# THE DATASHEET OF

# BAV116T-7

# ULTRA LOW LEAKAGE SURFACE MOUNT DIODE

## Features

- Small Surface Mount Package
- Ultra-Low Reverse Leakage Current (5nA @ $V_R$ = 75V)
- Low Capacitance
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**

## Mechanical Data

- Case: SOD523
- 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
- Terminals: Finish - Matte Tin Annealed over Alloy 42 Leadframe. Solderable per MIL-STD-202, Method 208 e3
- Weight: 0.0014 grams (Approximate)

**SOD523**

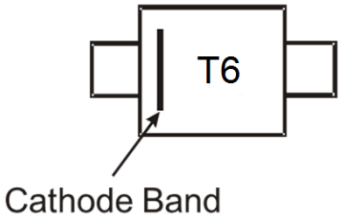
Top View

## Ordering Information (Note 4)

| Part Number | Compliance | Case | Packaging |
|---|---|---|---|
| BAV116T-7 | Standard | SOD523 | 3,000/Tape & Reel |

Notes:
1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant.
2. See http://www.diodes.com/quality/lead_free.html for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "Green" and Lead-free.
3. Halogen- and Antimony-free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
4. For packaging details, go to our website at http://www.diodes.com/products/packages.html.

## Marking Information




T6 = Product Type Marking Code

## Maximum Ratings (@$T_A$ = +25°C, unless otherwise specified.)

| Characteristic | Symbol | Value | Unit |
|---|---|---|---|
| Peak Repetitive Reverse Voltage<br>Working Peak Reverse Voltage<br>DC Blocking Voltage | $V_{RRM}$<br>$V_{RWM}$<br>$V_R$ | 85 | V |
| RMS Reverse Voltage | $V_{R(RMS)}$ | 60 | V |
| Forward Continuous Current | $I_{FM}$ | 200 | mA |
| Average Rectified Output Current | $I_O$ | 100 | mA |
| Repetitive Peak Forward Current | $I_{FRM}$ | 500 | mA |
| Non-Repetitive Peak Forward Surge Current @ t = 1.0µs<br>@ t = 1.0ms<br>@ t = 1.0s | $I_{FSM}$ | 4.0<br>1.0<br>0.5 | A |

## Thermal Characteristics

| Characteristic | Symbol | Value | Unit |
|---|---|---|---|
| Power Dissipation (Note 5) | $P_D$ | 280 | mW |
| Thermal Resistance Junction to Ambient Air (Note 5) | $R_{\theta JA}$ | 450 | °C/W |
| Thermal Resistance Junction to Soldering Point | $R_{\theta JS}$ | 120 | °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 6) | $V_{(BR)R}$ | 85 | — | — | V | $I_R$ = 100µA |
| Forward Voltage | $V_F$ | —<br>—<br>—<br>— | 0.77<br>0.85<br>0.92<br>1.02 | 0.9<br>1.0<br>1.1<br>1.25 | V | $I_F$ = 1.0mA<br>$I_F$ = 10mA<br>$I_F$ = 50mA<br>$I_F$ = 150mA |
| Leakage Current (Note 6) | $I_R$ | —<br>—<br>— | 0.2<br>3.0<br>0.3 | 5.0<br>80<br>— | nA<br>nA<br>nA | $V_R$ = 75V<br>$V_R$ = 75V, $T_J$ = +150°C<br>$V_R$ = 100V |
| Total Capacitance | $C_T$ | — | 1.2 | 2.0 | pF | $V_R$ = 0, f = 1.0MHz |
| Reverse Recovery Time | $t_{RR}$ | — | 0.6 | 3.0 | µs | $I_F$ = $I_R$ = 10mA,<br>$I_{RR}$ = 0.1 x $I_R$, $R_L$ = 100Ω |

Notes: 5. 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.
6. Short duration pulse test used to minimize self-heating effect.

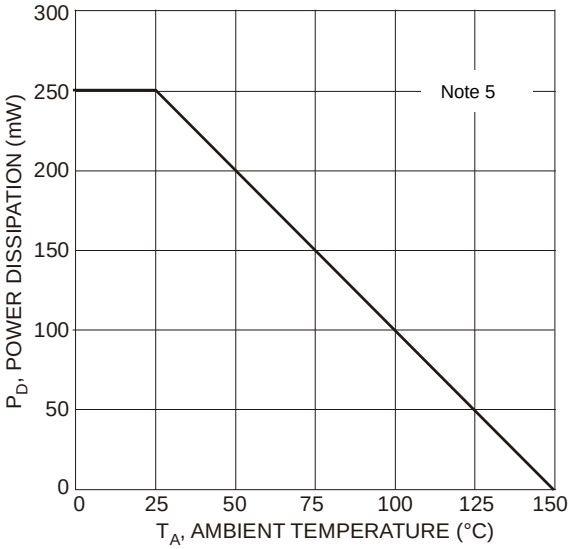



Figure 1 Power Derating Curve, Total Package

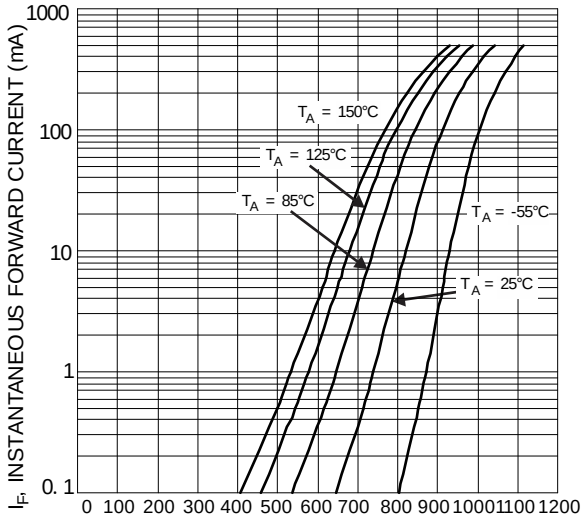



Figure 2 Typical Reverse Characteristics

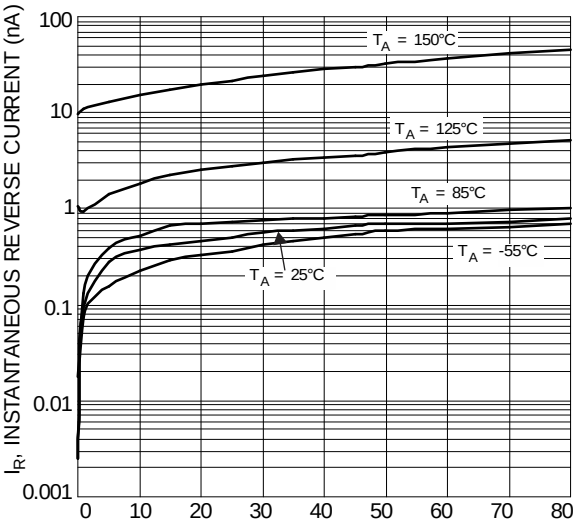



Figure 3 Typical Reverse Characteristics

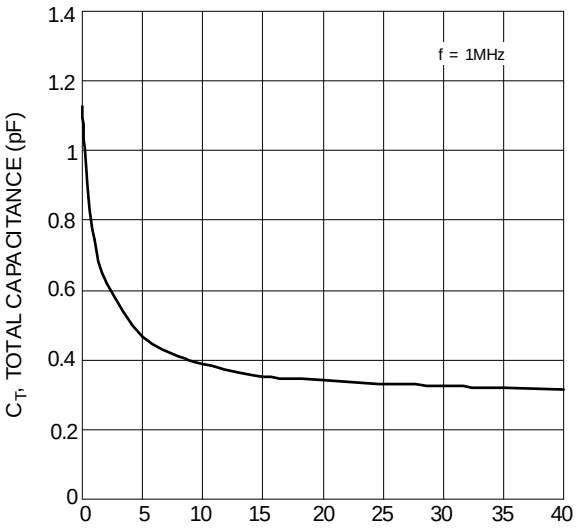
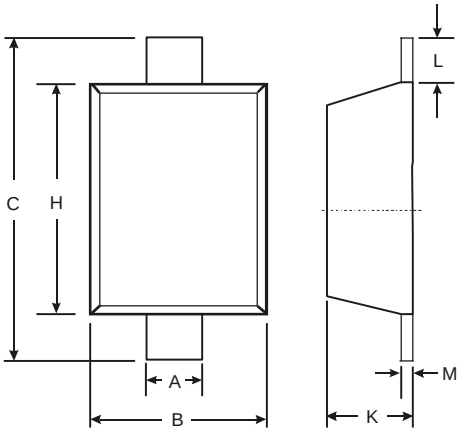



Figure 4 Total Capacitance vs. Reverse Voltage

## Package Outline Dimensions

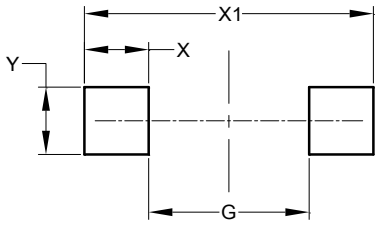
Please see AP02001 at http://www.diodes.com/_files/datasheets/ap02001.pdf for the latest version.




| SOD523 | | |
|---|---|---|
| **Dim** | **Min** | **Max** |
| **A** | 0.25 | 0.35 |
| **B** | 0.70 | 0.90 |
| **C** | 1.50 | 1.70 |
| **H** | 1.10 | 1.30 |
| **K** | 0.55 | 0.65 |
| **L** | 0.10 | 0.30 |
| **M** | 0.10 | 0.12 |
| **All Dimensions in mm** | | |

## Suggested Pad Layout

Please see AP02001 at http://www.diodes.com/_files/datasheets/ap02001.pdf for the latest version.




| Dimensions | Value (in mm) |
|---|---|
| **G** | 0.80 |
| **X** | 0.60 |
| **X1** | 2.00 |
| **Y** | 0.70 |

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