

RoHS Compliant Product

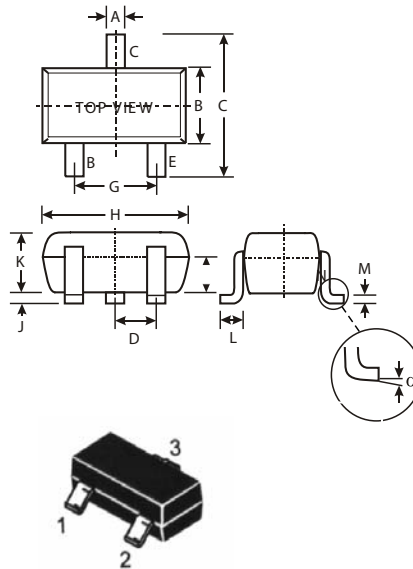
A suffix of "-C" specifies halogen & lead-free

**FEATURES**

- \* Fast Switching Speed
- \* For General Purpose Switching Applications
- \* Ultra-Small Surface Mount Package
- \* Also Available in Lead Free Version
- \* High Conductance

**MECHANICAL DATA**

- \* Case: SOT-523, Molded Plastic
- \* Case material: UL Flammability Rating 94V-0
- \* Moisture sensitivity: Level 1 per J-STD-020A
- \* Terminals: Solderable per MIL-STD-202, Method 208
- \* Polarity: See Diagrams Below
- \* Weight: 0.002 grams (approx.)
- \* Mounting Position: Any



| SOT-523              |      |      |      |
|----------------------|------|------|------|
| Dim                  | Min  | Max  | Typ  |
| A                    | 0.15 | 0.30 | 0.22 |
| B                    | 0.75 | 0.85 | 0.80 |
| C                    | 1.45 | 1.75 | 1.60 |
| D                    | —    | —    | 0.50 |
| G                    | 0.90 | 1.10 | 1.00 |
| H                    | 1.50 | 1.70 | 1.60 |
| J                    | 0.00 | 0.10 | 0.05 |
| K                    | 0.60 | 0.80 | 0.75 |
| L                    | 0.10 | 0.30 | 0.22 |
| M                    | 0.10 | 0.20 | 0.12 |
| N                    | 0.45 | 0.65 | 0.50 |
| α                    | 0°   | 8°   | —    |
| All Dimensions in mm |      |      |      |

**Maximum Ratings** @ T<sub>A</sub> = 25 °C unless otherwise specified

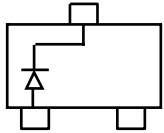
| Characteristic   | Symbol   | Value       | Unit |
|--|--|-------------|------|
| Peak Repetitive Reverse Voltage<br>Working Peak Reverse Voltage<br>DC Blocking Voltage | V <sub>RRM</sub><br>V <sub>RWM</sub><br>V <sub>R</sub> | 85          | V    |
| RMS Reverse Voltage  | V <sub>R(RMS)</sub>                                    | 60          | V    |
| Forward Continuous Current (Note 2)  | I <sub>FM</sub>  | 155<br>75   | mA   |
| Repetitive Peak Forward Current  | I <sub>FRM</sub>                                       | 500         | mA   |
| Non-Repetitive Peak Forward Surge Current  | I <sub>FSM</sub>                                       | 0.5         | A    |
| Power Dissipation (Note 2)   | P <sub>d</sub>   | 150         | mW   |
| Thermal Resistance Junction to Ambient (Note 2)  | R <sub>θJA</sub>                                       | 833         | °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

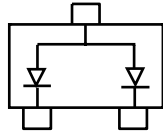
| Characteristic                     | Symbol             | Min | Max                           | Unit                 | Test Condition   |
|------------------------------------|--------------------|-----|-------------------------------|----------------------|--|
| Reverse Breakdown Voltage (Note 1) | V <sub>(BR)R</sub> | 85  | —                             | V                    | I <sub>R</sub> = 100µA   |
| Forward Voltage (Note 1)           | V <sub>F</sub>     | —   | 0.715<br>0.855<br>1.0<br>1.25 | V                    | I <sub>F</sub> = 1.0mA<br>I <sub>F</sub> = 10mA<br>I <sub>F</sub> = 50mA<br>I <sub>F</sub> = 150mA   |
| Leakage Current (Note 1)           | I <sub>R</sub>     | —   | 2.0<br>100<br>60<br>30        | µA<br>µA<br>µA<br>nA | V <sub>R</sub> = 75V<br>V <sub>R</sub> = 75V, T <sub>j</sub> = 150°C<br>V <sub>R</sub> = 25V, T <sub>j</sub> = 150°C<br>V <sub>R</sub> = 25V |
| Typical Total Capacitance          | C <sub>T</sub>     | —   | 1.5                           | pF                   | V <sub>R</sub> = 0, f = 1.0MHz   |
| Reverse Recovery Time              | t <sub>rr</sub>    | —   | 4.0                           | ns                   | 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: 1. Short duration test pulse to minimize self-heating effect.  
2. Device mounted on FR-4 PC board with recommended pad layout.

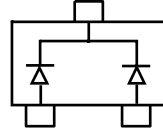
**Marking**



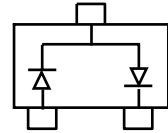
BAS16T Marking: A2



BAW56T Marking: JD



BAV70T Marking: JJ



BAV99T Marking: JE

**Typical Characteristics**

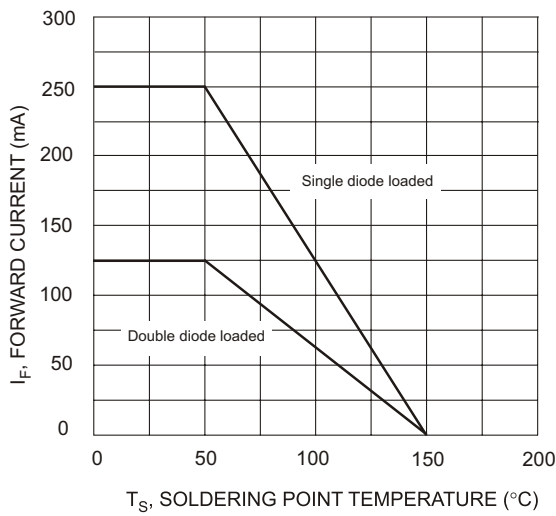


Fig. 1 Current Derating Curve

**BAS16T/BAW56T/BAV70T/BAV99T**

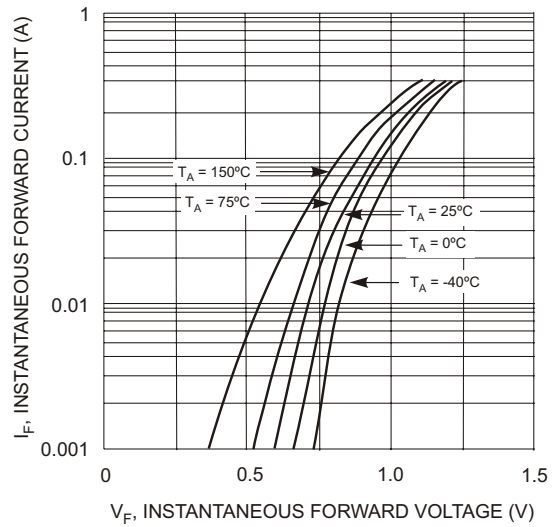


Fig. 2 Forward Characteristics

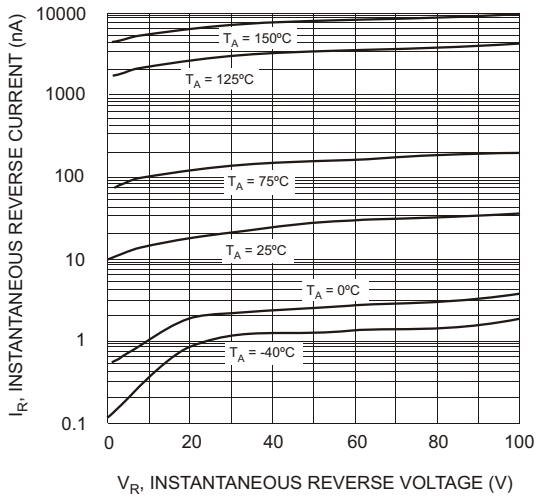


Fig. 3 Typical Reverse Characteristics

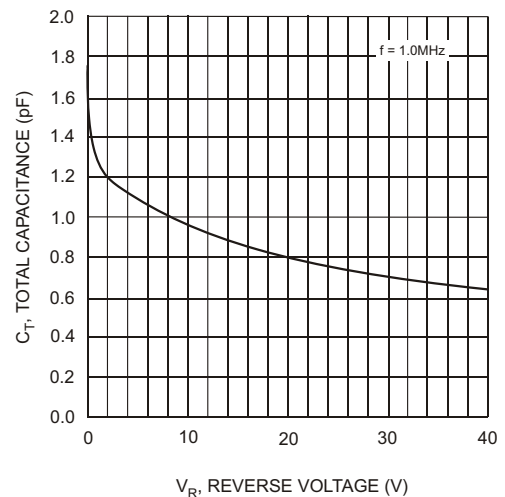


Fig. 4 Typical Capacitance vs. Reverse Voltage