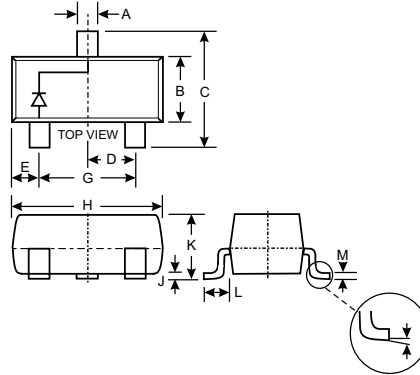


### Features

- Fast Switching Speed
- Surface Mount Package Ideally Suited for Automatic Insertion
- For General Purpose Switching Applications
- High Conductance

### Mechanical Data

- Case: SOT-23, Molded Plastic
- Terminals: Solderable per MIL-STD-202, Method 208
- Case material - UL Flammability Rating Classification 94V-0
- Moisture sensitivity: Level 1 per J-STD-020A
- Polarity: See Diagram
- BAS19 Marking: KA8, KT3, KT2
- BAS20 Marking: KT2, KT3
- BAS21 Marking: KT3
- Weight: 0.008 grams (approx.)



| SOT-23               |       |      |
|----------------------|-------|------|
| Dim                  | Min   | Max  |
| A                    | 0.37  | 0.51 |
| B                    | 1.20  | 1.40 |
| C                    | 2.30  | 2.50 |
| D                    | 0.89  | 1.03 |
| E                    | 0.45  | 0.60 |
| G                    | 1.78  | 2.05 |
| H                    | 2.80  | 3.00 |
| J                    | 0.013 | 0.10 |
| K                    | 0.903 | 1.10 |
| L                    | 0.45  | 0.61 |
| M                    | 0.85  | 0.80 |
| $\alpha$             | 0°    | 8°   |
| All Dimensions in mm |       |      |

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

| Characteristic  | Symbol             | BAS19       | BAS20 | BAS21 | Unit                      |
|---|--------------------|-------------|-------|-------|---------------------------|
| Repetitive Peak Reverse Voltage   | $V_{RRM}$          | 120         | 200   | 250   | V                         |
| Working Peak Reverse Voltage<br>DC Blocking Voltage                                     | $V_{RWM}$<br>$V_R$ | 100         | 150   | 200   | V                         |
| RMS Reverse Voltage   | $V_{R(RMS)}$       | 71          | 106   | 141   | V                         |
| Forward Continuous Current  | $I_{FM}$           | 400         |       |       | mA                        |
| Average Rectified Output Current  | $I_O$              | 200         |       |       | mA                        |
| Non-Repetitive Peak Forward Surge Current @ $t = 1.0\mu\text{s}$<br>@ $t = 1.0\text{s}$ | $I_{FSM}$          | 2.5<br>0.5  |       |       | A                         |
| Repetitive Peak Forward Surge Current   | $I_{FRM}$          | 625         |       |       | mA                        |
| Power Dissipation (Note 1)  | $P_d$              | 250         |       |       | mW                        |
| Thermal Resistance Junction to Ambient Air (Note 1)                                     | $R_{\theta JA}$    | 500         |       |       | $^\circ\text{C}/\text{W}$ |
| Operating and Storage Temperature Range   | $T_j, T_{STG}$     | -65 to +150 |       |       | $^\circ\text{C}$          |

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

| Characteristic                                       | Symbol      | Min | Max               | Unit                | Test Condition  |
|--|-------------|-----|-------------------|---------------------|---|
| Reverse Breakdown Voltage (Note 2)                   | $V_{(BR)R}$ | —   | 120<br>200<br>250 | V                   | $I_R = 100\mu\text{A}$  |
| Forward Voltage (Note 2)                             | $V_{FM}$    | —   | 1.0<br>1.25       | V                   | $I_F = 100\text{mA}$<br>$I_F = 200\text{mA}$                              |
| Reverse Current @ Rated DC Blocking Voltage (Note 2) | $I_{RM}$    | —   | 100<br>15         | nA<br>$\mu\text{A}$ | $T_j = 25^\circ\text{C}$<br>$T_j = 100^\circ\text{C}$                     |
| Total Capacitance                                    | $C_T$       | —   | 5.0               | pF                  | $V_R = 0, f = 1.0\text{MHz}$  |
| Reverse Recovery Time                                | $t_{rr}$    | —   | 50                | ns                  | $I_F = I_R = 30\text{mA}$ ,<br>$I_{rr} = 0.1 \times I_R, R_L = 100\Omega$ |

- Note:
1. Part mounted on FR-4 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.

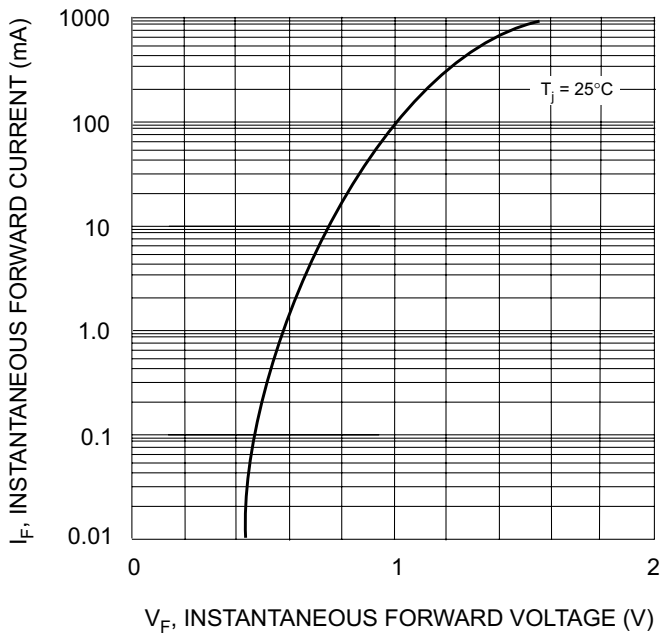


Fig. 1 Forward Characteristics

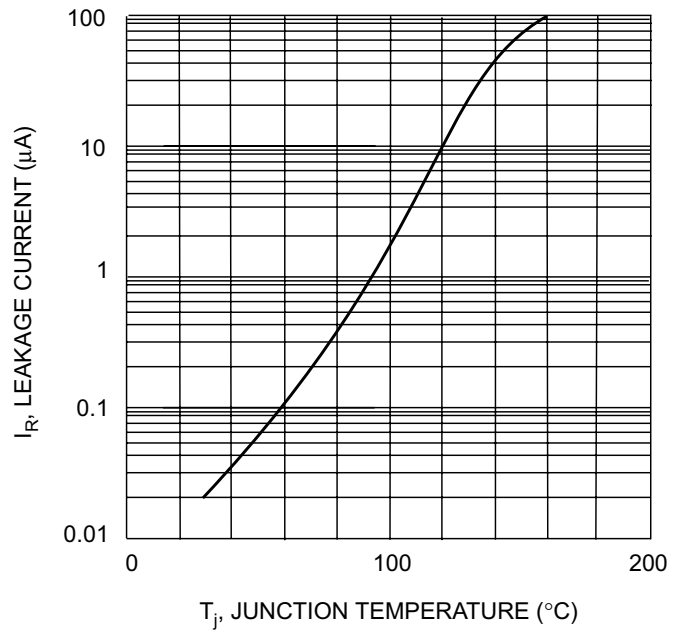


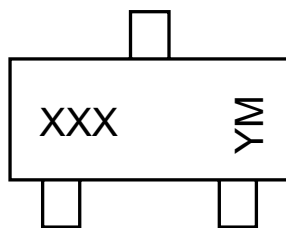
Fig. 2 Leakage Current vs Junction Temperature

## Ordering Information (Note 3)

| Device                        | Packaging | Shipping         |
|-------------------------------|-----------|------------------|
| BAS19-7<br>BAS20-7<br>BAS21-7 | SOT-23    | 3000/Tape & Reel |

Notes: 3. For Packaging Details, go to our website at <http://www.diodes.com/datasheets/ap02007.pdf>.

## Marking Information



XXX = Product Type Marking Code (See Page 1)  
 YM = Date Code Marking  
 Y = Year ex: N = 2002  
 M = Month ex: 9 = September

### Date Code Key

| Year | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 |
|------|------|------|------|------|------|------|------|
| Code | J    | K    | L    | M    | N    | P    | R    |

| 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   |