

## Features

- Small, Low Profile Surface Mount Package
- Flat Lead Package Design for Low Profile and High Power Dissipation
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **Qualified to AEC-Q101 Standards for High Reliability**
- **PPAP Capable (Note 4)**

## Mechanical Data

- Case: SOD523
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminal Connections: Cathode Band
- Terminals: Finish - Matte Tin Annealed over Alloy 42 Leadframe. Solderable per MIL-STD-202, Method 208 (e3)
- Weight: 0.001 grams (Approximate)

SOD523



Top View

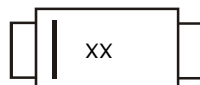
## Ordering Information (Note 5)

| Part Number (Note 6) | Compliance | Case   | Packaging          |
|----------------------|------------|--------|--------------------|
| (Type Number)-7*     | Standard   | SOD523 | 3,000/Tape & Reel  |
| (Type Number)Q-7-F*  | Automotive | SOD523 | 3,000/Tape & Reel  |
| (Type Number)-13*    | Standard   | SOD523 | 10,000/Tape & Reel |
| (Type Number)Q-13-F* | Automotive | SOD523 | 10,000/Tape & Reel |

\*For (Type Number), please see the Electrical Characteristics Table. Example: 6.2V Zener = BZT52C6V2T-7.

- Notes:
1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant.
  2. See [http://www.diodes.com/quality/lead\\_free.html](http://www.diodes.com/quality/lead_free.html) for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "Green" and Lead-free.
  3. Halogen- and Antimony-free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
  4. Automotive products are AEC-Q101 qualified and are PPAP capable. Automotive, AEC-Q101 and standard products are electrically and thermally the same, except where specified. For more information, please refer to <https://www.diodes.com/quality/product-compliance-definitions/>.
  5. For packaging details, go to our website at <https://www.diodes.com/design/support/packaging/diodes-packaging/>.
  6. Dispensed in every other cavity of the tape.

## Marking Information



XX = Product Type Marking Code  
(See Electrical Characteristics Table)

**Maximum Ratings** (@T<sub>A</sub> = +25°C, unless otherwise specified.)

Single phase, half wave, 60Hz, resistive or inductive load.  
For capacitive load, derate current by 20%.

| Characteristic                          | Symbol         | Value | Unit |
|---|----------------|-------|------|
| Forward Voltage @ I <sub>F</sub> = 10mA | V <sub>F</sub> | 0.9   | V    |

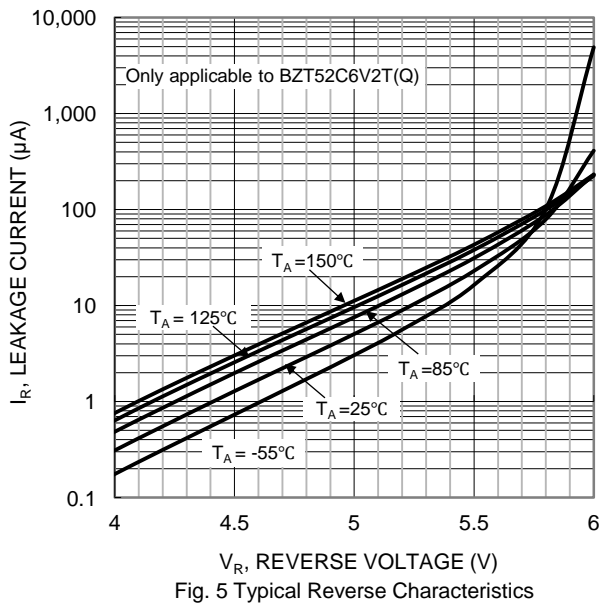
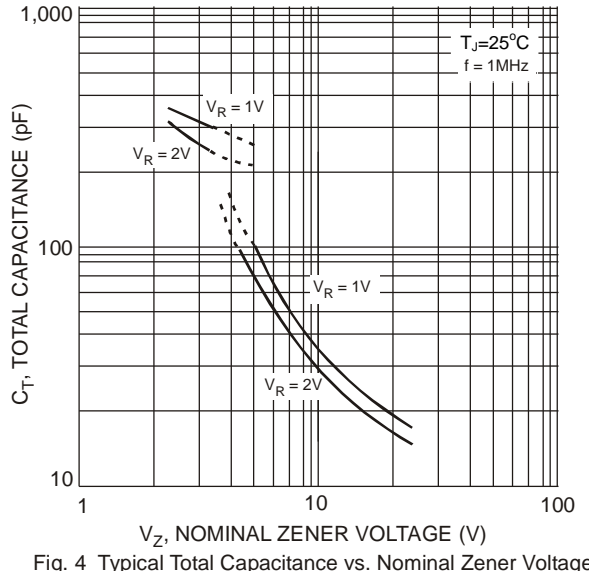
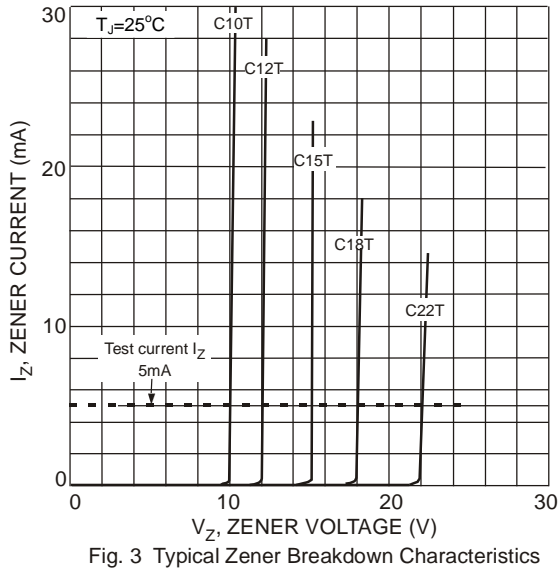
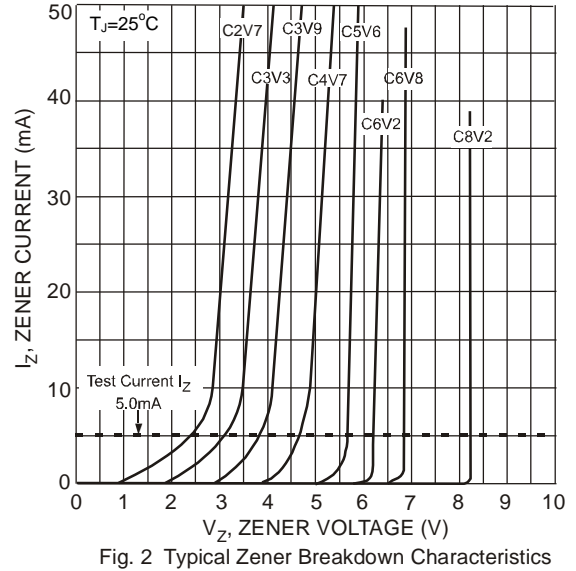
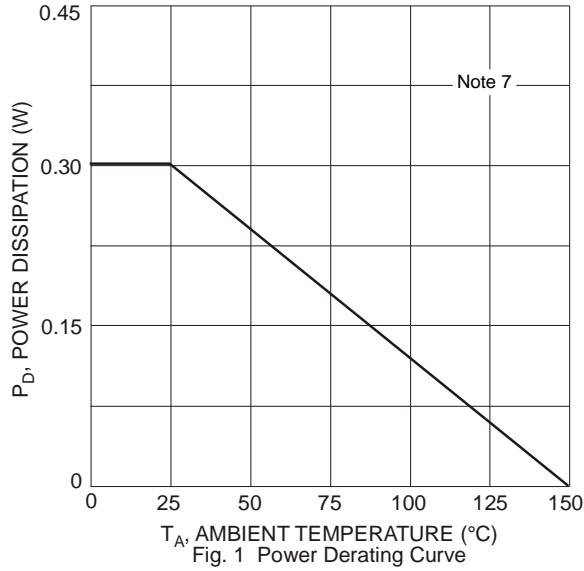
**Thermal Characteristics**

| Characteristic                                       | Symbol                            | Value       | Unit |
|--|-----------------------------------|-------------|------|
| Power Dissipation (Note 7)                           | P <sub>D</sub>                    | 300         | mW   |
| Thermal Resistance, Junction to Ambient Air (Note 7) | R <sub>θJA</sub>                  | 417         | °C/W |
| Thermal Resistance, Junction to Case (Note 7)        | R <sub>θJC</sub>                  | 160         | °C/W |
| Operating and Storage Temperature Range              | T <sub>J</sub> , T <sub>STG</sub> | -65 to +150 | °C   |

**Electrical Characteristics** (@T<sub>A</sub> = +25°C, unless otherwise specified.)

| Type Number | Marking Codes | Zener Voltage Range (Note 8)     |         |         |                 | Maximum Zener Impedance f = 1kHz  |                                   |                 | Maximum Reverse Current (Note 8) |                  | Temperature Coefficient @ I <sub>ZT</sub> mV/°C |      |
|-------------|---------------|----------------------------------|---------|---------|-----------------|-----------------------------------|-----------------------------------|-----------------|----------------------------------|------------------|---|------|
|             |               | 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  |
|             |               | Nom (V)                          | Min (V) | Max (V) | mA              | Ω                                 | mA                                | μA              | V                                |                  |   |      |
| BZT52C2V0T  | WY            | 2.0                              | 1.91    | 2.09    | 5               | 100                               | 600                               | 1.0             | 150                              | 1.0              | -3.5  | 0    |
| BZT52C2V4T  | WX            | 2.4                              | 2.2     | 2.6     | 5               | 100                               | 600                               | 1.0             | 50                               | 1.0              | -3.5  | 0    |
| BZT52C2V7T  | W1            | 2.7                              | 2.5     | 2.9     | 5               | 100                               | 600                               | 1.0             | 20                               | 1.0              | -3.5  | 0    |
| BZT52C3V0T  | W2            | 3.0                              | 2.8     | 3.2     | 5               | 95                                | 600                               | 1.0             | 10                               | 1.0              | -3.5  | 0    |
| BZT52C3V3T  | W3            | 3.3                              | 3.1     | 3.5     | 5               | 95                                | 600                               | 1.0             | 5.0                              | 1.0              | -3.5  | 0    |
| BZT52C3V6T  | W4            | 3.6                              | 3.4     | 3.8     | 5               | 90                                | 600                               | 1.0             | 5.0                              | 1.0              | -3.5  | 0    |
| BZT52C3V9T  | W5            | 3.9                              | 3.7     | 4.1     | 5               | 90                                | 600                               | 1.0             | 3.0                              | 1.0              | -3.5  | 0    |
| BZT52C4V3T  | W6            | 4.3                              | 4.0     | 4.6     | 5               | 90                                | 600                               | 1.0             | 3.0                              | 1.0              | -3.5  | 0    |
| BZT52C4V7T  | W7            | 4.7                              | 4.4     | 5.0     | 5               | 80                                | 500                               | 1.0             | 3.0                              | 2.0              | -3.5  | 0.2  |
| BZT52C5V1T  | W8            | 5.1                              | 4.8     | 5.4     | 5               | 60                                | 480                               | 1.0             | 2.0                              | 2.0              | -2.7  | 1.2  |
| BZT52C5V6T  | W9            | 5.6                              | 5.2     | 6.0     | 5               | 40                                | 400                               | 1.0             | 1.0                              | 2.0              | -2  | 2.5  |
| BZT52C6V2T  | WA            | 6.2                              | 5.8     | 6.6     | 5               | 10                                | 150                               | 1.0             | 3.0                              | 4.0              | 0.4   | 3.7  |
| BZT52C6V8T  | WB            | 6.8                              | 6.4     | 7.2     | 5               | 15                                | 80                                | 1.0             | 2.0                              | 4.0              | 1.2   | 4.5  |
| BZT52C7V5T  | WC            | 7.5                              | 7.0     | 7.9     | 5               | 15                                | 80                                | 1.0             | 1.0                              | 5.0              | 2.5   | 5.3  |
| BZT52C8V2T  | WD            | 8.2                              | 7.7     | 8.7     | 5               | 15                                | 80                                | 1.0             | 0.7                              | 5.0              | 3.2   | 6.2  |
| BZT52C9V1T  | WE            | 9.1                              | 8.5     | 9.6     | 5               | 15                                | 100                               | 1.0             | 0.5                              | 6.0              | 3.8   | 7.0  |
| BZT52C10T   | WF            | 10                               | 9.4     | 10.6    | 5               | 20                                | 150                               | 1.0             | 0.2                              | 7.0              | 4.5   | 8.0  |
| BZT52C11T   | WG            | 11                               | 10.4    | 11.6    | 5               | 20                                | 150                               | 1.0             | 0.1                              | 8.0              | 5.4   | 9.0  |
| BZT52C12T   | WH            | 12                               | 11.4    | 12.7    | 5               | 25                                | 150                               | 1.0             | 0.1                              | 8.0              | 6.0   | 10.0 |
| BZT52C13T   | WI            | 13                               | 12.4    | 14.1    | 5               | 30                                | 170                               | 1.0             | 0.1                              | 8.0              | 7.0   | 11.0 |
| BZT52C15T   | WJ            | 15                               | 13.8    | 15.6    | 5               | 30                                | 200                               | 1.0             | 0.1                              | 10.5             | 9.2   | 13.0 |
| BZT52C16T   | WK            | 16                               | 15.3    | 17.1    | 5               | 40                                | 200                               | 1.0             | 0.1                              | 11.2             | 10.4  | 14.0 |
| BZT52C18T   | WL            | 18                               | 16.8    | 19.1    | 5               | 45                                | 225                               | 1.0             | 0.1                              | 12.6             | 12.4  | 16.0 |
| BZT52C20T   | WM            | 20                               | 18.8    | 21.2    | 5               | 55                                | 225                               | 1.0             | 0.1                              | 14.0             | 14.4  | 18.0 |
| BZT52C22T   | WN            | 22                               | 20.8    | 23.3    | 5               | 55                                | 250                               | 1.0             | 0.1                              | 15.4             | 16.4  | 20.0 |
| BZT52C24T   | WO            | 24                               | 22.8    | 25.6    | 5               | 70                                | 250                               | 1.0             | 0.1                              | 16.8             | 18.4  | 22.0 |
| BZT52C36T   | WS            | 36                               | 34.0    | 38.0    | 2               | 90                                | 350                               | 0.5             | 0.1                              | 25.2             | 30.4  | -    |

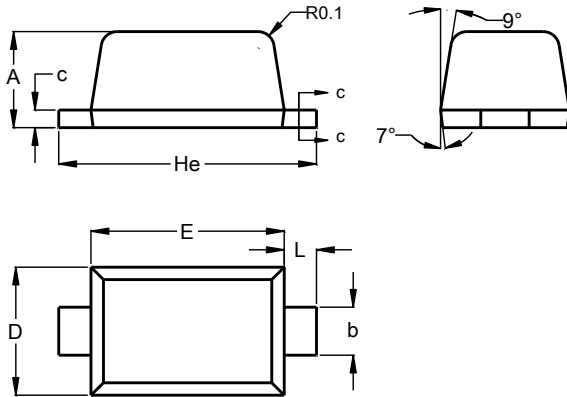
Notes: 7. Part mounted on FR-4 PC board, single-sided, 2oz. copper with pad area 1.92mm<sup>2</sup>.  
8. Short duration pulse test used to minimize self-heating effect.



**Package Outline Dimensions**

Please see <http://www.diodes.com/package-outlines.html> for the latest version.

**SOD523**

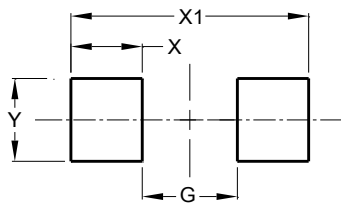


| SOD523               |      |      |
|----------------------|------|------|
| Dim                  | Min  | Max  |
| A                    | 0.55 | 0.65 |
| b                    | 0.26 | 0.34 |
| c                    | 0.11 | 0.17 |
| D                    | 0.75 | 0.85 |
| E                    | 1.15 | 1.25 |
| He                   | 1.55 | 1.65 |
| L                    | 0.10 | 0.30 |
| All Dimensions in mm |      |      |

**Suggested Pad Layout**

Please see <http://www.diodes.com/package-outlines.html> for the latest version.

**SOD523**



| Dimensions | Value (in mm) |
|------------|---------------|
| G          | 0.80          |
| X          | 0.60          |
| X1         | 2.00          |
| Y          | 0.70          |

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