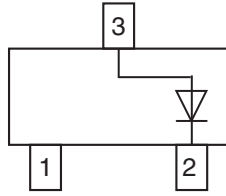


## Small Signal Fast Switching Diode



### FEATURES

- Fast switching speed
- Surface mount package
- Well suited for automated assembly process
- AEC-Q101 qualified available
- 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

**DESIGN SUPPORT TOOLS** click logo to get started



### MECHANICAL DATA

**Case:** SOT-23

**Weight:** approx. 8.8 mg

**Packaging codes / options:**

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

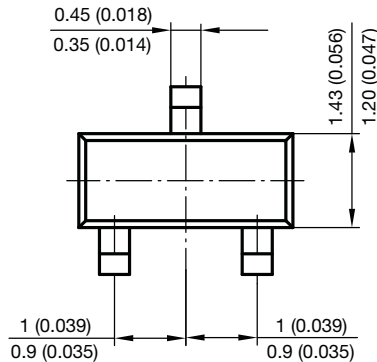
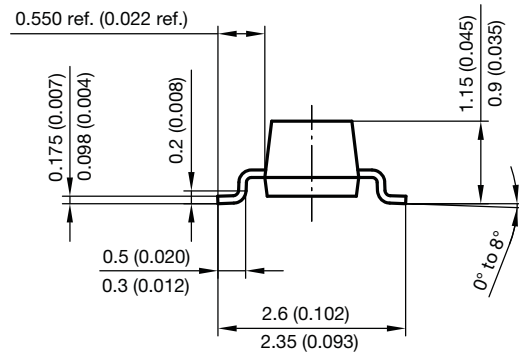
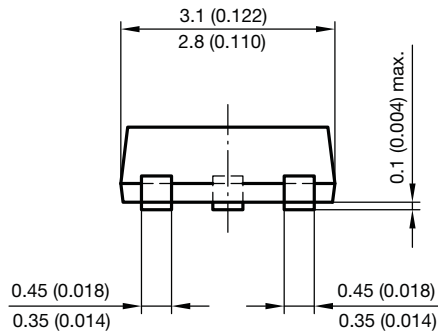
08/3K per 7" reel (8 mm tape), 15K/box

| PARTS TABLE |                              |                       |              |               |
|-------------|------------------------------|-----------------------|--------------|---------------|
| PART        | ORDERING CODE                | CIRCUIT CONFIGURATION | TYPE MARKING | REMARKS       |
| BAL99       | BAL99-E3-08 or BAL99-E3-18   | Single                | JF           | Tape and reel |
|             | BAL99-HE3-08 or BAL99-HE3-18 |                       |              |               |

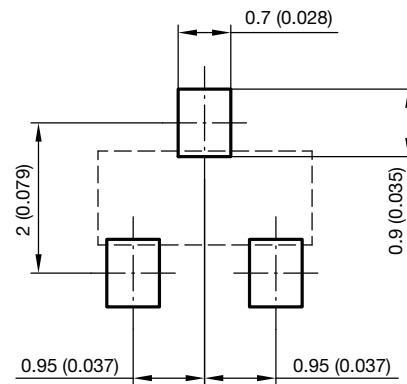
| ABSOLUTE MAXIMUM RATINGS ( $T_{amb} = 25\text{ }^{\circ}\text{C}$ , unless otherwise specified) |   |                           |       |      |
|---|---|---------------------------|-------|------|
| PARAMETER   | TEST CONDITION                                    | SYMBOL                    | VALUE | UNIT |
| Repetitive peak reverse voltage<br>= working peak reverse voltage<br>= DC blocking voltage      |   | $V_{RRM} = V_{RWM} = V_R$ | 70    | V    |
| Peak forward surge current  | $t_p = 1\ \mu\text{s}$                            | $I_{FSM}$                 | 2     | A    |
|   | $t_p = 1\ \text{ms}$                              | $I_{FSM}$                 | 1     | A    |
|   | $t_p = 1\ \text{s}$                               | $I_{FSM}$                 | 0.5   | A    |
| Average forward current   |   | $I_{FAV}$                 | 250   | mA   |
| Power dissipation   | On fiberglass substrate<br>30 mm x 10 mm x 1.6 mm | $P_{tot}$                 | 350   | mW   |

| THERMAL CHARACTERISTICS ( $T_{amb} = 25\text{ }^{\circ}\text{C}$ , unless otherwise specified) |   |            |             |                    |
|--|---|------------|-------------|--------------------|
| PARAMETER  | TEST CONDITION                                    | SYMBOL     | VALUE       | UNIT               |
| Thermal resistance junction to ambient air   | On fiberglass substrate<br>30 mm x 10 mm x 1.6 mm | $R_{thJA}$ | 357         | K/W                |
| Junction temperature   |   | $T_j$      | 150         | $^{\circ}\text{C}$ |
| Storage temperature range  |   | $T_{stg}$  | -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             |
|  | $I_F = 10\text{ mA}$                                   | $V_F$    |      |      | 0.855 | V             |
|  | $I_F = 50\text{ mA}$                                   | $V_F$    |      |      | 1     | V             |
|  | $I_F = 150\text{ mA}$                                  | $V_F$    |      |      | 1.25  | V             |
| Reverse current  | $V_R = 70\text{ V}$                                    | $I_R$    |      |      | 2500  | nA            |
|  | $V_R = 70\text{ V}, T_j = 150\text{ }^{\circ}\text{C}$ | $I_R$    |      |      | 100   | $\mu\text{A}$ |
|  | $V_R = 25\text{ V}, T_j = 150\text{ }^{\circ}\text{C}$ | $I_R$    |      |      | 30    | $\mu\text{A}$ |
| Diode capacitance  | $V_F = V_R = 0, f = 1\text{ MHz}$                      | $C_D$    |      |      | 1.5   | pF            |
| Reverse recovery time  | $I_F = I_R = 10\text{ mA}, i_R = 1\text{ mA}$          | $t_{rr}$ |      |      | 6     | ns            |

**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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