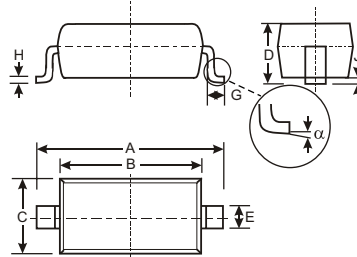


Features

- Low Forward Voltage Drop
- Fast Switching Time
- Surface Mount Package Ideally Suited for Automatic Insertion
- **Available in Lead Free/RoHS Compliant Version (Note 3)**

Mechanical Data

- Case: SOD-123
- Case Material: Molded Plastic. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020C
- Terminals: Solderable per MIL-STD-202, Method 208
- Also Available in Lead Free Plating (Matte Tin Finish annealed over Alloy 42 leadframe). Please See Ordering Information, Note 5, on Page 2
- Polarity: Cathode Band
- Marking: Date Code & Type Code, See Page 2
- Type Codes: BAT42W S7
BAT43W S8
- Ordering Information: See Page 2
- Weight: 0.01 grams (approx.)



| SOD-123 | | |
|----------------------|--------------|------|
| Dim | Min | Max |
| A | 3.55 | 3.85 |
| B | 2.55 | 2.85 |
| C | 1.40 | 1.70 |
| D | — | 1.35 |
| E | 0.55 Typical | |
| G | 0.25 | — |
| H | 0.11 Typical | |
| J | — | 0.10 |
| α | 0° | 8° |
| All Dimensions in mm | | |

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

| Characteristic | Symbol | BAT42W / BAT43W | Unit |
|--|---------------------------------|-----------------|---------------------------|
| Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage | V_{RRM} V_{RWM} V_R | 30 | V |
| 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 |
| Power Dissipation | P_d | 200 | mW |
| Thermal Resistance Junction to Ambient Air (Note 1) | $R_{\theta JA}$ | 500 | $^\circ\text{C}/\text{W}$ |
| 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 (Note 2) | V_{FM} | — | 1.0 0.40 0.65 0.33 0.45 | V | $I_F = 200\text{mA}$ $I_F = 10\text{mA}$ $I_F = 50\text{mA}$ $I_F = 2.0\text{mA}$ $I_F = 15\text{mA}$ |
| Peak Reverse Current (Note 2) | I_{RM} | — | 500 100 | nA μA | $V_R = 25\text{V}$ $V_R = 25\text{V}, T_j = 100^\circ\text{C}$ |
| Total Capacitance | C_T | — | 10 | pF | $V_R = 1.0\text{V}, f = 1.0\text{MHz}$ |
| Reverse Recovery Time | t_{rr} | — | 5.0 | ns | $I_F = I_R = 10\text{mA}$, $I_{rr} = 0.1 \times I_R, R_L = 100\Omega$ |
| Rectification Efficiency | η_V | 80 | — | % | $R_L = 15\Omega, C_L = 300\text{pF}$, $f = 45\text{MHz}, V_{RF} = 2.0\text{V}$ |

- Notes:
1. Part mounted on FR-4 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.

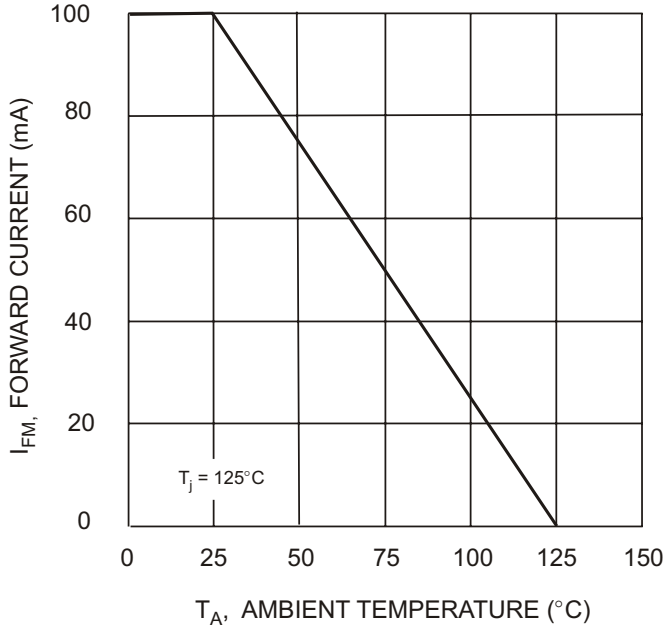


Fig. 1 Forward Current Derating Curve

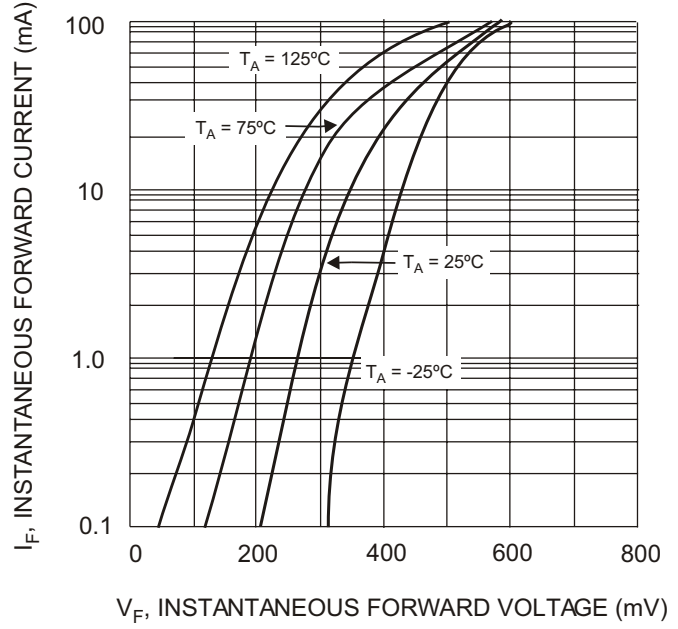


Fig. 2 Typical Forward Characteristics

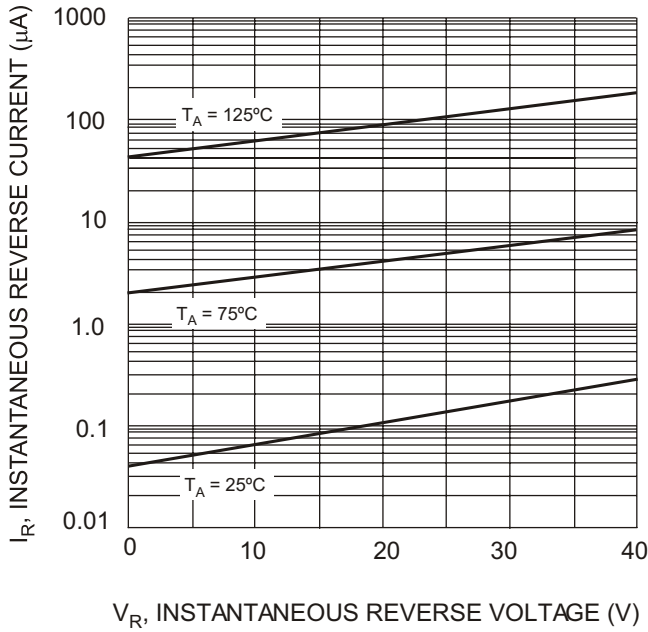


Fig. 3 Typical Reverse Characteristics

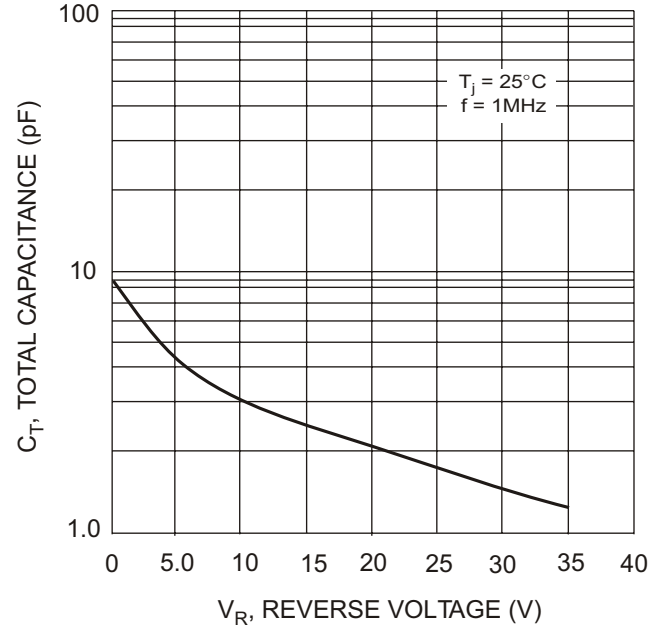


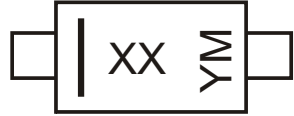
Fig. 4 Total Capacitance vs. Reverse Voltage

Ordering Information (Note 4)

| Device | Packaging | Shipping |
|----------|-----------|------------------|
| BAT42W-7 | SOD-123 | 3000/Tape & Reel |
| BAT43W-7 | SOD-123 | 3000/Tape & Reel |

- Notes: 4. For Packaging Details, go to our website at <http://www.diodes.com/datasheets/ap02007.pdf>.
5. For Lead Free/RoHS Compliant version part numbers, please add "-F" suffix to the part numbers above. Example: BAT43W-7-F.

Marking Information



XX = Product Type Marking Code
 YM = Date Code Marking
 Y = Year (ex: N = 2002)
 M = Month (ex: 9 = September)

Date Code Key

| | | | | | | | | | | |
|-------------|--|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Year | | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
| Code | | M | N | P | R | S | T | U | V | W |

| | | | | | | | | | | | | |
|--------------|------------|------------|--------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| Month | Jan | Feb | March | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
| Code | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | O | N | D |