

## Features

- Fast Switching Speed: max. 50ns
- High Reverse Breakdown Voltage: 300V
- Low Leakage Current: 100nA at Room Temperature
- Ultra-Small Plastic SMD Package
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**

## 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-020
- Terminal Connections: Cathode Bar
- Terminals: Finish—Matte Tin Annealed over Alloy 42 Leadframe.
- Solderable per MIL-STD-202, Method 208 
- Weight: 0.0014 grams (Approximate)

SOD523



Top View



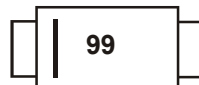
Device Schematic

## Ordering Information (Note 4)

| Part Number | Compliance | Case   | Packaging                 |
|-------------|------------|--------|---------------------------|
| BAS521-7    | Standard   | SOD523 | 3000/Tape & Reel (Note 5) |
| BAS521-13   | Standard   | SOD523 | 10,000/Tape & Reel        |

- Notes:
1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant.
  2. See <https://www.diodes.com/quality/lead-free/> 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. For packaging details, go to our website at <https://www.diodes.com/design/support/packaging/diodes-packaging/>.
  5. Dispensed in every other cavity of the tape.

## Marking Information



99 = Product Type Marking Code  
Bar Denotes Cathode Side

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

| Characteristic                                        | Symbol           | Value | Unit |
|-------------------------------------------------------|------------------|-------|------|
| Repetitive Peak Reverse Voltage                       | V <sub>RRM</sub> | 300   | V    |
| Working Peak Reverse Voltage<br>DC Blocking Voltage   | V <sub>RWM</sub> | 300   | V    |
| Forward Current (Note 6)                              | I <sub>F</sub>   | 250   | mA   |
| Non-Repetitive Peak Forward Surge Current @ t = 1.0μs | I <sub>FSM</sub> | 4.5   | A    |
| Repetitive Peak Forward Current (Note 6)              | I <sub>FRM</sub> | 1     | A    |

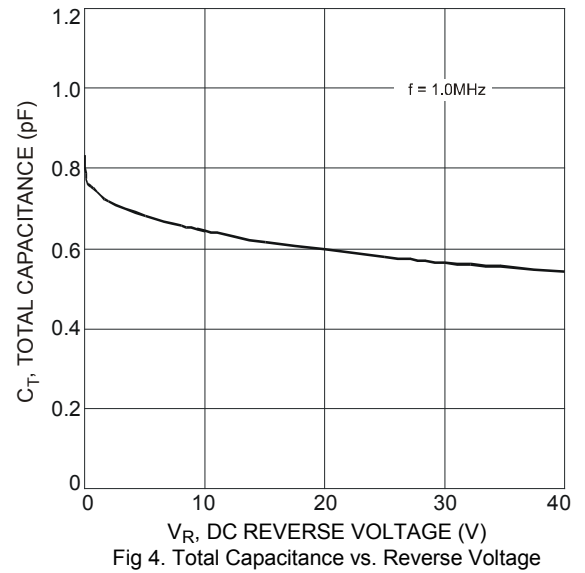
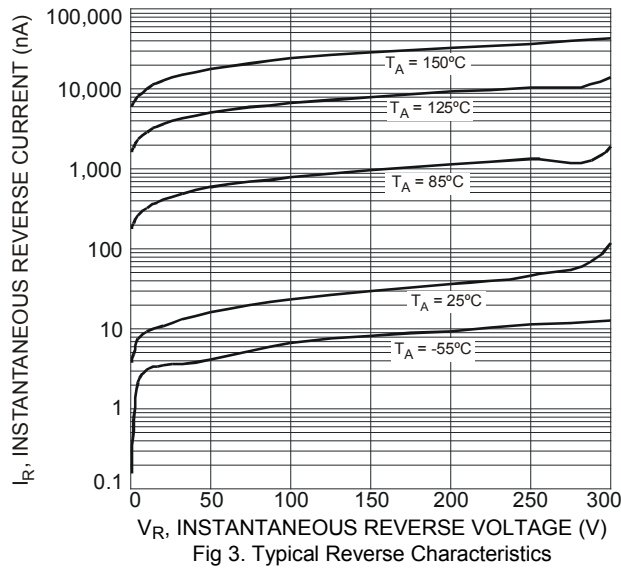
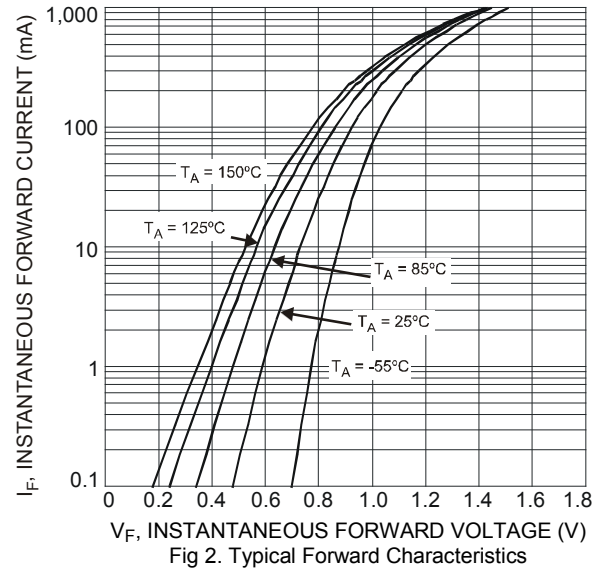
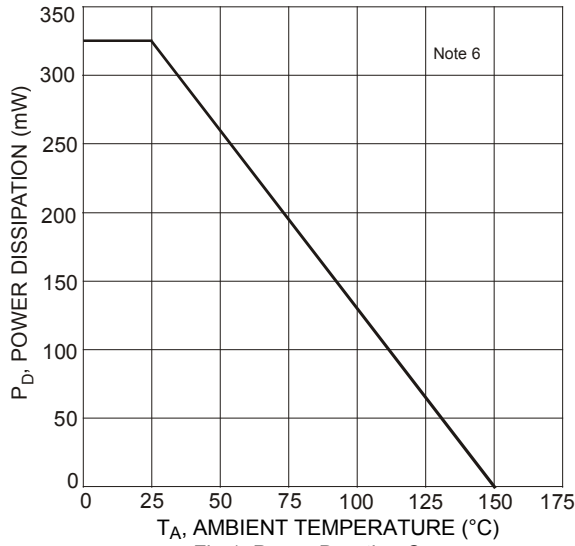
**Thermal Characteristics**

| Characteristic                                      | Symbol                            | Value       | Unit |
|-----------------------------------------------------|-----------------------------------|-------------|------|
| Power Dissipation (Note 6)                          | P <sub>D</sub>                    | 325         | mW   |
| Thermal Resistance Junction to Ambient Air (Note 6) | R <sub>θJA</sub>                  | 385         | °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.)

| Characteristic                     | Symbol             | Min | Max | Unit | Test Condition                                                                                            |
|------------------------------------|--------------------|-----|-----|------|-----------------------------------------------------------------------------------------------------------|
| Reverse Breakdown Voltage (Note 7) | V <sub>(BR)R</sub> | 300 | —   | V    | I <sub>R</sub> = 100μA                                                                                    |
| Forward Voltage                    | V <sub>F</sub>     | —   | 1.1 | V    | I <sub>F</sub> = 100mA                                                                                    |
| Reverse Current (Note 7)           | I <sub>R</sub>     | —   | 50  | nA   | V <sub>R</sub> = 5V                                                                                       |
|                                    |                    | —   | 150 | nA   | V <sub>R</sub> = 250V                                                                                     |
|                                    |                    | —   | 100 | μA   | V <sub>R</sub> = 250V, T <sub>J</sub> = +150°C                                                            |
| Total Capacitance                  | C <sub>T</sub>     | —   | 5   | pF   | V <sub>R</sub> = 0, f = 1.0MHz                                                                            |
| Reverse Recovery Time              | t <sub>rr</sub>    | —   | 50  | ns   | I <sub>F</sub> = I <sub>R</sub> = 30mA,<br>I <sub>rr</sub> = 0.1 × I <sub>R</sub> , R <sub>L</sub> = 100Ω |

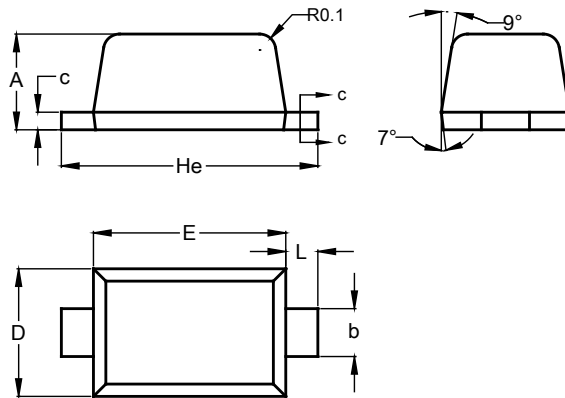
Notes: 6. Part mounted on FR-4 board with recommended pad layout, which can be found on our website at <http://www.diodes.com>.  
7. Short duration pulse test used to minimize self-heating effect.



## Package Outline Dimensions

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

**SOD523**

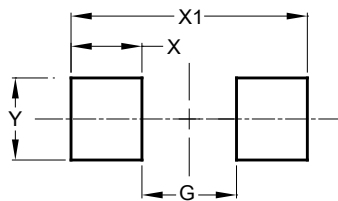


| SOD523               |      |      |
|----------------------|------|------|
| Dim                  | Min  | Max  |
| A                    | 0.55 | 0.65 |
| b                    | 0.26 | 0.34 |
| c                    | 0.11 | 0.17 |
| D                    | 0.75 | 0.85 |
| E                    | 1.15 | 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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