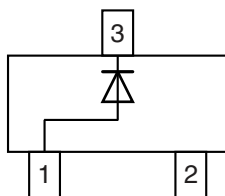


## Small Signal Switching Diode



### FEATURES

- Silicon epitaxial planar diode
- Fast switching diode in case SOT-23, especially suited for automatic insertion.
- 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       |
|----------|------------------------------------|-----------------------|--------------|---------------|
| IMBD4448 | IMBD4448-E3-08 or IMBD4448-E3-18   | Single diode          | A3           | Tape and reel |
|          | IMBD4448-HE3-08 or IMBD4448-HE3-18 |                       |              |               |

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

| PARAMETER                                                                              | TEST CONDITION                                   | SYMBOL      | VALUE | UNIT |
|----------------------------------------------------------------------------------------|--------------------------------------------------|-------------|-------|------|
| Reverse voltage                                                                        |                                                  | $V_R$       | 75    | V    |
| Peak reverse voltage                                                                   |                                                  | $V_{RM}$    | 100   | V    |
| Rectified current (average) half wave rectification with resistive load <sup>(1)</sup> | $f \geq 50 \text{ Hz}$                           | $I_{F(AV)}$ | 150   | mA   |
| Surge forward current                                                                  | $t < 1 \text{ s}$ and $T_J = 25^{\circ}\text{C}$ | $I_{FSM}$   | 500   | mA   |
| Power dissipation <sup>(1)</sup>                                                       |                                                  | $P_{tot}$   | 350   | mW   |

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

| PARAMETER                                                 | TEST CONDITION | SYMBOL     | VALUE         | UNIT               |
|-----------------------------------------------------------|----------------|------------|---------------|--------------------|
| Thermal resistance junction to ambient air <sup>(1)</sup> |                | $R_{thJA}$ | 450           | K/W                |
| Junction temperature                                      |                | $T_J$      | 150           | $^{\circ}\text{C}$ |
| Storage temperature range                                 |                | $T_{stg}$  | - 65 to + 150 | $^{\circ}\text{C}$ |
| Operating temperature range                               |                | $T_{op}$   | - 55 to + 150 | $^{\circ}\text{C}$ |

#### Note

<sup>(1)</sup> Device on fiberglass substrate, see layout on next page.

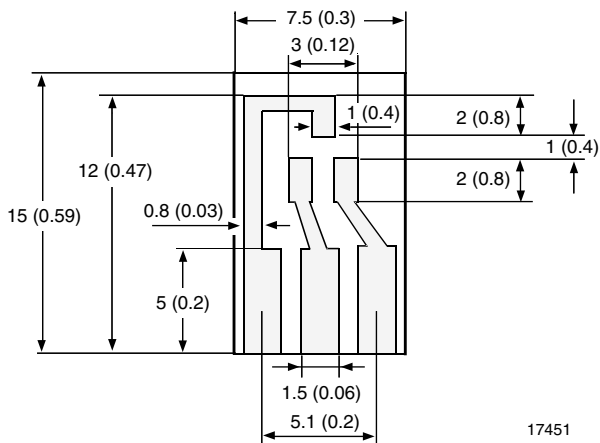
| <b>ELECTRICAL CHARACTERISTICS</b> ( $T_{amb} = 25\text{ }^{\circ}\text{C}$ , unless otherwise specified) |                                                                                              |          |      |      |      |               |
|----------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|----------|------|------|------|---------------|
| PARAMETER                                                                                                | TEST CONDITION                                                                               | SYMBOL   | MIN. | TYP. | MAX. | UNIT          |
| Forward voltage                                                                                          | $I_F = 5\text{ mA}$                                                                          | $V_F$    | 0.62 |      | 0.72 | V             |
|                                                                                                          | $I_F = 100\text{ mA}$                                                                        | $V_F$    |      |      | 1    | V             |
| Leakage current                                                                                          | $V_R = 70\text{ V}$                                                                          | $I_R$    |      |      | 2500 | nA            |
|                                                                                                          | $V_R = 70\text{ V}, T_j = 150\text{ }^{\circ}\text{C}$                                       | $I_R$    |      |      | 50   | $\mu\text{A}$ |
|                                                                                                          | $V_R = 25\text{ V}, T_j = 150\text{ }^{\circ}\text{C}$                                       | $I_R$    |      |      | 30   | $\mu\text{A}$ |
| Diode capacitance                                                                                        | $V_F = V_R = 0\text{ V}$                                                                     | $C_D$    |      |      | 4    | pF            |
| Reverse recovery time                                                                                    | $I_F = 10\text{ mA}$ to $I_R = 1\text{ mA}$ ,<br>$V_R = 6\text{ V}, R_L = 100\text{ }\Omega$ | $t_{rr}$ |      |      | 4    | ns            |

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

Thickness:

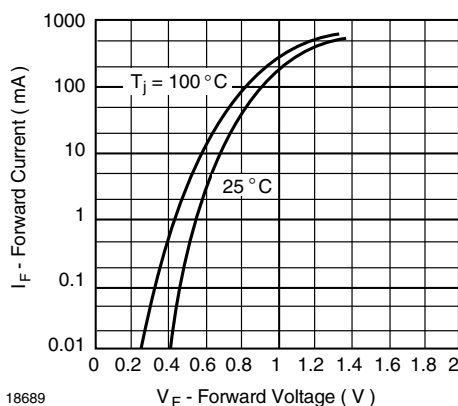
Fiberglass 1.5 mm (0.059 in.)

Copper leads 0.3 mm (0.012 in.)



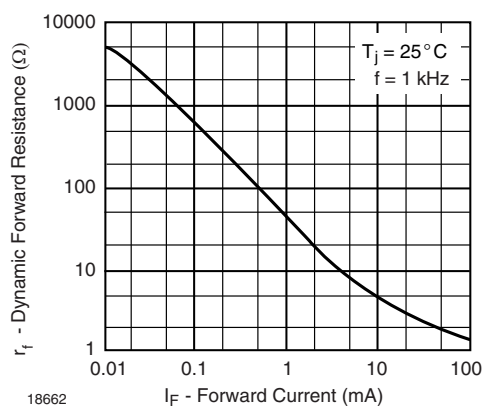
17451

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



18689

Fig. 1 - Forward Current vs. Forward Voltage



18662

Fig. 2 - Dynamic Forward Resistance vs. Forward Current

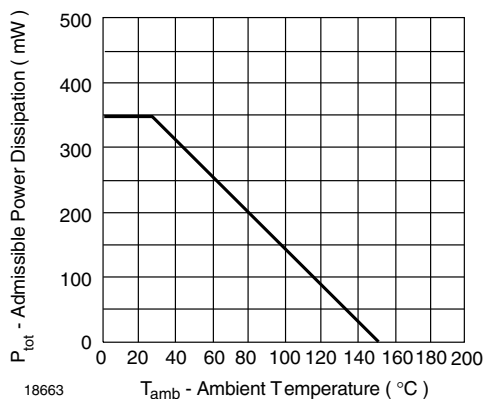


Fig. 3 - Admissible Power Dissipation vs. Ambient Temperature

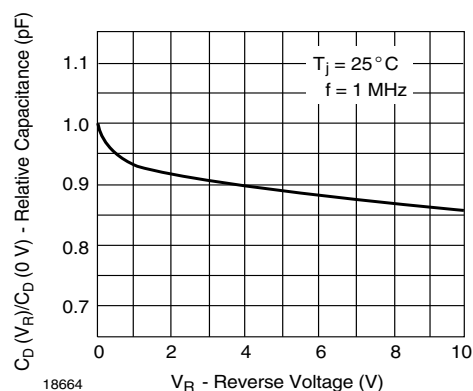


Fig. 4 - Relative Capacitance vs. Reverse Voltage

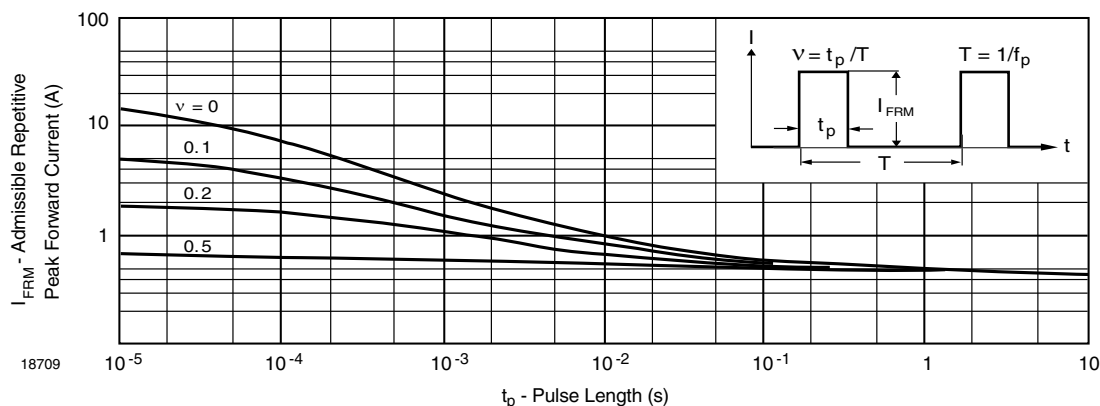
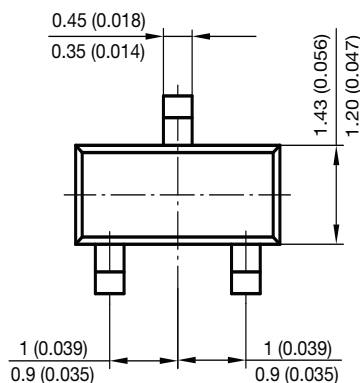
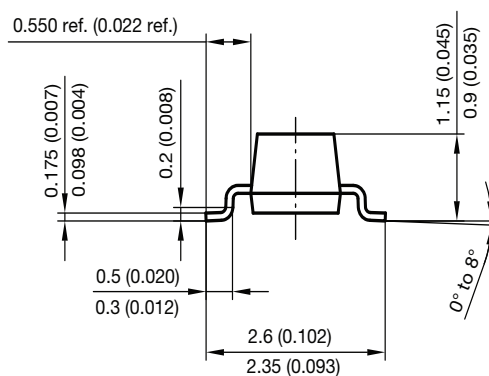
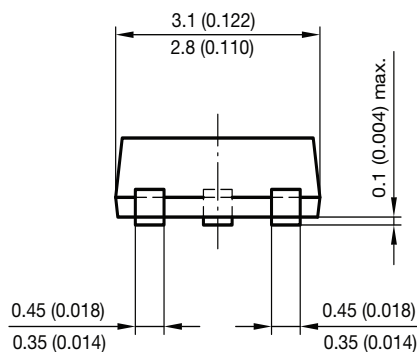


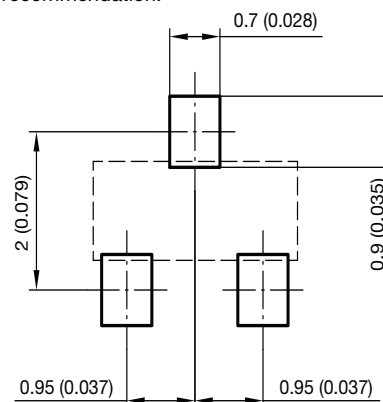
Fig. 5 - Admissible Repetitive Peak Forward Current vs. Pulse Duration



**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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