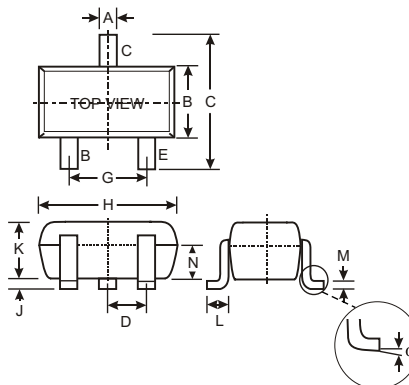


### Features

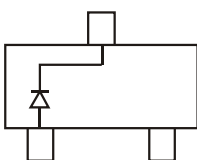
- Ultra-Small Surface Mount Package
- Very Low Leakage Current
- Also Available in Lead Free Version

### Mechanical Data

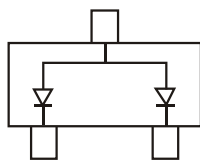
- Case: SOT-523, Molded Plastic
- Case material - UL Flammability Rating Classification 94V-0
- Moisture sensitivity: Level 1 per J-STD-020A
- Terminals: Solderable per MIL-STD-202, Method 208
- Also Available in Lead Free Plating (Matte Tin Finish). Please See Ordering Information, Note 4, on Page 3
- Polarity: See Diagrams Below
- Marking: See Diagrams Below & Page 3
- Weight: 0.002 grams (approx.)
- Ordering Information: See Page 3



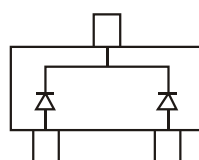
| SOT-523              |      |      |      |
|----------------------|------|------|------|
| Dim                  | Min  | Max  | Typ  |
| A                    | 0.15 | 0.30 | 0.22 |
| B                    | 0.75 | 0.85 | 0.80 |
| C                    | 1.45 | 1.75 | 1.60 |
| D                    | —    | —    | 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 |      |      |      |



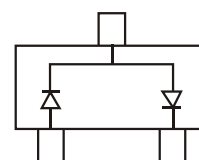
BAS116T Marking: 50



BAW156T Marking: 53



BAV170T Marking: 51



BAV199T Marking: 52

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

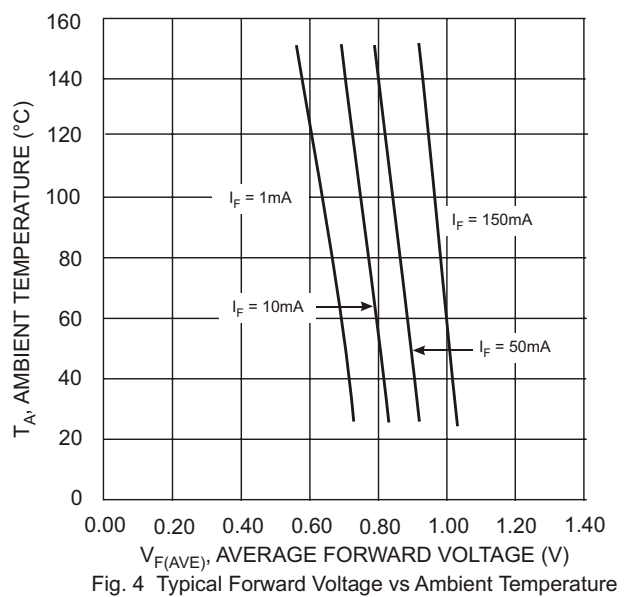
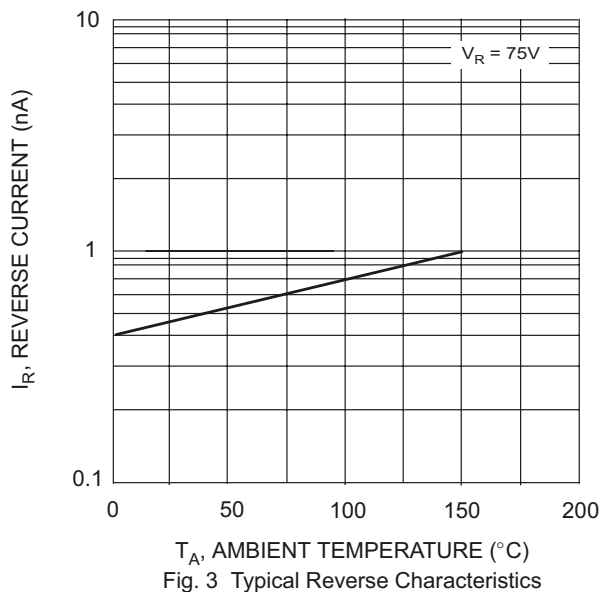
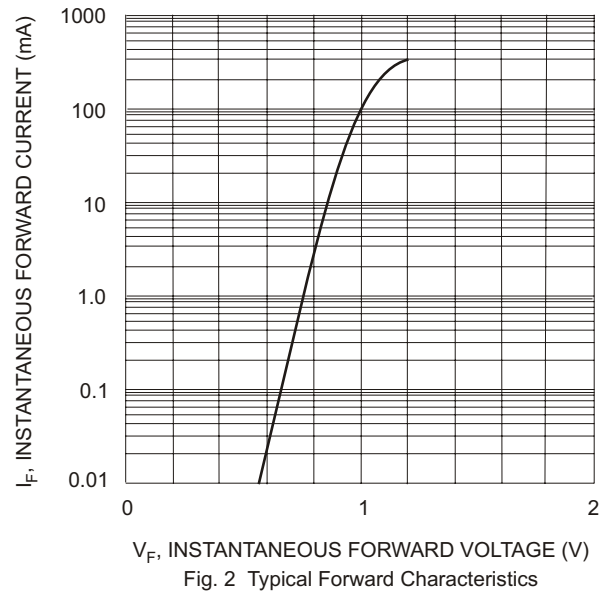
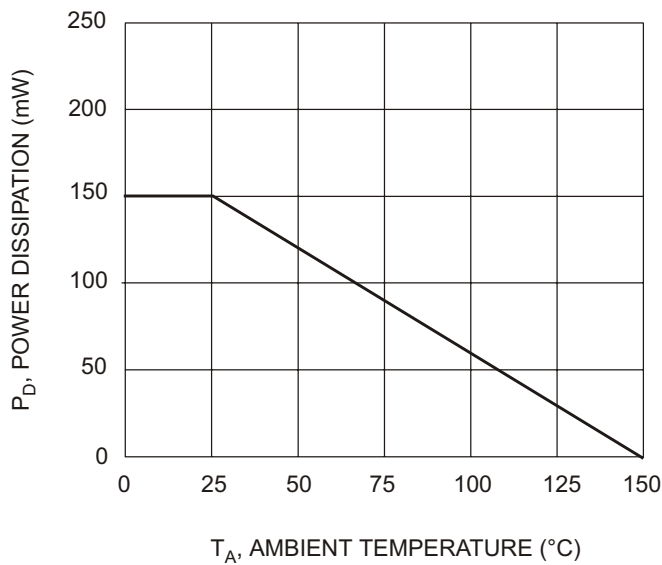
| Characteristic                                                                         | Symbol                                                 | Value       | Unit |
|----------------------------------------------------------------------------------------|--------------------------------------------------------|-------------|------|
| 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 1)                                                    | I <sub>FM</sub>                                        | 215         | mA   |
|                                                                                        |                                                        | 125         |      |
| Repetitive Peak Forward Current                                                        | I <sub>FRM</sub>                                       | 500         | mA   |
| Non-Repetitive Peak Forward Surge Current                                              | I <sub>FSM</sub>                                       | 4.0         | A    |
| @ t = 1.0μs                                                                            |                                                        | 1.0         |      |
| @ t = 1.0ms                                                                            |                                                        | 0.5         |      |
| Power Dissipation (Note 1)                                                             | P <sub>d</sub>                                         | 150         | mW   |
| Thermal Resistance Junction to Ambient Air (Note 1)                                    | R <sub>θJA</sub>                                       | 833         | °C/W |
| Operating and Storage Temperature Range                                                | T <sub>j</sub> , T <sub>STG</sub>                      | -65 to +150 | °C   |

Notes: 1. Device 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>.

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

| Characteristic                     | Symbol      | Min | Typ | Max                        | Unit          | Test Condition                                                                             |
|------------------------------------|-------------|-----|-----|----------------------------|---------------|--------------------------------------------------------------------------------------------|
| Reverse Breakdown Voltage (Note 2) | $V_{(BR)R}$ | 85  | —   | —                          | V             | $I_R = 100\mu\text{A}$                                                                     |
| Forward Voltage (Note 2)           | $V_F$       | —   | —   | 0.90<br>1.0<br>1.1<br>1.25 | V             | $I_F = 1.0\text{mA}$<br>$I_F = 10\text{mA}$<br>$I_F = 50\text{mA}$<br>$I_F = 150\text{mA}$ |
| Leakage Current (Note 2)           | $I_R$       | —   | —   | 5.0<br>80                  | nA<br>nA      | $V_R = 75\text{V}$<br>$V_R = 75\text{V}, T_j = 150^\circ\text{C}$                          |
| Total Capacitance                  | $C_T$       | —   | 2   | —                          | pF            | $V_R = 0, f = 1.0\text{MHz}$                                                               |
| Reverse Recovery Time              | $t_{rr}$    | —   | —   | 3.0                        | $\mu\text{s}$ | $I_F = I_R = 10\text{mA}$ ,<br>$t_{rr} = 0.1 \times I_R, R_L = 100\Omega$                  |

Notes: 2. Short duration test pulse used to minimize self-heating effect.

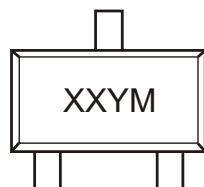


## Ordering Information (Note 3)

| Device    | Packaging | Shipping         |
|-----------|-----------|------------------|
| BAS116T-7 | SOT-523   | 3000/Tape & Reel |
| BAW156T-7 | SOT-523   | 3000/Tape & Reel |
| BAV170T-7 | SOT-523   | 3000/Tape & Reel |
| BAV199T-7 | SOT-523   | 3000/Tape & Reel |

- Notes:
- For Packaging Details, go to our website at <http://www.diodes.com/datasheets/ap02007.pdf>.
  - For Lead Free version (with Lead Free terminal finish) part number, please add "-F" suffix to part number above.  
Example: BAV199T-7-F.

## Marking Information



XX = Product Type Marking Code (See Page 1, e.g. 50 = BAS116T)  
YM = Date Code Marking  
Y = Year (ex: N = 2002)  
M = Month (ex: 9 = September)

Date Code Key

| Year | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
|------|------|------|------|------|------|------|------|------|------|
| Code | M    | N    | P    | R    | S    | T    | U    | V    | W    |

| Month | Jan | Feb | March | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|-------|-----|-----|-------|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Code  | 1   | 2   | 3     | 4   | 5   | 6   | 7   | 8   | 9   | O   | N   | D   |