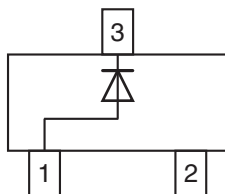


## Small Signal Switching Diodes, High Voltage



### MECHANICAL DATA

**Case:** SOT-23

**Weight:** approx. 8.1 mg

**Packaging codes/options:**

18/10K per 13" reel (8 mm tape), 10K/box

08/3K per 7" reel (8 mm tape), 15K/box

### FEATURES

- Silicon epitaxial planar diode
- Fast switching diode in case SOT-23, especially suited for automatic insertion
- General purpose switching applications
- High conductance
- AEC-Q101 qualified
- Base P/N-G3 - green, commercial grade
- Material categorization:

For definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)



**RoHS**  
COMPLIANT  
HALOGEN  
**FREE**  
**GREEN**  
(5-2008)

### PARTS TABLE

| PART    | TYPE DIFFERENTIATION | ORDERING CODE              | TYPE MARKING | INTERNAL CONSTRUCTION | REMARKS       |
|---------|----------------------|----------------------------|--------------|-----------------------|---------------|
| BAS19-G | $V_R = 100\text{ V}$ | BAS19-G3-08 or BAS19-G3-18 | A8G          | Single diode          | Tape and reel |
| BAS20-G | $V_R = 150\text{ V}$ | BAS20-G3-08 or BAS20-G3-18 | A9G          | Single diode          | Tape and reel |
| BAS21-G | $V_R = 200\text{ V}$ | BAS21-G3-08 or BAS21-G3-18 | AAG          | Single diode          | Tape and reel |

### ABSOLUTE MAXIMUM RATINGS ( $T_{amb} = 25\text{ }^{\circ}\text{C}$ , unless otherwise specified)

| PARAMETER                                                | TEST CONDITION              | PART    | SYMBOL      | VALUE | UNIT |
|----------------------------------------------------------|-----------------------------|---------|-------------|-------|------|
| Continuous reverse voltage                               |                             | BAS19-G | $V_R$       | 100   | V    |
|                                                          |                             | BAS20-G | $V_R$       | 150   | V    |
|                                                          |                             | BAS21-G | $V_R$       | 200   | V    |
| Repetitive peak reverse voltage                          |                             | BAS19-G | $V_{RRM}$   | 120   | V    |
|                                                          |                             | BAS20-G | $V_{RRM}$   | 200   | V    |
|                                                          |                             | BAS21-G | $V_{RRM}$   | 250   | V    |
| Non-repetitive peak forward current                      | $t = 1\text{ }\mu\text{s}$  |         | $I_{FSM}$   | 2.5   | A    |
| Non-repetitive peak forward surge current                | $t = 1\text{ s}$            |         |             | 0.5   |      |
| Maximum average forward rectified current <sup>(1)</sup> | (av. over any 20 ms period) |         | $I_{F(AV)}$ | 200   | mA   |
| DC forward current <sup>(2)</sup>                        |                             |         | $I_F$       | 200   | mA   |
| Repetitive peak forward current                          |                             |         | $I_{FRM}$   | 625   | mA   |
| Power dissipation <sup>(2)</sup>                         |                             |         | $P_{tot}$   | 250   | mW   |

### Notes

<sup>(1)</sup> Measured under pulse conditions; pulse time =  $t_p \leq 0.3\text{ ms}$

<sup>(2)</sup> Device on fiberglass substrate, see layout on next page

| THERMAL CHARACTERISTICS (T <sub>amb</sub> = 25 °C, unless otherwise specified) |                |                   |               |      |
|--------------------------------------------------------------------------------|----------------|-------------------|---------------|------|
| PARAMETER                                                                      | TEST CONDITION | SYMBOL            | VALUE         | UNIT |
| Thermal resistance junction to ambient air <sup>(1)</sup>                      |                | R <sub>thJA</sub> | 430           | K/W  |
| Junction temperature                                                           |                | T <sub>j</sub>    | 150           | °C   |
| Storage temperature range                                                      |                | T <sub>stg</sub>  | - 65 to + 150 | °C   |
| Operating temperature range                                                    |                | T <sub>op</sub>   | - 55 to + 150 | °C   |

### Note

(1) Device on fiberglass substrate, see layout drawing below

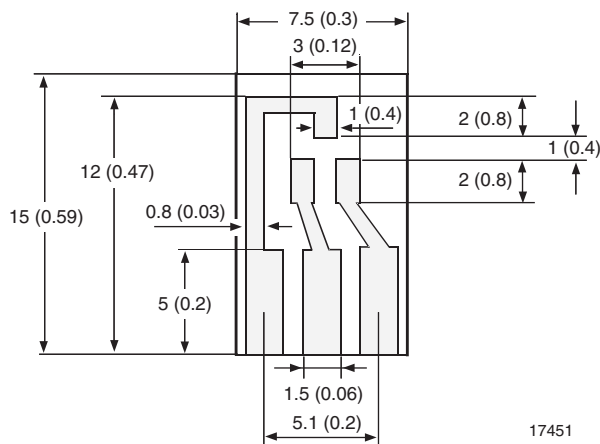
| ELECTRICAL CHARACTERISTICS (T <sub>amb</sub> = 25 °C, unless otherwise specified) |                                                                                           |         |                 |      |      |      |      |
|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------|---------|-----------------|------|------|------|------|
| PARAMETER                                                                         | TEST CONDITION                                                                            | PART    | SYMBOL          | MIN. | TYP. | MAX. | UNIT |
| Forward voltage                                                                   | I <sub>F</sub> = 100 mA                                                                   |         | V <sub>F</sub>  |      |      | 1.0  | V    |
|                                                                                   | I <sub>F</sub> = 200 mA                                                                   |         | V <sub>F</sub>  |      |      | 1.25 | V    |
| Leakage current                                                                   | V <sub>R</sub> = 100 V                                                                    | BAS19-G | I <sub>R</sub>  |      |      | 100  | nA   |
|                                                                                   | V <sub>R</sub> = 150 V                                                                    | BAS20-G | I <sub>R</sub>  |      |      | 100  | nA   |
|                                                                                   | V <sub>R</sub> = 200 V                                                                    | BAS21-G | I <sub>R</sub>  |      |      | 100  | nA   |
|                                                                                   | V <sub>R</sub> = V <sub>Rmax.</sub> , T <sub>J</sub> = 150 °C                             |         | I <sub>R</sub>  |      |      | 100  | μA   |
| Dynamic forward resistance                                                        | I <sub>F</sub> = 10 mA                                                                    |         | r <sub>f</sub>  |      | 5    |      | Ω    |
| Diode capacitance                                                                 | V <sub>R</sub> = 0, f = 1 MHz                                                             |         | C <sub>D</sub>  |      |      | 5    | pF   |
| Reverse recovery time                                                             | I <sub>F</sub> = I <sub>R</sub> = 30 mA, R <sub>L</sub> = 100 Ω,<br>I <sub>R</sub> = 3 mA |         | t <sub>rr</sub> |      |      | 50   | ns   |

### Layout for $R_{thJA}$ test

Thickness:

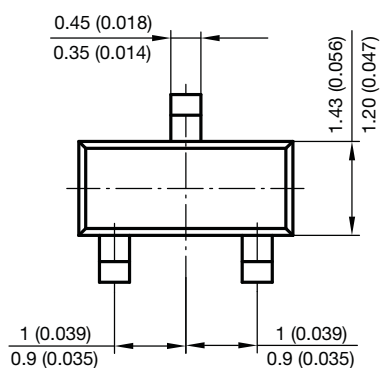
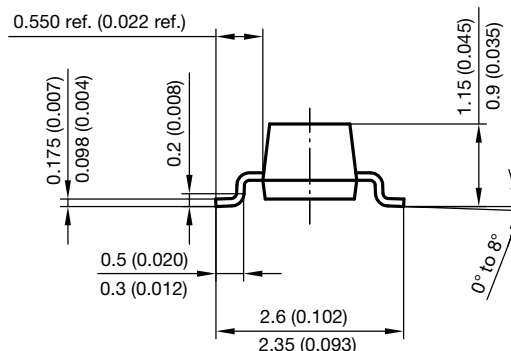
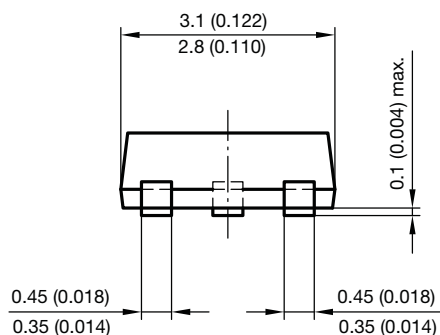
Fiberglass 1.5 mm (0.059 in.)

Copper leads 0.3 mm (0.012 in.)

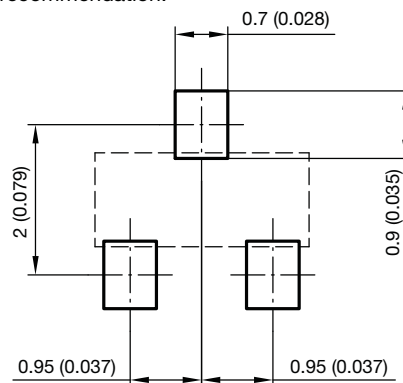




## PACKAGE DIMENSIONS in millimeters (inches): SOT-23



### Foot print recommendation:



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Rev. 8 - Date: 23.Sept.2009  
17418



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