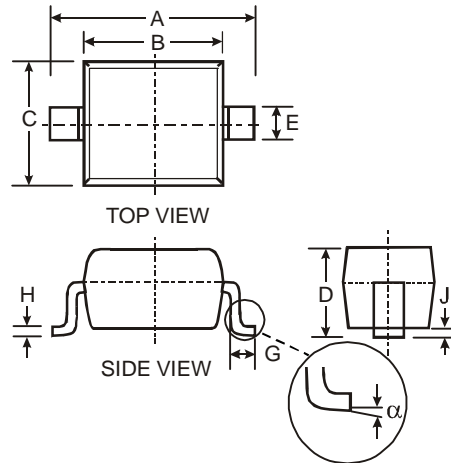


Features

- Fast Switching
- Ultra-Small Surface Mount Package
- PN Junction Guard Ring for Transient and ESD Protection
- Lead, Halogen and Antimony Free, RoHS Compliant "Green" Device (Notes 3 and 5)

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
- Also Available in Lead Free Plating (Matte Tin Finish annealed over Alloy 42 leadframe). Please See Ordering Information, Note 6, on Page 3
- Polarity: Cathode Band
- Marking: See Page 3
- Type Code: L9
- Weight: 0.004 grams (approximate)



| SOD-323 | | |
|----------|--------------|------|
| Dim | Min | Max |
| A | 2.30 | 2.70 |
| B | 1.60 | 1.80 |
| C | 1.20 | 1.40 |
| D | 1.05 Typical | |
| E | 0.25 | 0.35 |
| G | 0.20 | 0.40 |
| H | 0.10 | 0.15 |
| J | 0.05 Typical | |
| α | 0° | 8° |

All Dimensions in mm

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 |
| Average Rectified Forward Current | I_O | 100 | mA |
| Forward Continuous Current (Note 1) | I_F | 200 | mA |
| Repetitive Peak Forward Current (Note 1) | I_{FRM} | 300 | mA |
| Forward Surge Current (Note 1) | I_{FSM} | 600 | mA |
| 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 (Note 4) | T_J, T_{STG} | -65 to +150 | $^\circ\text{C}$ |

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

| Characteristic | Symbol | Min | Typ | Max | Unit | Test Condition |
|------------------------------------|-------------|-----|-----|------|---------------|--|
| Reverse Breakdown Voltage (Note 2) | $V_{(BR)R}$ | 30 | — | — | V | $I_R = 100\mu\text{A}$ |
| Forward Voltage | V_{FM} | — | — | 240 | mV | $I_F = 0.1\text{mA}$ |
| | | | | 320 | | $I_F = 1\text{mA}$ |
| | | | | 400 | | $I_F = 10\text{mA}$ |
| | | | | 500 | | $I_F = 30\text{mA}$ |
| | | | | 1000 | | $I_F = 100\text{mA}$ |
| Reverse Leakage Current (Note 2) | I_{RM} | — | — | 2.0 | μA | $V_R = 25\text{V}$ |
| 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 | $I_F = 10\text{mA}$ through $I_R = 10\text{mA}$ to $I_R = 1.0\text{mA}, R_L = 100\Omega$ |

- 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. $\frac{dP_{tot}}{dT_J} > \frac{1}{R_{\theta JA}}$ thermal runaway condition for a diode on its own heatsink.
 5. 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.

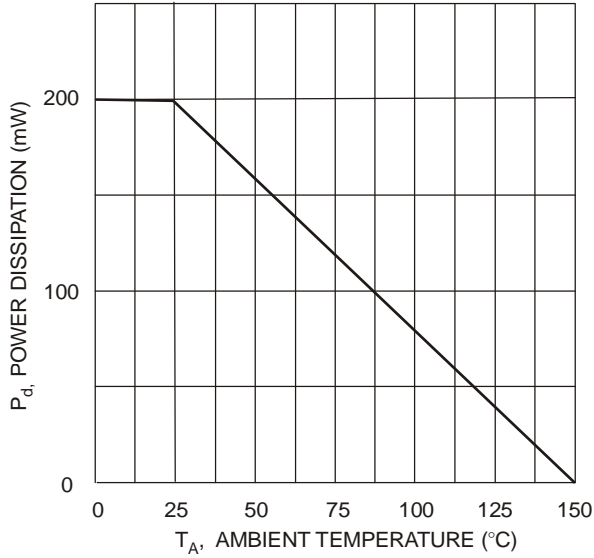


Fig. 1 Power Derating Curve

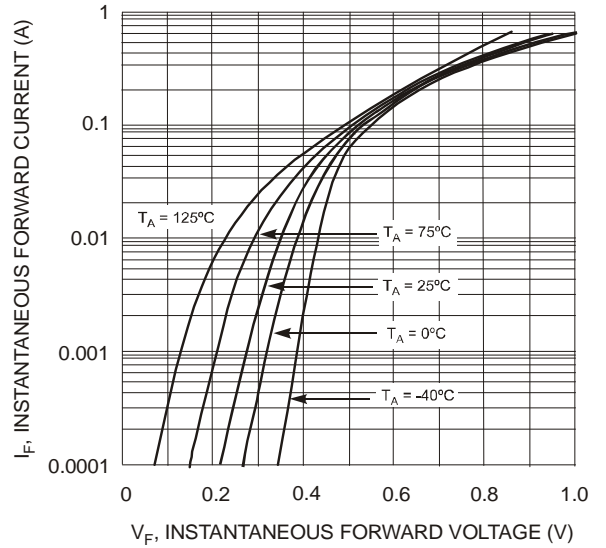


Fig. 2 Forward Characteristics

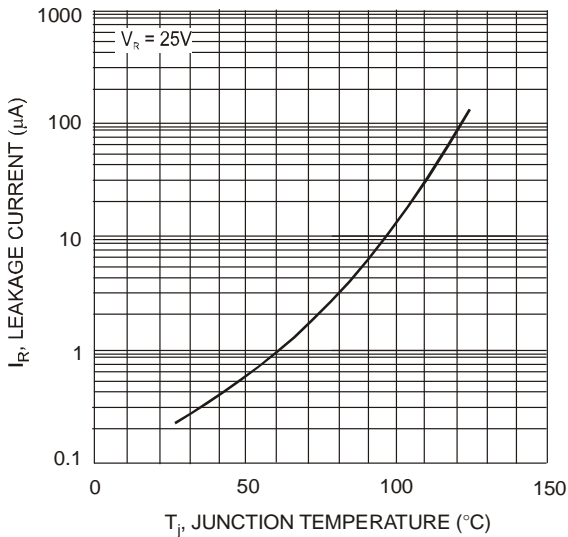


Fig. 3 Typical Reverse Characteristics

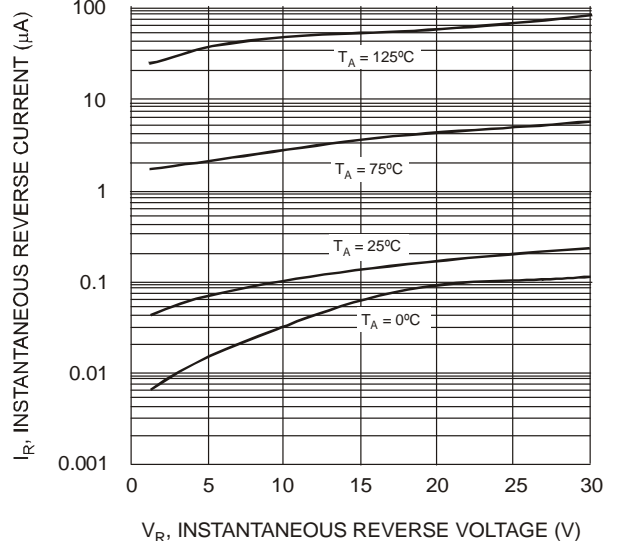


Fig. 4 Typical Reverse Characteristics

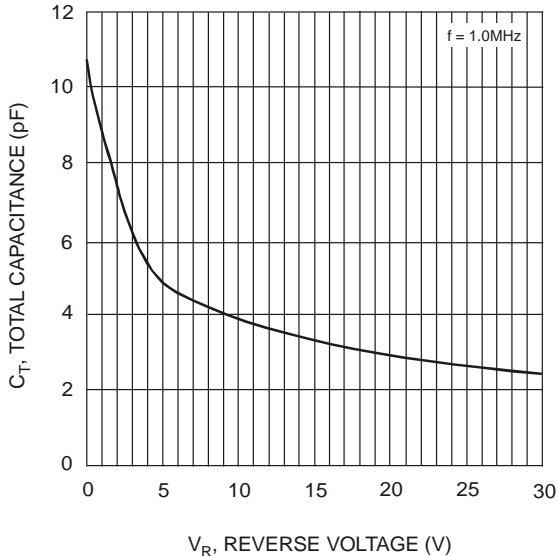


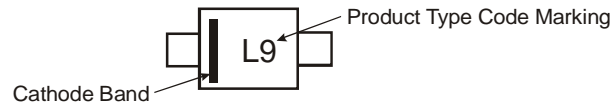
Fig. 5 Typical Capacitance vs. Reverse Voltage

Ordering Information (Note 6)

| Device | Packaging | Shipping |
|----------------------|-----------|------------------|
| BAT54WS-7 | SOD-323 | 3000/Tape & Reel |
| BAT54WS-7-F (Note 7) | SOD-323 | 3000/Tape & Reel |

Notes: 6. For packaging details, go to our website at: <http://www.diodes.com/datasheets/ap02007.pdf>.
7. For Lead Free/RoHS Compliant version part number, please add "-F" suffix to the part number above. Example: BAT54WS-7-F.

Marking Information



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