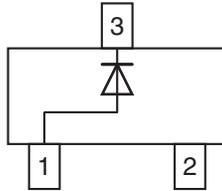


## Small Signal Switching Diode



### FEATURES

- Silicon epitaxial planar diodes
- Fast switching diode in case SOT-23, especially suited for automatic insertion.
- 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       |
| IMBD4148    | IMBD4148-E3-08 or IMBD4148-E3-18   | Single                | A2           | Tape and reel |
|             | IMBD4148-HE3-08 or IMBD4148-HE3-18 |                       |              |               |

| ABSOLUTE MAXIMUM RATINGS ( $T_{amb} = 25\text{ }^{\circ}\text{C}$ , 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 resist. <sup>(1)</sup>                 | $f \geq 50\text{ Hz}$                              | $I_{F(AV)}$ | 150   | mA   |
| Surge forward current   | $t < 1\text{ s}, T_j = 25\text{ }^{\circ}\text{C}$ | $I_{FSM}$   | 500   | mA   |
| Power dissipation <sup>(1)</sup>  | up to $T_{amb} = 25\text{ }^{\circ}\text{C}$       | $P_{tot}$   | 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 <sup>(1)</sup>                                      |                | $R_{thJA}$ | 450         | $^{\circ}\text{C}/\text{W}$ |
| 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

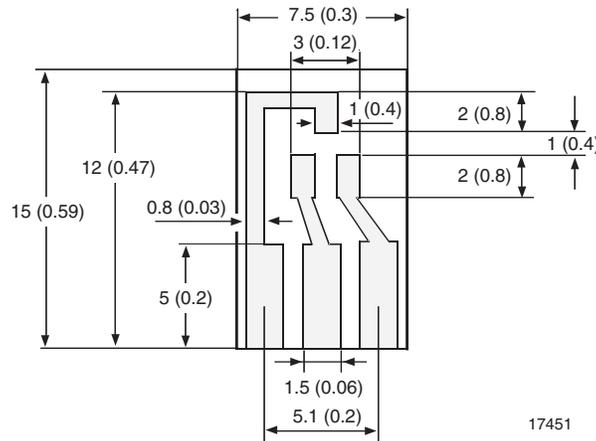
| ELECTRICAL CHARACTERISTICS ( $T_{amb} = 25\text{ }^{\circ}\text{C}$ , unless otherwise specified) |  |          |      |      |      |               |
|---|--|----------|------|------|------|---------------|
| PARAMETER   | TEST CONDITION   | SYMBOL   | MIN. | TYP. | MAX. | UNIT          |
| Forward voltage   | $I_F = 10\text{ mA}$   | $V_F$    |      |      | 1.0  | 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   | $V_F = V_R = 0$  | $C_D$    |      |      | 4    | pF            |
| Reverse recovery time (see figures)   | $I_F = 10\text{ mA}$ 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:

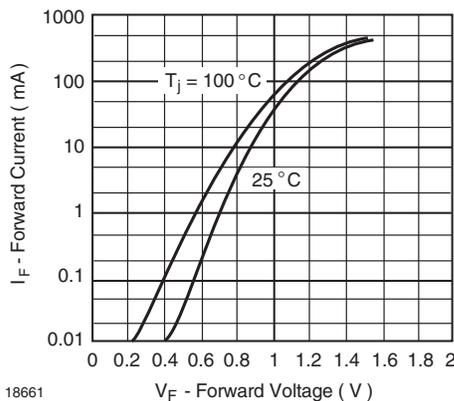
Fiberglass 1.5 mm (0.059 inches)

Copper leads 0.3 mm (0.012 inches)



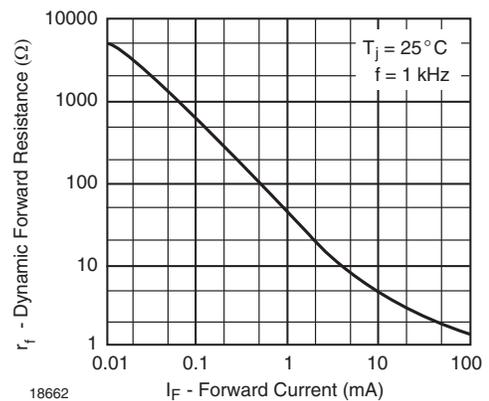
17451

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



18661

Fig. 1 - Forward Current vs. Forward Voltage



18662

Fig. 2 - Dynamic Forward Resistance vs. Forward Current

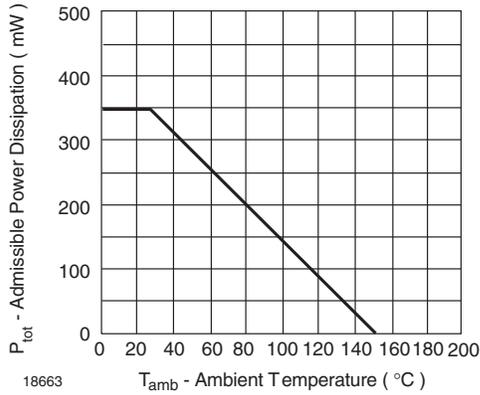


Fig. 3 - Admissible Power Dissipation vs. Ambient Temperature

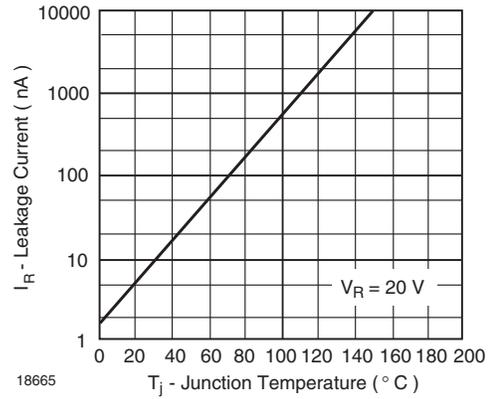


Fig. 5 - Leakage Current vs. Junction Temperature

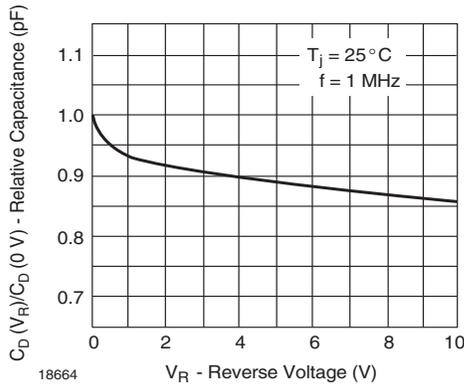


Fig. 4 - Relative Capacitance vs. Reverse Voltage

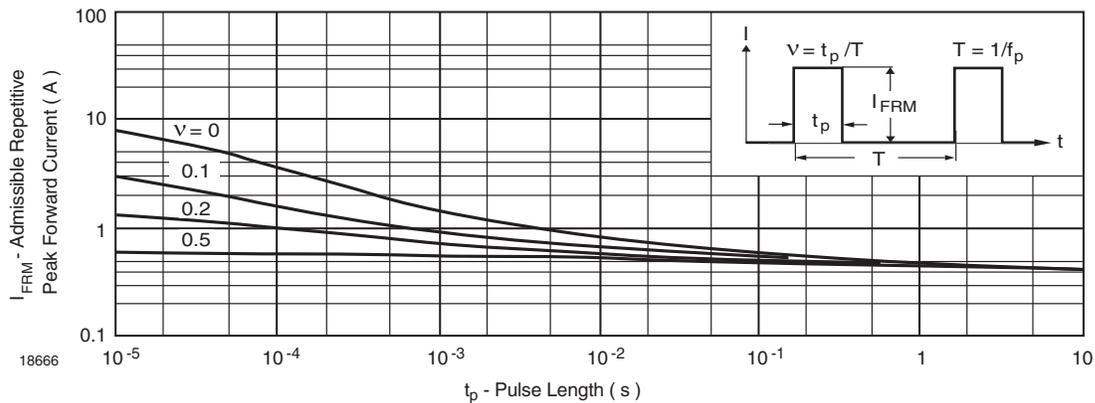
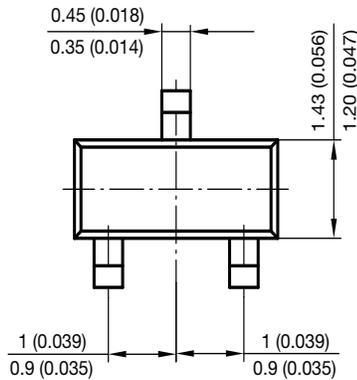
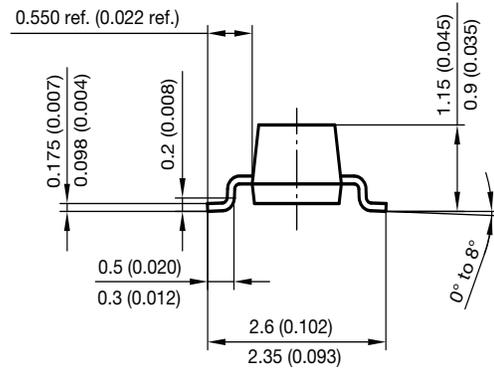
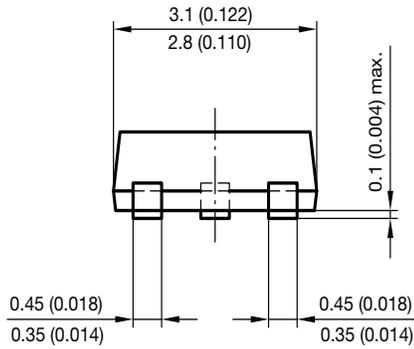


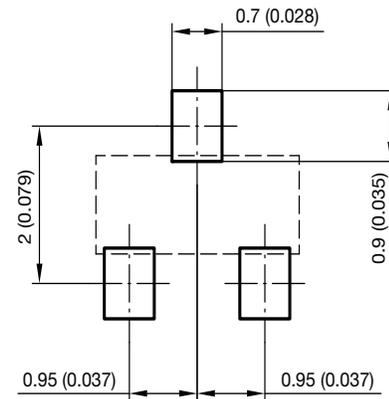
Fig. 6 - Admissible Repetitive Peak Forward Current vs. Pulse Duration



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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