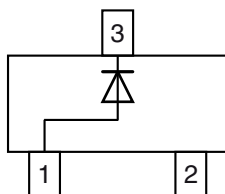
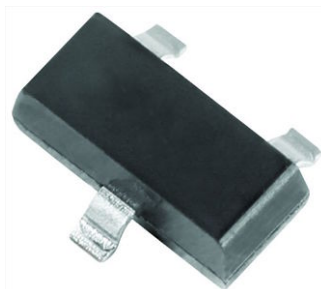


## Small Signal Fast Switching Diode



### FEATURES

- Silicon epitaxial planar diode
- Ultra fast switching speed
- Surface mount package ideally suited for automatic insertion
- High conductance
- AEC-Q101 qualified
- Base P/N-E3 - RoHS-compliant, commercial grade
- Base P/N-HE3 - RoHS-compliant, AEC-Q101 qualified
- Material categorization: For definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)


**RoHS**  
COMPLIANT

### MECHANICAL DATA

**Case:** SOT-23

**Weight:** approx. 8.8 mg

**Packaging codes/options:**

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

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

### PARTS TABLE

| PART  | ORDERING CODE                | INTERNAL CONSTRUCTION | TYPE MARKING | REMARKS       |
|-------|------------------------------|-----------------------|--------------|---------------|
| BAS16 | BAS16-E3-08 or BAS16-E3-18   | Single diode          | B6           | Tape and reel |
|       | BAS16-HE3-08 or BAS16-HE3-18 |                       |              |               |

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

| PARAMETER                                                                                  | TEST CONDITION                                                                                                            | SYMBOL                    | VALUE | UNIT |
|--------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------|---------------------------|-------|------|
| Non repetitive peak reverse voltage                                                        |                                                                                                                           | $V_{RM}$                  | 100   | V    |
| Repetitive peak reverse voltage<br>= working peak reverse voltage<br>= DC blocking voltage |                                                                                                                           | $V_{RRM} = V_{RWM} = V_R$ | 75    | V    |
| Peak forward surge current                                                                 | $t_p = 1\text{ s}$                                                                                                        | $I_{FSM}$                 | 1     | A    |
|                                                                                            | $t_p = 1\text{ }\mu\text{s}$                                                                                              | $I_{FSM}$                 | 2     | A    |
| Average forward current                                                                    | Half wave rectification with resistive load and<br>$f \geq 50\text{ MHz}$ , on ceramic substrate<br>8 mm x 10 mm x 0.7 mm | $I_{F(AV)}$               | 150   | mA   |
| Forward current                                                                            | On ceramic substrate<br>8 mm x 10 mm x 0.7 mm                                                                             | $I_F$                     | 300   | mA   |
| Power dissipation                                                                          | On ceramic substrate<br>8 mm x 10 mm x 0.7 mm                                                                             | $P_{tot}$                 | 350   | mW   |

### THERMAL CHARACTERISTICS ( $T_{amb} = 25^{\circ}\text{C}$ , unless otherwise specified)

| PARAMETER                              | TEST CONDITION                                | SYMBOL          | VALUE         | UNIT               |
|----------------------------------------|-----------------------------------------------|-----------------|---------------|--------------------|
| Junction ambient                       | On ceramic substrate<br>8 mm x 10 mm x 0.7 mm | $R_{thJA}$      | 357           | K/W                |
| Junction and storage temperature range |                                               | $T_j = T_{stg}$ | - 55 to + 150 | $^{\circ}\text{C}$ |
| Operating temperature range            |                                               | $T_{op}$        | - 55 to + 150 | $^{\circ}\text{C}$ |

| <b>ELECTRICAL CHARACTERISTICS</b> ( $T_{amb} = 25\text{ }^{\circ}\text{C}$ , unless otherwise specified) |                                                                                              |          |      |      |       |               |
|----------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|----------|------|------|-------|---------------|
| PARAMETER                                                                                                | TEST CONDITION                                                                               | SYMBOL   | MIN. | TYP. | MAX.  | UNIT          |
| Forward voltage                                                                                          | $I_F = 1\text{ mA}$                                                                          | $V_F$    |      |      | 0.715 | V             |
|                                                                                                          | $I_F = 10\text{ mA}$                                                                         | $V_F$    |      |      | 855   | mV            |
|                                                                                                          | $I_F = 50\text{ mA}$                                                                         | $V_F$    |      |      | 1     | V             |
|                                                                                                          | $I_F = 150\text{ mA}$                                                                        | $V_F$    |      |      | 1.25  | V             |
| Reverse current                                                                                          | $V_R = 75\text{ V}$                                                                          | $I_R$    |      |      | 1     | $\mu\text{A}$ |
|                                                                                                          | $V_R = 75\text{ V}, T_J = 150\text{ }^{\circ}\text{C}$                                       | $I_R$    |      |      | 50    | $\mu\text{A}$ |
|                                                                                                          | $V_R = 25\text{ V}, T_J = 150\text{ }^{\circ}\text{C}$                                       | $I_R$    |      |      | 30    | $\mu\text{A}$ |
| Diode capacitance                                                                                        | $V_R = 0, f = 1\text{ MHz}$                                                                  | $C_D$    |      |      | 4     | pF            |
| Reverse recovery time                                                                                    | $I_F = 10\text{ mA}$ to $i_R = 1\text{ mA}$ ,<br>$V_R = 6\text{ V}, R_L = 100\text{ }\Omega$ | $t_{rr}$ |      |      | 6     | ns            |

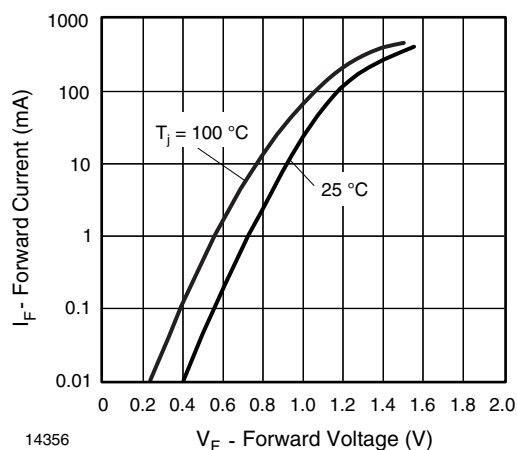
**TYPICAL CHARACTERISTICS** ( $T_{amb} = 25\text{ }^{\circ}\text{C}$ , unless otherwise specified)


Fig. 1 - Forward Current vs. Forward Voltage

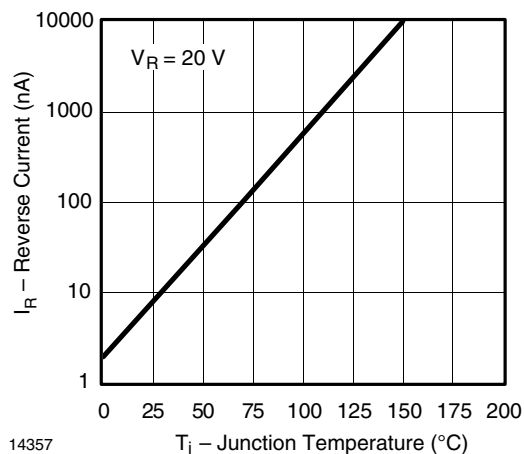
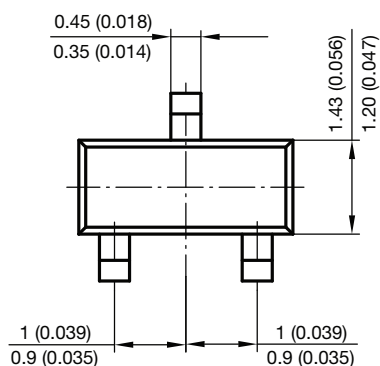
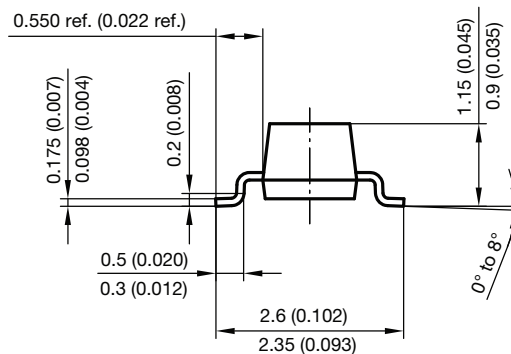
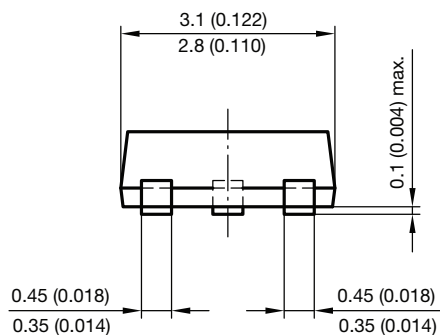


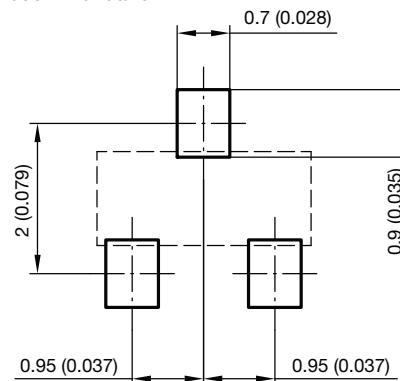
Fig. 2 - Reverse Current vs. Junction Temperature



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



Foot print recommendation:



Document no.: 6.541-5014.01-4  
Rev. 8 - Date: 23.Sept.2009  
17418



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