# BAV3004WS

## SURFACE MOUNT LOW LEAKAGE DIODE

## Features

- Surface Mount Package Ideally Suited for Automated Insertion
- Low Leakage Current
- Fast Switching Speed
- High Reverse Breakdown Voltage
- **Lead Free By Design/RoHS Compliant (Note 3)**
- **“Green” Device (Note 4)**

## 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-020D
- Terminals: Finish — Matte Tin Finish annealed over Alloy 42 leadframe. Solderable per MIL-STD-202, Method 208
- Polarity: Cathode Band
- Marking Information: See Page 2
- Ordering Information: See Page 2
- Weight: 0.004 grams (approximate)

SOD-323

TOP VIEW

## Maximum Ratings @$T_A$ = 25°C unless otherwise specified

| Characteristic | Symbol | Value | Unit |
|---|---|---|---|
| Peak Repetitive Reverse Voltage | $V_{RRM}$ | 350 | V |
| Working Peak Reverse Voltage<br>DC Blocking Voltage | $V_{RWM}$<br>$V_R$ | 300 | V |
| RMS Reverse Voltage | $V_{R(RMS)}$ | 212 | V |
| Forward Continuous Current | $I_{FM}$ | 225 | mA |
| Repetitive Peak Forward Current | $I_{FRM}$ | 625 | mA |
| Non-Repetitive Peak Forward Surge Current @ t = 1.0µs<br>@ t = 1.0s | $I_{FSM}$ | 4.0<br>1.0 | 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 | °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 | Typ | Max | Unit | Test Condition |
|---|---|---|---|---|---|---|
| Reverse Breakdown Voltage (Note 2) | $V_{(BR)R}$ | 350 | —<br>— | —<br>— | V | $I_R$ = 150µA |
| Forward Voltage | $V_F$ | — | 0.78<br>0.93<br>1.03 | 0.87<br>1.0<br>1.25 | V | $I_F$ = 20mA<br>$I_F$ = 100mA<br>$I_F$ = 200mA |
| Leakage Current (Note 2) | $I_R$ | — | 30<br>35 | 100<br>100 | nA<br>µA | $V_R$ = 240V, $T_J$ = 25°C<br>$V_R$ = 240V, $T_J$ = 150°C |
| Total Capacitance | $C_T$ | — | 1.0 | 5.0 | pF | $V_R$ = 0, f = 1.0MHz |
| Reverse Recovery Time | $t_{rr}$ | — | — | 50 | ns | $I_F$ = $I_R$ = 30mA,<br>$I_{rr}$ = 3.0mA, $R_L$ = 100Ω |

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.
4. Diodes Inc.'s "Green" policy can be found on our website at http://www.diodes.com/products/lead_free/index.php.

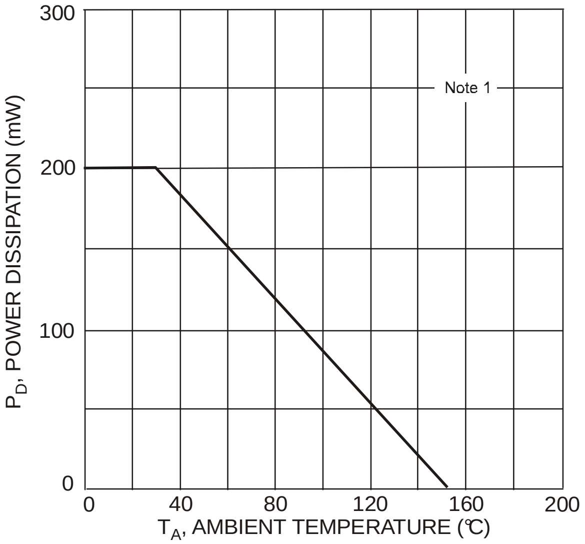


Fig. 1 Power Derating Curve

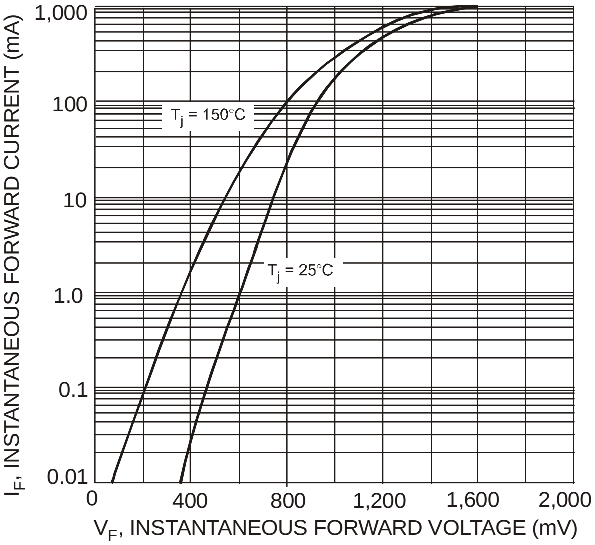


Fig. 2 Typical Forward Characteristics

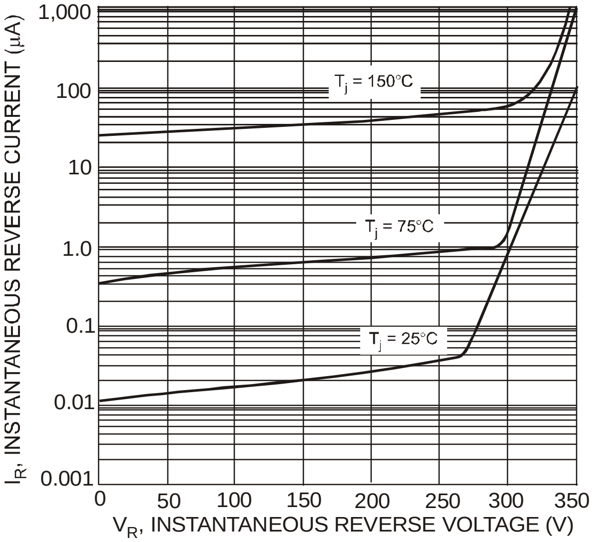


Fig. 3 Typical Reverse Characteristics

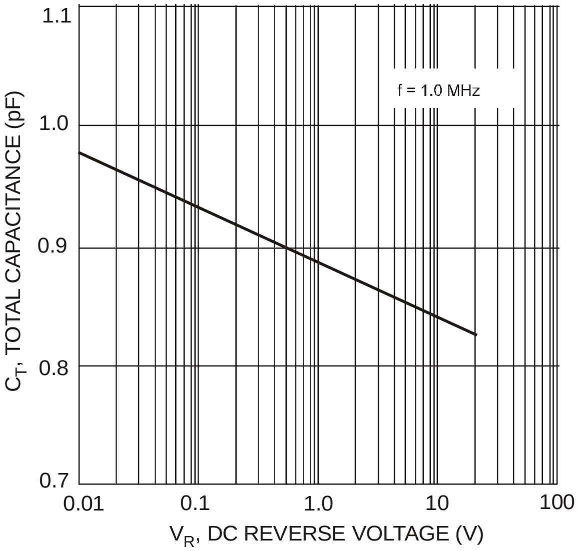


Fig. 4 Total Capacitance vs. Reverse Voltage

## Ordering Information (Note 5)

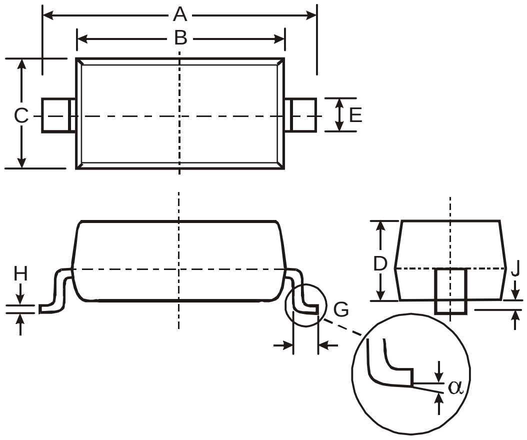
| Part Number | Case | Packaging |
|---|---|---|
| BAV3004WS-7 | SOD-323 | 3000/Tape & Reel |

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

## Marking Information

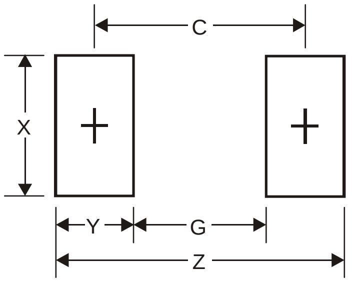
4P = Product Type Marking Code

## Package Outline Dimensions



| 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** | 0.00 | 0.10 |
| 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 |