

Features

- Low Forward Voltage Drop
- Fast Switching
- Ultra-Small Surface Mount Package
- **Lead, Halogen and Antimony Free, RoHS Compliant "Green" Device (Notes 3 and 4)**

Mechanical Data

- Case: SOD-323
- Case Material: Molded Plastic. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020D
- Leads: Solderable per MIL-STD-202, Method 208
- Lead Free Plating (Matte Tin Finish annealed over Alloy 42 leadframe).
- Polarity: Cathode Band
- Marking Information: See Page 2
- Ordering Information: See Page 2
- Weight: 0.004 grams (approximate)



Top View

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

| Characteristic | Symbol | Value | Unit |
|---|--------------|-------|------|
| Peak Repetitive Reverse Voltage | V_{RRM} | 30 | V |
| Working Peak Reverse Voltage | V_{RWM} | | |
| DC Blocking Voltage | V_R | | |
| RMS Reverse Voltage | $V_{R(RMS)}$ | 21 | V |
| Forward Continuous Current (Note 1) | I_{FM} | 200 | mA |
| Repetitive Peak Forward Current (Note 1) @ $t < 1.0\text{s}$ | I_{FRM} | 500 | mA |
| Non-Repetitive Peak Forward Surge Current @ $t < 10\text{ms}$ | I_{FSM} | 4.0 | A |

Thermal Characteristics

| Characteristic | Symbol | Value | Unit |
|---|-----------------|-------------|--------------------|
| Power Dissipation (Note 1) | 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} | -55 to +125 | $^\circ\text{C}$ |

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

| Characteristic | Symbol | Min | Max | Unit | Test Condition |
|------------------------------------|-------------|------|------|---------------|---|
| Reverse Breakdown Voltage (Note 2) | $V_{(BR)R}$ | 30 | — | V | $I_R = 100\mu\text{A}$ |
| Forward Voltage Drop | V_F | — | 1.0 | V | $I_F = 200\text{mA}$ |
| | | — | 0.40 | | $I_F = 10\text{mA}$ |
| | | — | 0.65 | | $I_F = 50\text{mA}$ |
| | | 0.26 | 0.33 | | $I_F = 2.0\text{mA}$ |
| | | — | 0.45 | | $I_F = 15\text{mA}$ |
| Reverse Current (Note 2) | I_R | — | 500 | nA | $V_R = 25\text{V}$ |
| | | | 100 | μA | $V_R = 25\text{V}, T_J = 100^\circ\text{C}$ |
| Total Capacitance | C_T | — | 10 | pF | $V_R = 1.0, f = 1.0\text{MHz}$ |
| Reverse Recovery Time | t_{rr} | — | 5.0 | ns | $I_F = I_R = 10\text{mA}, I_{rr} = 0.1 \times I_R, R_L = 100\Omega$ |

- Notes:
1. Part mounted on FR4 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.

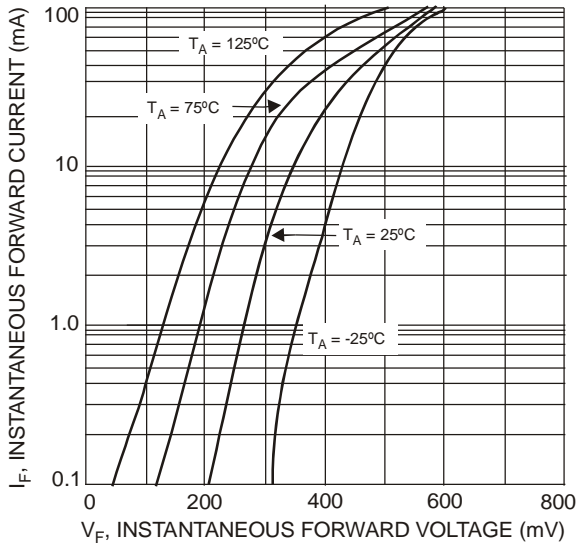


Fig. 1 Typical Forward Characteristics

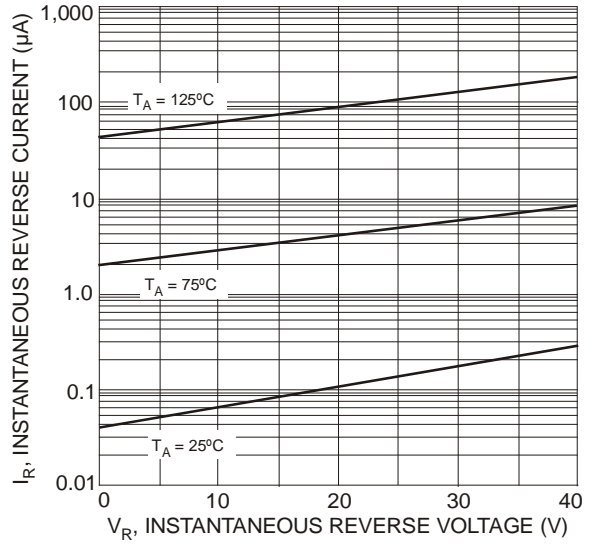


Fig. 2 Typical Reverse Characteristics

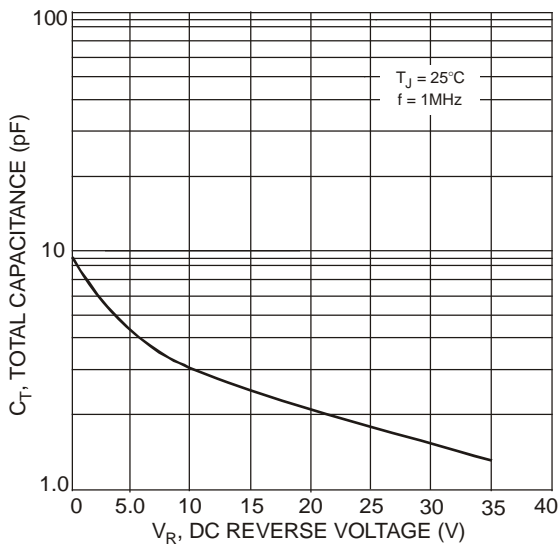


Fig. 3 Total Capacitance vs. Reverse Voltage

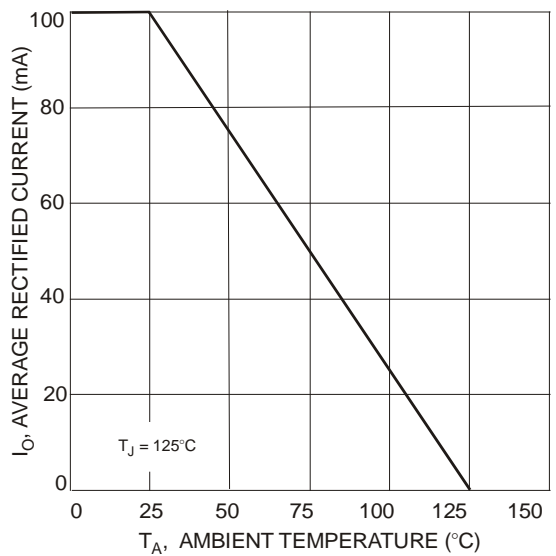


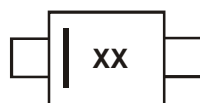
Fig. 4 Forward Current Derating Curve

Ordering Information (Note 5)

| Part Number | Case | Packaging |
|-------------|---------|------------------|
| BAT42WS-7-F | SOD-323 | 3000/Tape & Reel |
| BAT43WS-7-F | SOD-323 | 3000/Tape & Reel |

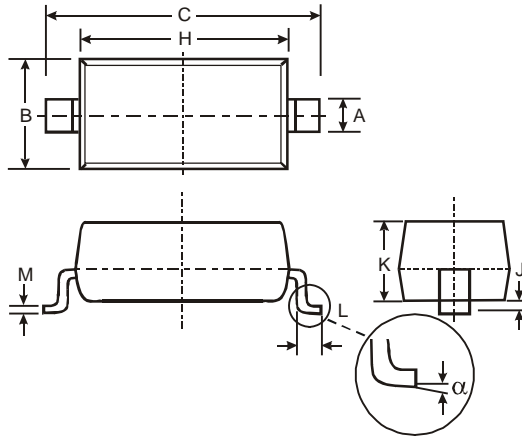
Notes: 5. For packaging details, go to our website at <http://www.diodes.com/datasheets/ap02007.pdf>.

Marking Information



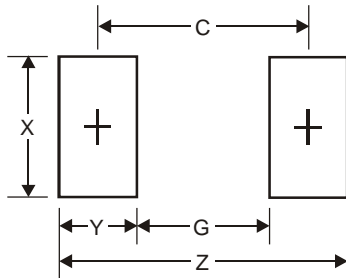
xx = Product Type Marking Code,
S7 = BAT42WS
S8 = BAT43WS

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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