

Features

- Fast Switching Speed: max. 50 ns
- 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)**
- **Qualified to AEC-Q101 Standards for High Reliability**
- **PPAP Capable (Note 5)**

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 ③
- Weight: 0.0014 grams (Approximate)

SOD523



Top View



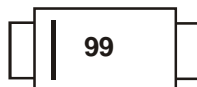
Device Schematic

Ordering Information (Note 4)

| Part Number | Compliance | Case | Packaging (Note 6) |
|-------------|------------|--------|--------------------|
| BAS521Q-13 | Automotive | SOD523 | 10,000/Tape & Reel |

- Notes:
1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) 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 <http://www.diodes.com/products/packages.html>.
 5. Automotive products are AEC-Q101 qualified and are PPAP capable. Refer to http://www.diodes.com/quality/product_compliance_definitions/.
 6. Dispensed in every other cavity of the tape.

Marking Information



99 = Product Type Marking Code
Bar Denotes Cathode Side

Maximum Ratings (@T_A = +25°C, unless otherwise specified.)

| Characteristic | Symbol | Value | Unit |
|---|------------------|-------|------|
| Repetitive Peak Reverse Voltage | V _{RRM} | 300 | V |
| Working Peak Reverse Voltage | V _{RWM} | 300 | V |
| DC Blocking Voltage | | | |
| Forward Current (Note 7) | I _F | 250 | mA |
| Non-Repetitive Peak Forward Surge Current @ t = 1.0μs | I _{FSM} | 4.5 | A |
| Repetitive Peak Forward Current (Note 7) | I _{FRM} | 1 | A |

Thermal Characteristics

| Characteristic | Symbol | Value | Unit |
|---|-----------------------------------|-------------|------|
| Power Dissipation (Note 7) | P _D | 325 | mW |
| Thermal Resistance Junction to Ambient Air (Note 7) | R _{θJA} | 385 | °C/W |
| Operating and Storage Temperature Range | T _J , T _{STG} | -65 to +150 | °C |

Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)

| Characteristic | Symbol | Min | Max | Unit | Test Condition |
|------------------------------------|--------------------|-----|-----|------|---|
| Reverse Breakdown Voltage (Note 8) | V _{(BR)R} | 300 | — | V | I _R = 100μA |
| Forward Voltage | V _F | — | 1.1 | V | I _F = 100mA |
| Reverse Current (Note 8) | I _R | — | 50 | nA | V _R = 5V |
| | | — | 150 | nA | V _R = 250V |
| | | — | 100 | μA | V _R = 250V, T _J = +150°C |
| Total Capacitance | C _T | — | 5 | pF | V _R = 0, f = 1.0MHz |
| Reverse Recovery Time | t _{rr} | — | 50 | ns | I _F = I _R = 30mA, I _{rr} = 0.1 x I _R , R _L = 100Ω |

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

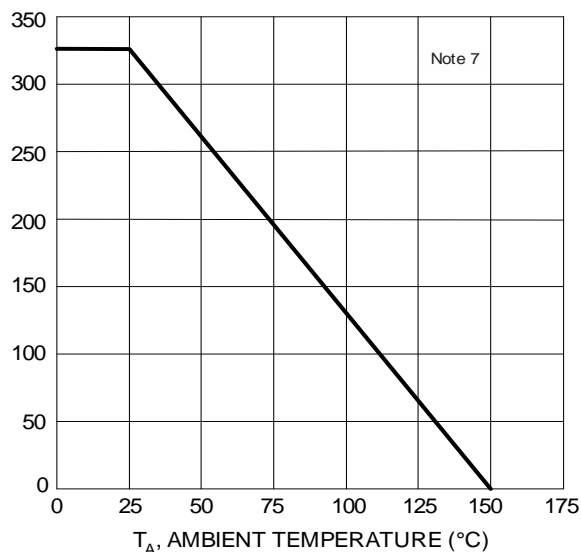


Figure 1 Power Derating Curve, Total Package

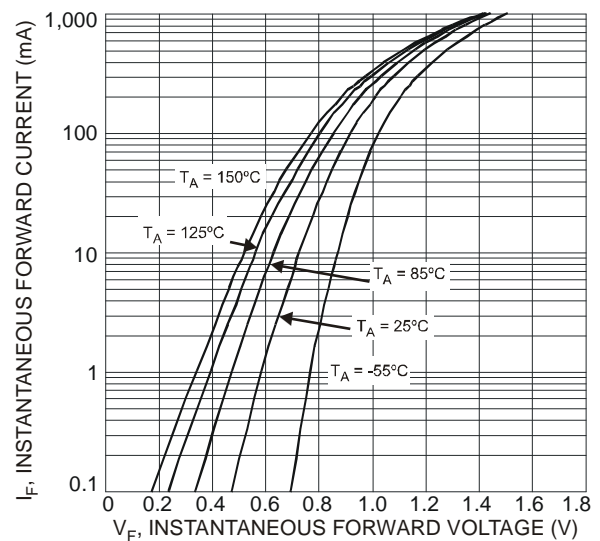
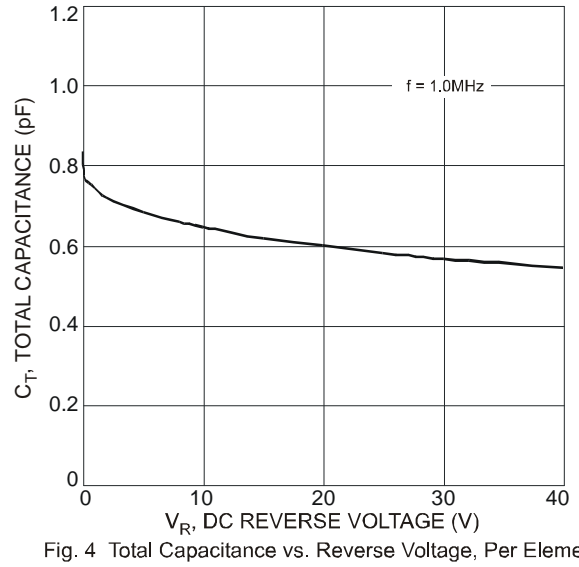
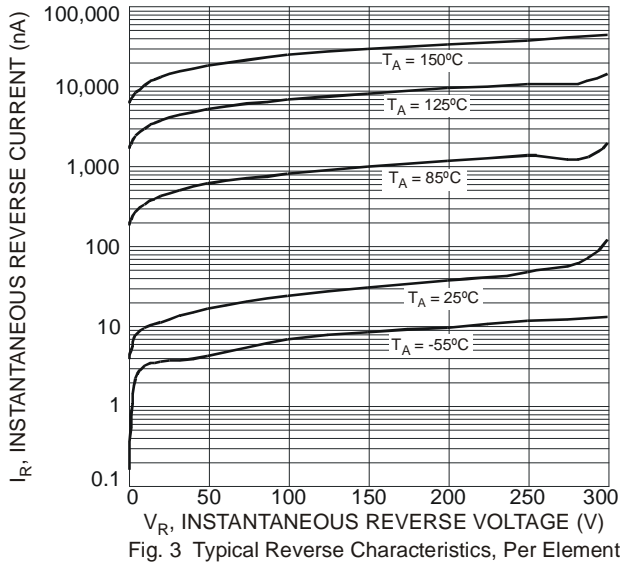
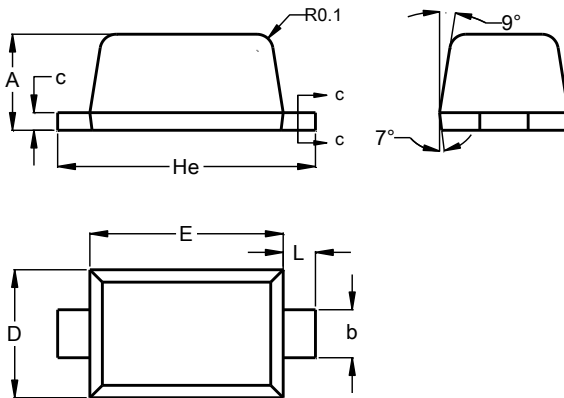


Fig. 2 Typical Forward Characteristics, Per Element



Package Outline Dimensions

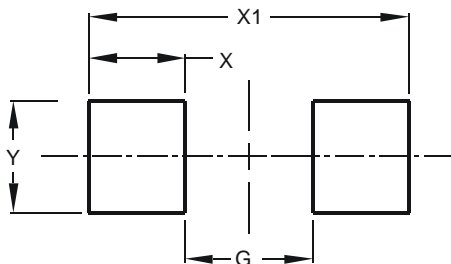
Please see <http://www.diodes.com/package-outlines.html> for the latest version.



| 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.



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

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