

Features

- Fast Switching Speed
- Surface Mount Package Ideally Suited for Automated Insertion
- For General Purpose Switching Applications
- High Conductance
- **Lead Free/RoHS Compliant (Note 3)**
- **Qualified to AEC-Q101 Standards for High Reliability**

Mechanical Data

- Case: SOD-323
- 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, See Page 2
- Terminals: Matte Tin Finish annealed over Alloy 42 leadframe (Lead Free Plating). Solderable per MIL-STD-202, Method 208
- Marking Information: See Page 2
- Ordering Information: See Page 2
- Weight: 0.004 grams (approximate)

SOD-323



Top View

Maximum Ratings @ $T_A = 25^\circ\text{C}$ unless otherwise specified

| Characteristic | Symbol | BAV19WS | BAV20WS | BAV21WS | Unit |
|---|--------------|---------|------------|---------|------|
| Repetitive Peak Reverse Voltage | V_{RRM} | 120 | 200 | 250 | V |
| Working Peak Reverse Voltage | V_{RWM} | 100 | 150 | 200 | V |
| DC Blocking Voltage | V_R | | | | |
| RMS Reverse Voltage | $V_{R(RMS)}$ | 71 | 106 | 141 | V |
| Forward Continuous Current (Note 1) | I_{FM} | | 250 | | mA |
| Average Rectified Output Current (Note 1) | I_O | | 200 | | mA |
| Non-Repetitive Peak Forward Surge Current @ $t = 1.0\mu\text{s}$ @ $t = 1.0\text{s}$ | I_{FSM} | | 2.5 0.5 | | A |
| Repetitive Peak Forward Surge Current | I_{FRM} | | 625 | | mA |

Thermal Characteristics

| Characteristic | Symbol | Value | Unit |
|---|-----------------|-------------|--------------------|
| Power Dissipation | P_D | 200 | mW |
| Thermal Resistance Junction to Ambient Air (Note 1) | $R_{\theta JA}$ | 625 | $^\circ\text{C/W}$ |
| Operating and Storage Temperature Range | T_J, T_{STG} | -65 to +150 | $^\circ\text{C}$ |

Electrical Characteristics @ $T_A = 25^\circ\text{C}$ unless otherwise specified

| Characteristic | Symbol | Min | Max | Unit | Test Condition |
|---|-------------|-------------------|-------------|---------------------|---|
| Reverse Breakdown Voltage (Note 2) | $V_{(BR)R}$ | 120 200 250 | — | V | $I_R = 100\mu\text{A}$ |
| Forward Voltage | V_F | — | 1.0 1.25 | V | $I_F = 100\text{mA}$ $I_F = 200\text{mA}$ |
| Peak Reverse Current @ Rated DC Blocking Voltage (Note 2) | I_R | — | 100 15 | nA μA | $T_J = 25^\circ\text{C}$ $T_J = 100^\circ\text{C}$ |
| Total Capacitance | C_T | — | 5.0 | pF | $V_R = 0, f = 1.0\text{MHz}$ |
| Reverse Recovery Time | t_{rr} | — | 50 | ns | $I_F = I_R = 30\text{mA}$, $I_{rr} = 0.1 \times I_R, R_L = 100\Omega$ |

- Notes:
1. Part mounted on FR-4 PC board with recommended pad layout, which can be found on our website at <http://www.diodes.com/datasheets/ap02001.pdf>.
 2. Short duration pulse test used to minimize self-heating effect.
 3. No purposefully added lead. Halogen and Antimony Free.
 4. Product manufactured with Data Code V9 (week 33, 2008) and newer are built with Green Molding Compound. Product manufactured prior to Date Code V9 are built with Non-Green Molding Compound and may contain Halogens or Sb_2O_3 Fire Retardants.

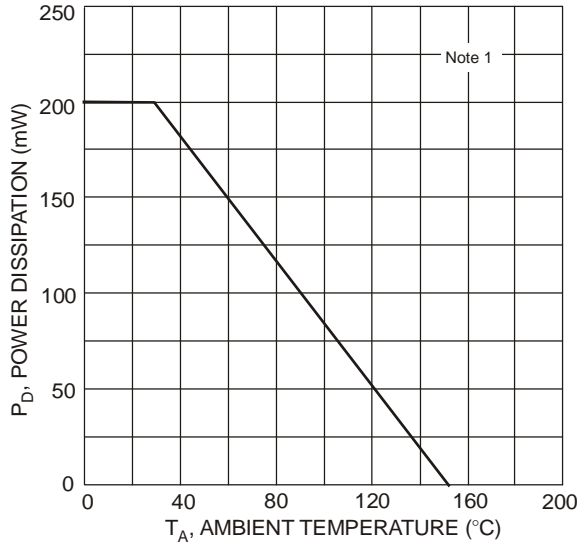


Fig. 1 Power Derating Curve

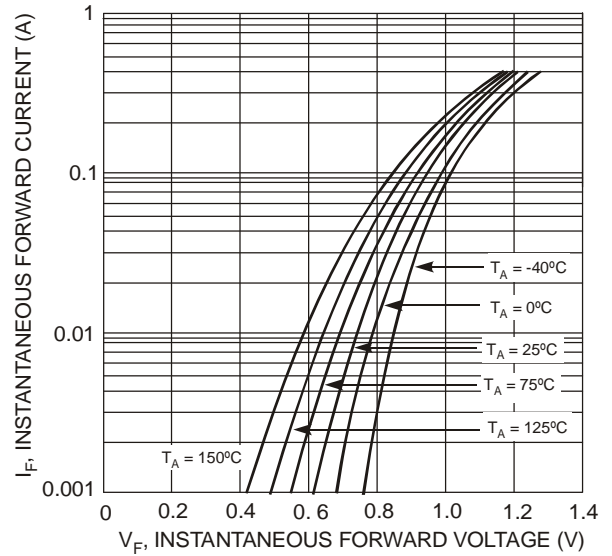


Fig. 2 Typical Forward Characteristics

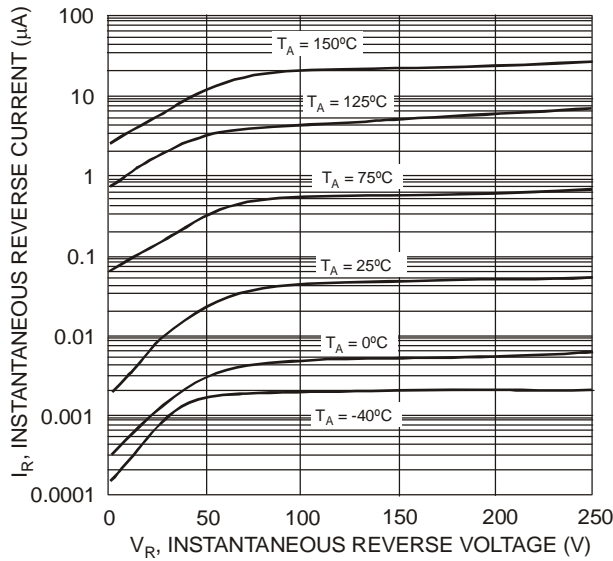


Fig. 3 Typical Reverse Characteristics

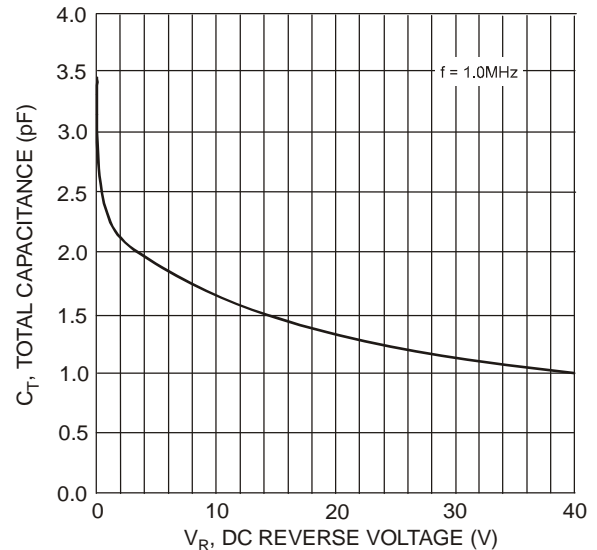


Fig. 4 Total Capacitance vs. Reverse Voltage

Ordering Information (Note 5)

| Part Number | Case | Packaging |
|-------------|---------|------------------|
| BAV19WS-7-F | SOD-323 | 3000/Tape & Reel |
| BAV20WS-7-F | SOD-323 | 3000/Tape & Reel |
| BAV21WS-7-F | SOD-323 | 3000/Tape & Reel |

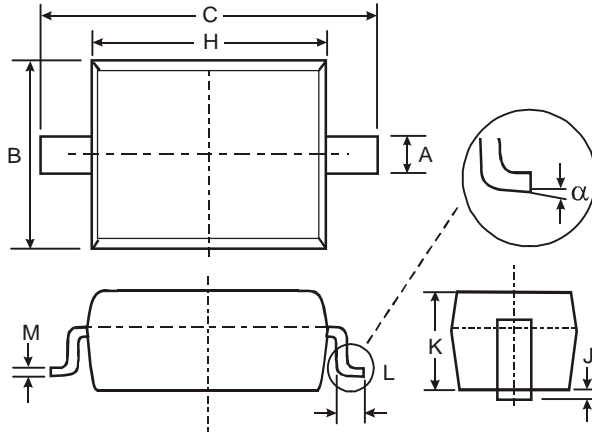
Notes: 5. For packaging details, go to our website at <http://www.diodes.com/datasheets/ap02007.pdf>.

Marking Information



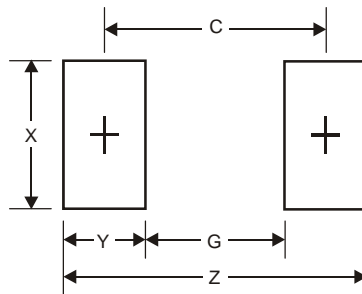
XX = Product Type Marking Code, See Page 1
 BAV19WS Marking: T2 or T3
 BAV20WS Marking: T2 or T3
 BAV21WS Marking: T3

Package Outline Dimensions



| SOD-323 | | |
|-----------------------------|------|------|
| Dim | Min | Max |
| A | 0.25 | 0.35 |
| B | 1.20 | 1.40 |
| C | 2.30 | 2.70 |
| H | 1.60 | 1.80 |
| J | 0.00 | 0.10 |
| K | 1.0 | 1.1 |
| L | 0.20 | 0.40 |
| M | 0.10 | 0.15 |
| α | 0° | 8° |
| All Dimensions in mm | | |

Suggested Pad Layout



| Dimensions | Value (in mm) |
|------------|---------------|
| Z | 3.75 |
| G | 1.05 |
| X | 0.65 |
| Y | 1.35 |
| C | 2.40 |

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