

## 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



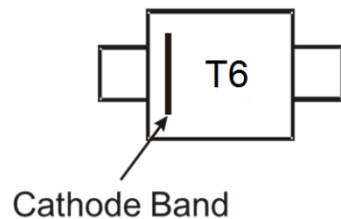
Top View

## 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](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<sub>A</sub> = +25°C, unless otherwise specified.)

| Characteristic                            | Symbol              | Value       | Unit |
|---|---------------------|-------------|------|
| Peak Repetitive Reverse Voltage           | V <sub>RRM</sub>    | 85          | V    |
| Working Peak Reverse Voltage              | V <sub>RWM</sub>    |             |      |
| DC Blocking Voltage                       | V <sub>R</sub>      |             |      |
| RMS Reverse Voltage                       | V <sub>R(RMS)</sub> | 60          | V    |
| Forward Continuous Current                | I <sub>FM</sub>     | 200         | mA   |
| Average Rectified Output Current          | I <sub>O</sub>      | 100         | mA   |
| Repetitive Peak Forward Current           | I <sub>FRM</sub>    | 500         | mA   |
| Non-Repetitive Peak Forward Surge Current | I <sub>FSM</sub>    | @ t = 1.0μs | 4.0  |
|   |                     | @ t = 1.0ms | 1.0  |
|   |                     | @ t = 1.0s  | 0.5  |

**Thermal Characteristics**

| Characteristic                                      | Symbol                            | Value       | Unit |
|---|-----------------------------------|-------------|------|
| Power Dissipation (Note 5)                          | P <sub>D</sub>                    | 280         | mW   |
| Thermal Resistance Junction to Ambient Air (Note 5) | R <sub>θJA</sub>                  | 450         | °C/W |
| Thermal Resistance Junction to Soldering Point      | R <sub>θJS</sub>                  | 120         | °C/W |
| Operating and Storage Temperature Range             | T <sub>J</sub> , T <sub>STG</sub> | -65 to +150 | °C   |

**Electrical Characteristics** (@T<sub>A</sub> = +25°C, unless otherwise specified.)

| Characteristic                     | Symbol             | Min | Typ  | Max  | Unit | Test Condition  |
|------------------------------------|--------------------|-----|------|------|------|---|
| Reverse Breakdown Voltage (Note 6) | V <sub>(BR)R</sub> | 85  | —    | —    | V    | I <sub>R</sub> = 100μA  |
| Forward Voltage                    | V <sub>F</sub>     | —   | 0.77 | 0.9  | V    | I <sub>F</sub> = 1.0mA  |
|                                    |                    | —   | 0.85 | 1.0  |      | I <sub>F</sub> = 10mA   |
|                                    |                    | —   | 0.92 | 1.1  |      | I <sub>F</sub> = 50mA   |
|                                    |                    | —   | 1.02 | 1.25 |      | I <sub>F</sub> = 150mA  |
| Leakage Current (Note 6)           | I <sub>R</sub>     | —   | 0.2  | 5.0  | nA   | V <sub>R</sub> = 75V  |
|                                    |                    | —   | 3.0  | 80   | nA   | V <sub>R</sub> = 75V, T <sub>J</sub> = +150°C   |
|                                    |                    | —   | 0.3  | —    | nA   | V <sub>R</sub> = 100V   |
| Total Capacitance                  | C <sub>T</sub>     | —   | 1.2  | 2.0  | pF   | V <sub>R</sub> = 0, f = 1.0MHz  |
| Reverse Recovery Time              | t <sub>RR</sub>    | —   | 0.6  | 3.0  | μs   | I <sub>F</sub> = I <sub>R</sub> = 10mA,<br>I <sub>RR</sub> = 0.1 x I <sub>R</sub> , R <sub>L</sub> = 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.

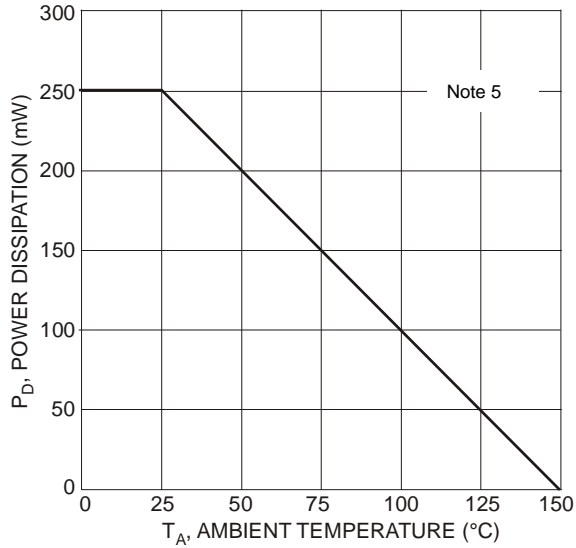


Figure 1 Power Derating Curve, Total Package

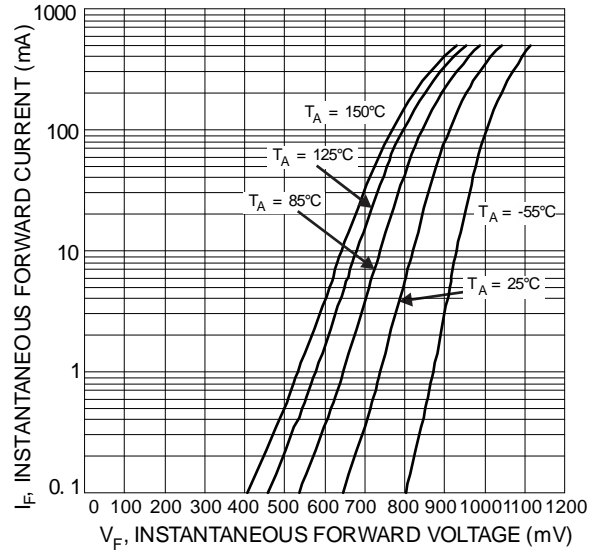


Figure 2 Typical Reverse Characteristics

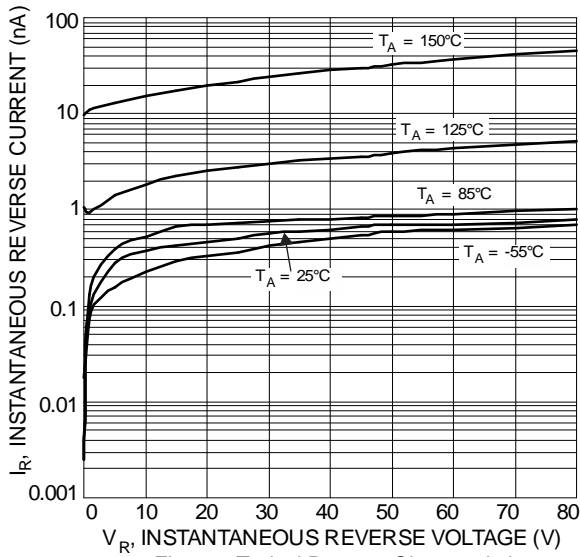


Figure 3 Typical Reverse Characteristics

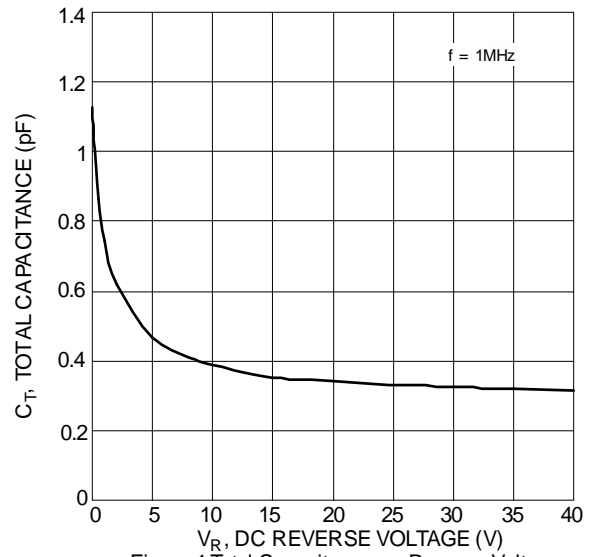
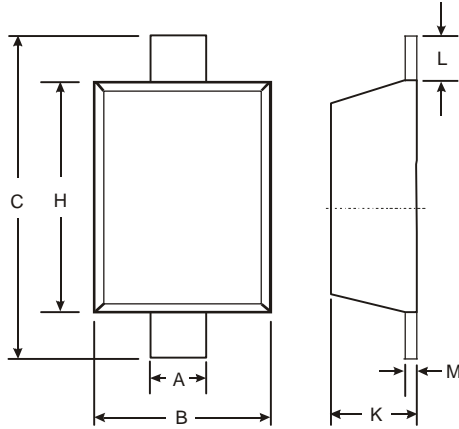


Figure 4 Total Capacitance vs. Reverse Voltage

## Package Outline Dimensions

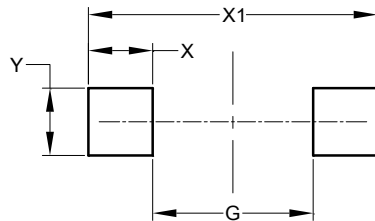
Please see AP02001 at [http://www.diodes.com/\\_files/datasheets/ap02001.pdf](http://www.diodes.com/_files/datasheets/ap02001.pdf) for the latest version.



| 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](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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