

Features

- Ultra-Small Surface Mount Package
- Flat Lead Package Design for Low Profile and High Power Dissipation.
- **Lead Free By Design/RoHS Compliant (Note 1)**
- **"Green" Device (Note 2)**

Mechanical Data

- Case: SOD-523
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020D
- Terminal Connections: Cathode Band
- Terminals: Finish - Matte Tin annealed over Alloy 42 leadframe. Solderable per MIL-STD-202, Method 208
- Marking Information: See Page 3
- Ordering Information: See Page 3
- Weight: 0.001 grams (approximate)



Top View

Maximum Ratings @T_A = 25°C unless otherwise specified

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

| Characteristic | Symbol | Value | Unit |
|---|----------------|-------|------|
| Forward Voltage @ I _F = 10mA | V _F | 0.9 | V |

Thermal Characteristics

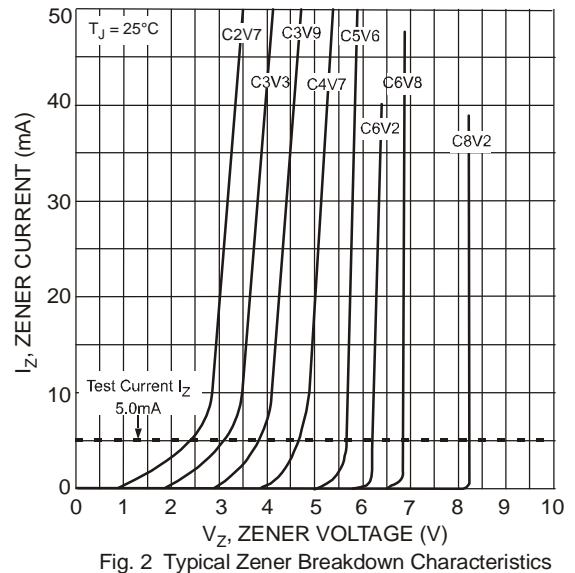
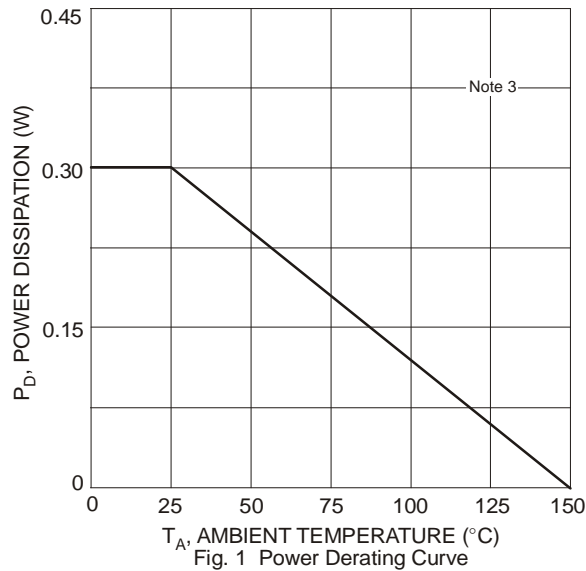
| Characteristic | Symbol | Value | Unit |
|--|-----------------------------------|-------------|------|
| Power Dissipation (Note 3) | P _D | 300 | mW |
| Thermal Resistance, Junction to Ambient Air (Note 3) | R _{θJA} | 417 | °C/W |
| Operating and Storage Temperature Range | T _J , T _{STG} | -65 to +150 | °C |

- Notes:
1. No purposefully added lead.
 2. Diodes Inc.'s "Green" policy can be found on our website at http://www.diodes.com/products/lead_free/index.php.
 3. Part mounted on FR-4 PC board, single-sided, 2oz. copper with pad areas 1.92mm².

Electrical Characteristics @T_A = 25°C unless otherwise specified

| Type Number | Marking Codes | Zener Voltage Range (Note 4) | | | | Maximum Zener Impedance (Note 5) | | | Maximum Reverse Current (Note 4) | | Temperature Coefficient @ I _{ZT} mV/°C | |
|-------------|---------------|----------------------------------|---------|---------|--------------------|-----------------------------------|-----------------------------------|--------------------|----------------------------------|--------------------|---|------|
| | | V _Z @ I _{ZT} | | | I _{ZT} mA | Z _{KT} @ I _{ZT} | Z _{KK} @ I _{ZK} | I _{ZK} mA | I _R uA | @ V _R V | Min | Max |
| | | Nom (V) | Min (V) | Max (V) | | Ω | | | | | | |
| 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 |

- Notes: 4. Short duration pulse test used to minimize self-heating effect.
5. f = 1kHz.



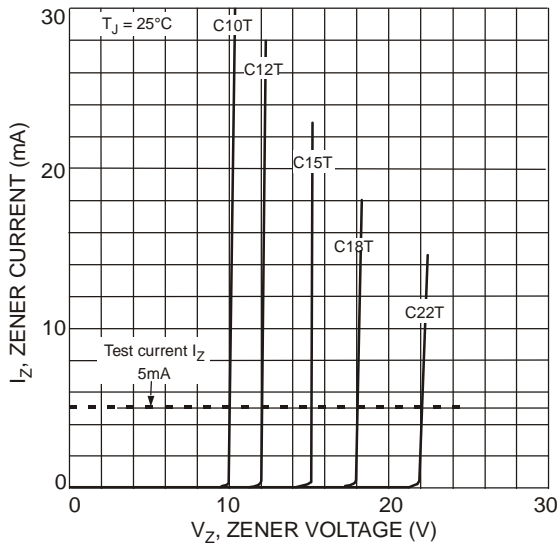


Fig. 3 Typical Zener Breakdown Characteristics

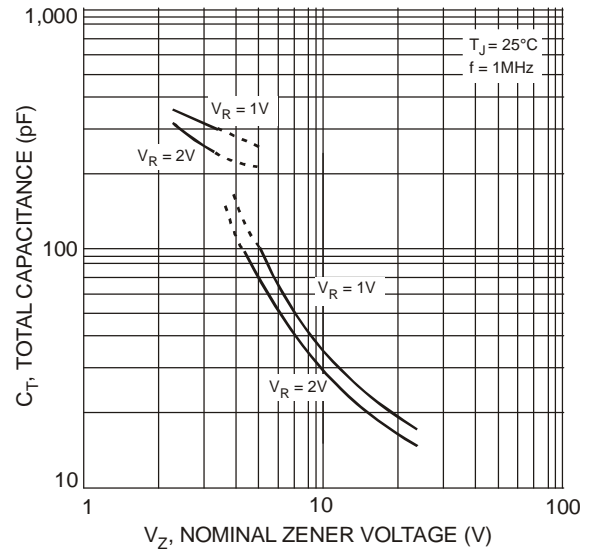


Fig. 4 Typical Total Capacitance vs. Nominal Zener Voltage

Ordering Information (Note 6)

| Part Number | Case | Packaging |
|---------------------------|---------|------------------|
| (Type Number)-7* (Note 7) | SOD-523 | 3000/Tape & Reel |

*Add "-7" to the appropriate type number in Electrical Characteristics Table, example: 6.2V Zener = BZT52C6V2T-7.

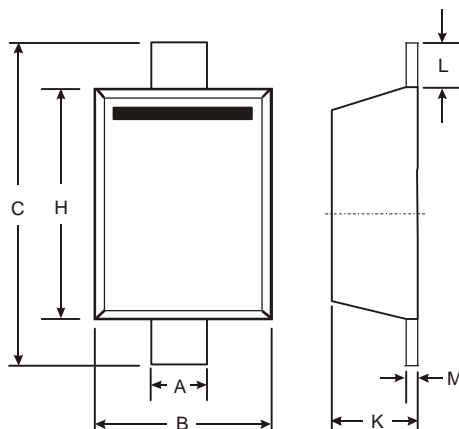
- Notes: 6. For packaging details, go to our website at <http://www.diodes.com/datasheets/ap02007.pdf>.
7. Dispensed in every other cavity of the tape.

Marking Information



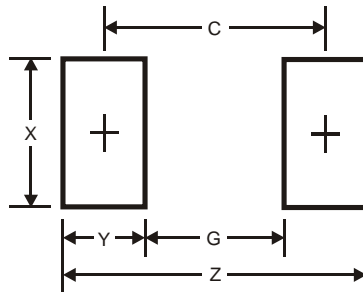
xx = Product Type Marking Code
(See Electrical Characteristics Table)

Package Outline Dimensions



| SOD-523 | | |
|----------------------|------|------|
| Dim | Min | Max |
| A | 0.25 | 0.35 |
| B | 0.70 | 0.90 |
| C | 1.50 | 1.70 |
| H | 1.10 | 1.30 |
| K | 0.55 | 0.65 |
| L | 0.10 | 0.30 |
| M | 0.10 | 0.12 |
| All Dimensions in mm | | |

Suggested Pad Layout



| Dimensions | Value (in mm) |
|------------|---------------|
| Z | 2.3 |
| G | 1.1 |
| X | 0.8 |
| Y | 0.6 |
| C | 1.7 |

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