5   | 30                      | 200      | 1.0  | 0.1                     | 10.5 |
| BZT52C16S  | WK      | 15.20               | 16.0   | 16.80  | 5   | 40                      | 200      | 1.0  | 0.1                     | 11.2 |
| BZT52C18S  | WL      | 17.10               | 18.0   | 18.90  | 5   | 45                      | 225      | 1.0  | 0.1                     | 12.6 |
| BZT52C20S  | WM      | 19.00               | 20.0   | 21.00  | 5   | 55                      | 225      | 1.0  | 0.1                     | 14.0 |
| BZT52C22S  | WN      | 20.90               | 22.0   | 23.10  | 5   | 55                      | 250      | 1.0  | 0.1                     | 15.4 |
| BZT52C24S  | WO      | 22.80               | 24.0   | 25.20  | 5   | 70                      | 250      | 1.0  | 0.1                     | 16.8 |
| BZT52C27S  | WP      | 25.65               | 27.0   | 28.35  | 2   | 80                      | 300      | 0.5  | 0.1                     | 18.9 |
| BZT52C30S  | WQ      | 28.50               | 30.0   | 31.50  | 2   | 80                      | 300      | 0.5  | 0.1                     | 21.0 |
| BZT52C33S  | WR      | 31.35               | 33.0   | 34.65  | 2   | 80                      | 325      | 0.5  | 0.1                     | 23.1 |
| BZT52C36S  | WS      | 34.20               | 36.0   | 37.80  | 2   | 90                      | 350      | 0.5  | 0.1                     | 25.2 |
| BZT52C39S  | WT      | 37.05               | 39.0   | 40.95  | 2   | 130                     | 350      | 0.5  | 0.1                     | 27.3 |
| BZT52C43S  | WU      | 40.85               | 43.0   | 45.15  | 2   | 130                     | 350      | 0.5  | 0.1                     | 29.4 |
| BZT52C47S  | WV      | 44.65               | 47.0   | 49.35  | 2   | 170                     | 1000     | 0.25 | 0.1                     | 36.0 |
| BZT52C51S  | X1      | 48.45               | 51.0   | 53.55  | 2   | 180                     | 1300     | 0.25 | 0.1                     | 39.0 |
| BZT52C56S  | X2      | 53.20               | 56.0   | 58.80  | 2   | 200                     | 1400     | 0.25 | 0.1                     | 43.0 |
| BZT52C62S  | X3      | 58.90               | 62.0   | 65.10  | 2   | 225                     | 1400     | 0.25 | 0.1                     | 47.0 |
| BZT52C68S  | X4      | 64.60               | 68.0   | 71.40  | 2   | 240                     | 1600     | 0.25 | 0.1                     | 52.0 |
| BZT52C75S  | X5      | 71.25               | 75.0   | 78.75  | 2   | 265                     | 1700     | 0.25 | 0.1                     | 56.0 |

**BZT52C2V4S THRU BZT52C75S**  
PLASTIC-ENCAPSULATE ZENER DIODE



**RATING AND CHARACTERISTIC CURVES**

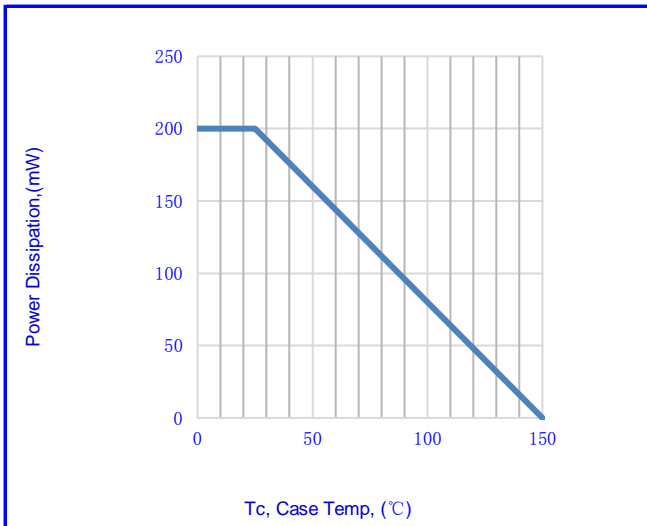


Fig.1-POWER DISSIPATION VS. AMBIENT TEMP.

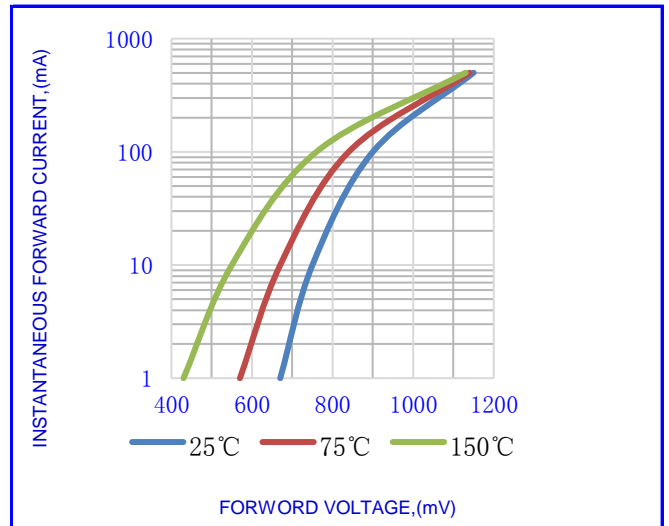


Fig.2- Forward characteristics

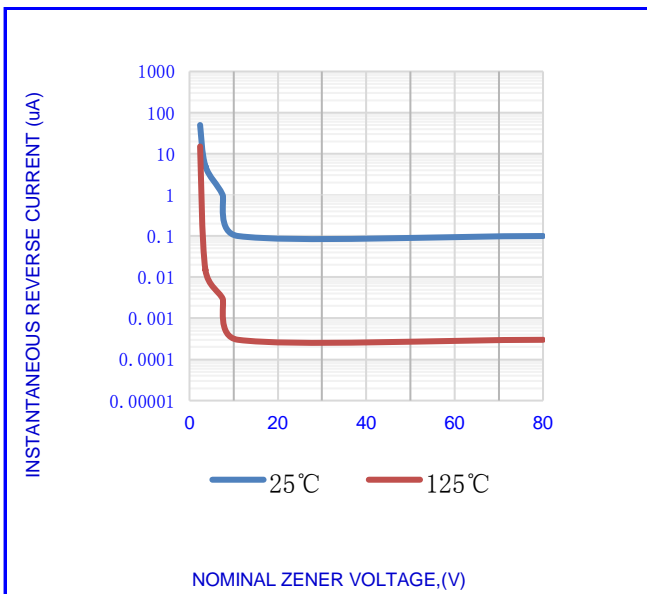


Fig.3- TYPICAL REVERSE CHARACTERISTICS

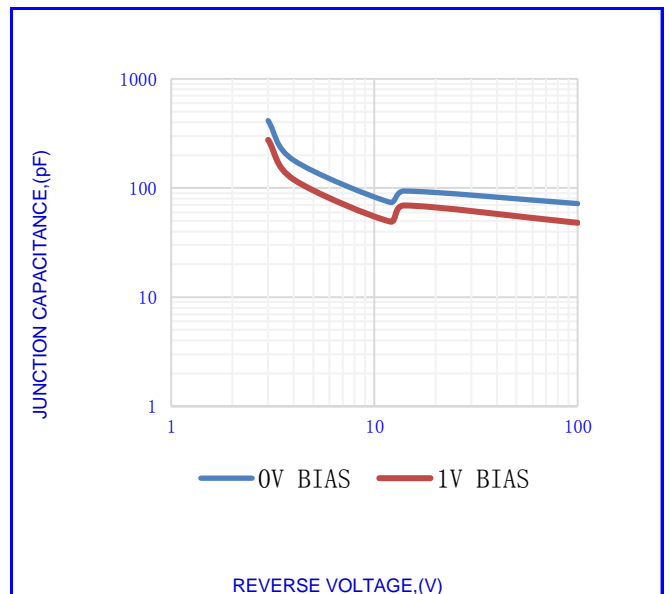


Fig.4- TYPICAL JUNCTION CAPACITANCE

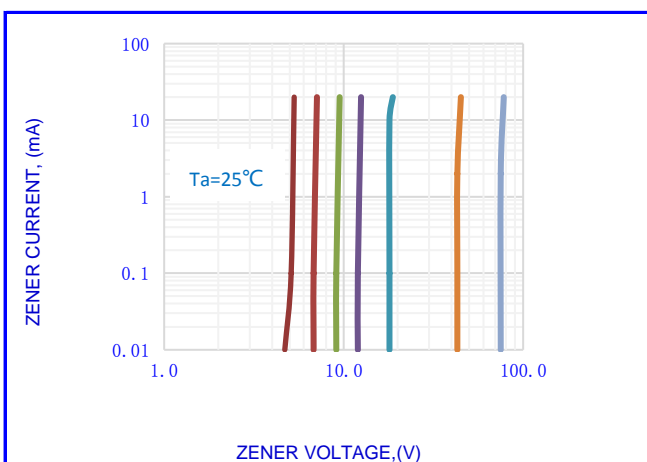


Fig.5-ZENER BREAKDOWN CHARACTERISTICS

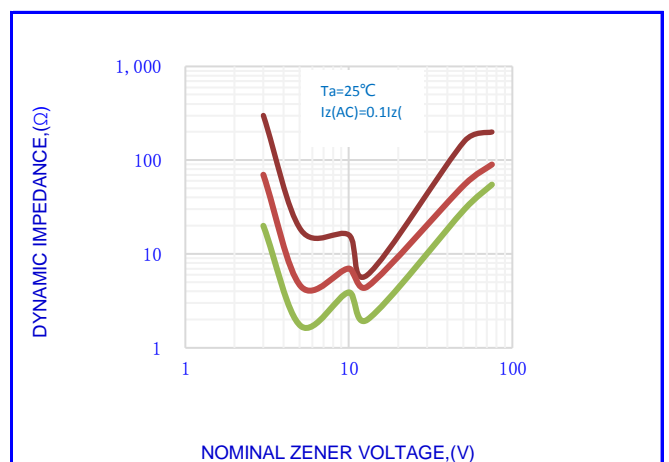


Fig.6-EFFECT OF ZENER VOLTAGE ON ZENER IMPEDANCE

**BZT52C2V4S THRU BZT52C75S**  
PLASTIC-ENCAPSULATE ZENER DIODE



| OUTLINE DRAWINGS |       | SOD-323            |       |       |        |       |
|------------------|-------|--------------------|-------|-------|--------|-------|
|                  |       | OUTLINE DIMENSIONS |       |       |        |       |
|                  |       | Millimeters        |       |       | Inches |       |
| Dim.             | Min.  | Typ.               | Max.  | Min.  | Typ.   | Max.  |
| A                | 1.600 | -                  | 1.800 | 0.063 | -      | 0.071 |
| B                | 2.400 | -                  | 2.700 | 0.094 | -      | 0.106 |
| C                | 1.200 | -                  | 1.400 | 0.047 | -      | 0.055 |
| D                | -     | -                  | 1.000 | -     | -      | 0.039 |
| E                | 0.250 | -                  | 0.350 | 0.010 | -      | 0.014 |
| F                | 0.080 | -                  | 0.150 | 0.003 | -      | 0.006 |
| G                | -     | 0.475              | -     | -     | 0.019  | -     |
| H                | -     | -                  | 0.120 | -     | -      | 0.005 |

| MOUNTING PAD LAYOUT |      | SOD-323            |      |      |        |      |
|---------------------|------|--------------------|------|------|--------|------|
|                     |      | OUTLINE DIMENSIONS |      |      |        |      |
|                     |      | Millimeters        |      |      | Inches |      |
| Dim.                | Min. | Typ.               | Max. | Min. | Typ.   | Max. |
| A                   | --   | 2.900              | --   | --   | 0.114  | --   |
| B                   | --   | 0.500              | --   | --   | 0.020  | --   |
| C                   | --   | 1.440              | --   | --   | 0.057  | --   |
| D                   | --   | 0.730              | --   | --   | 0.029  | --   |

**Packing Information**

| Package | Pack | Reel Size (mm) | Quantity (pcs/reel) | Inner Box Size LxWxH(mm) | Carton Size LxWxH(mm) | Quantity (Inner Box/carton) |
|---------|------|----------------|---------------------|--------------------------|-----------------------|-----------------------------|
| SOD-323 | T/R  | Φ180           | 3000                | 210x208x203              | 440x440x230           | 4                           |

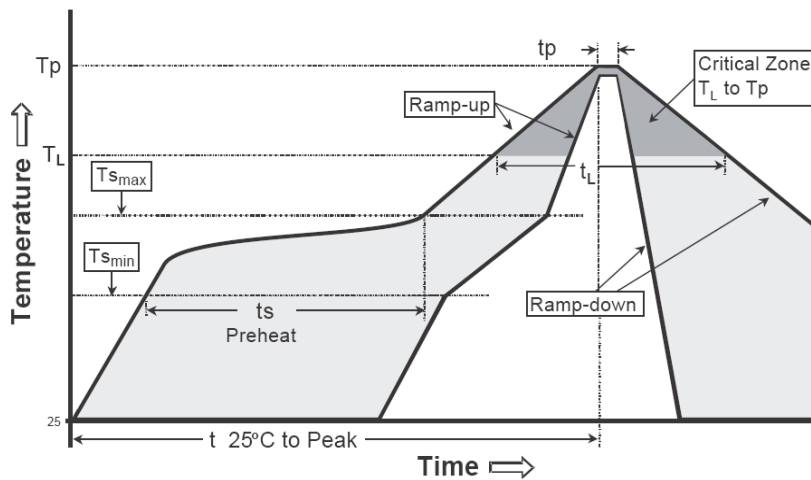
**BZT52C2V4S THRU BZT52C75S**  
PLASTIC-ENCAPSULATE ZENER DIODE



**Recommended wave soldering condition**

|                 |                  |                 |
|-----------------|------------------|-----------------|
| Product         | Peak Temperature | Soldering Time  |
| Pb-free devices | 260 +0/-5 °C     | 5 +1/-1 seconds |

**Recommended temperature profile for IR reflow**



| Profile feature  | Sn-Pb eutectic Assembly          | Pb-free Assembly                 |
|--|----------------------------------|----------------------------------|
| Average ramp-up rate (Tsmmax to Tp)  | 3°C/second max.                  | 3°C/second max.                  |
| Preheat<br>-Temperature Min(TS min)<br>-Temperature Max(TS max)<br>-Time(ts min to ts max) | 100°C<br>150°C<br>60-120 seconds | 150°C<br>200°C<br>60-180 seconds |
| Time maintained above:<br>-Temperature (TL)<br>- Time (tL)                                 | 183°C<br>60-150 seconds          | 217°C<br>60-150 seconds          |
| Peak Temperature(TP)   | 240 +0/-5 °C                     | 260 +0/-5 °C                     |
| Time within 5°C of actual peak temperature(tp)   | 10-30 seconds                    | 20-40 seconds                    |
| Ramp down rate   | 6°C/second max.                  | 6°C/second max.                  |
| Time 25 °C to peak temperature   | 6 minutes max.                   | 8 minutes max.                   |

Note : All temperatures refer to topside of the package, measured on the package body surface.

**BZT52C2V4S THRU BZT52C75S**  
PLASTIC-ENCAPSULATE ZENER DIODE



**Disclaimer**

- Reproducing and modifying information of the document is prohibited without permission from niuhang electronics co., LTD.
- Niuhan Electronics co., LTD. reserves the rights to make changes of the content herein the document anytime without notification.
- Niuhan Electronics co., LTD. disclaims any and all liability arising out of the application or use of any product including damages incidentally and consequentially occurred.
- Niuhan Electronics co., LTD. does not assume any and all implied warranties, including warranties of fitness for particular purpose, non-infringement and merchantability.
- Applications shown on the herein document are examples of standard use and operation. Customers are responsible in comprehending the suitable use in particular applications. Niuhan Electronics co., LTD. makes no representation or warranty that such applications will be suitable for the specified use without further testing or modification.
- The products shown herein are not designed and authorized for equipments requiring high level of reliability or relating to human life and for any applications concerning life-saving or life-sustaining, such as medical instruments, transportation equipment, aerospace machinery et cetera. Customers using or selling these products for use in such applications do so at their own risk and agree to fully indemnify Niuhan Electronics co., LTD. for any damages resulting from such improper use or sale.
- When the appearance of the product and chip size does not change, in order to product the customer. quality, change the internal structure and the production process niuhang can not notify