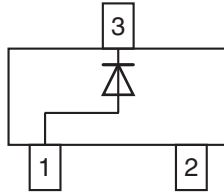


Small Signal Switching Diode



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


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. ⁽¹⁾ | $f \geq 50\text{ Hz}$ | $I_{F(AV)}$ | 150 | mA |
| Surge forward current | $t < 1\text{ s}, T_j = 25\text{ }^{\circ}\text{C}$ | I_{FSM} | 500 | mA |
| Power dissipation ⁽¹⁾ | 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 ⁽¹⁾ | | 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 | $^{\circ}\text{C}$ |

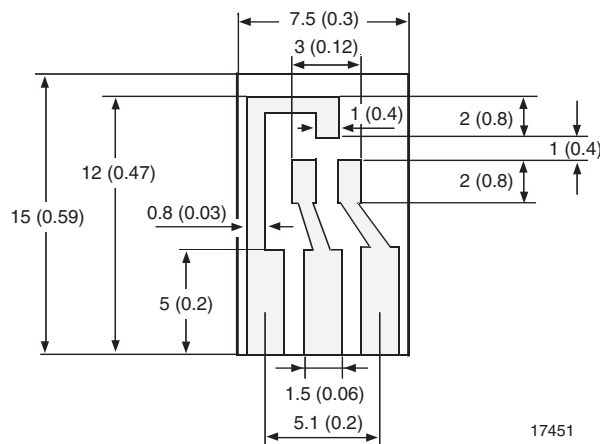
Note

⁽¹⁾ 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 | μA |
| Leakage current | $V_R = 25\text{ V}, T_j = 150\text{ }^{\circ}\text{C}$ | I_R | | | 30 | μA |
| | | | | | | |
| Diode capacitance | $V_F = V_R = 0$ | C_D | | | 4 | pF |
| Reverse recovery time (see figures) | $I_F = 10\text{ mA}$ to $I_R = 1\text{ mA}$, $V_R = 6\text{ V}, R_L = 100\text{ }\Omega$ | t_{rr} | | | 4 | ns |

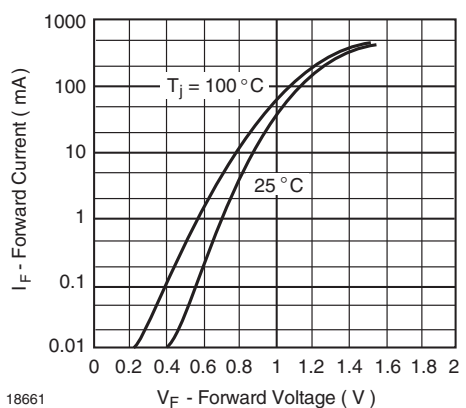
LAYOUT FOR R_{thJA} TEST

Thickness:
 Fiberglass 1.5 mm (0.059 inches)
 Copper leads 0.3 mm (0.012 inches)



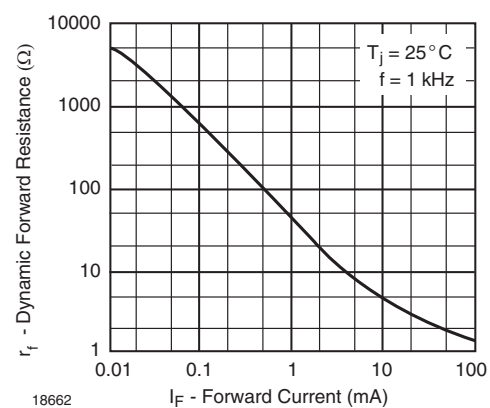
17451

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

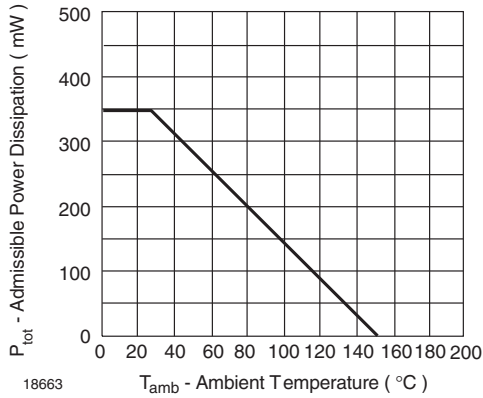


Fig. 3 - Admissible Power Dissipation vs. Ambient Temperature

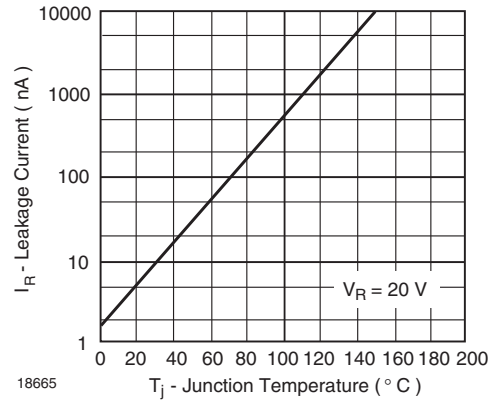


Fig. 5 - Leakage Current vs. Junction Temperature

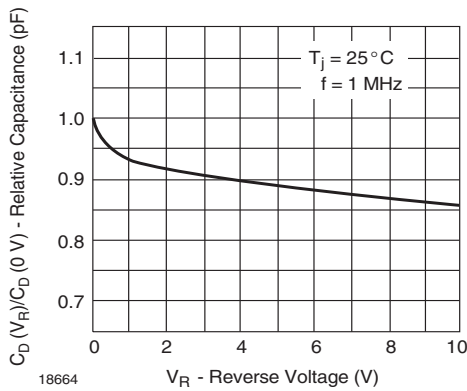


Fig. 4 - Relative Capacitance vs. Reverse Voltage

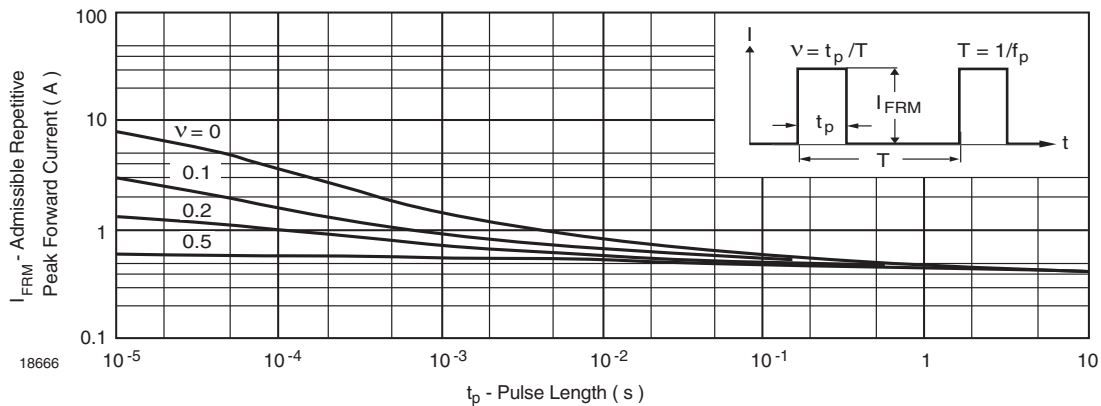
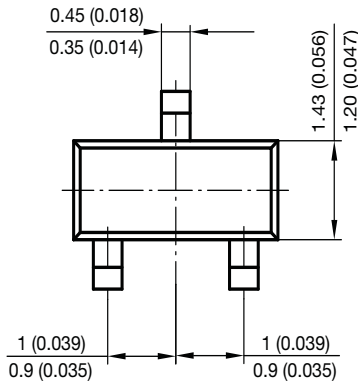
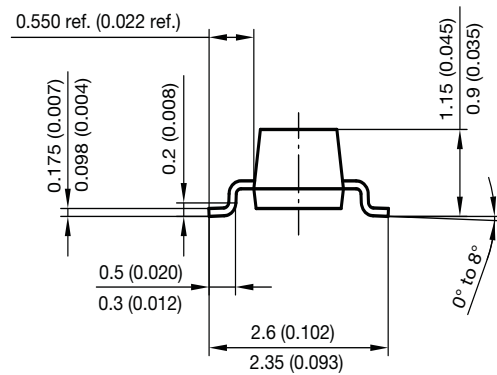
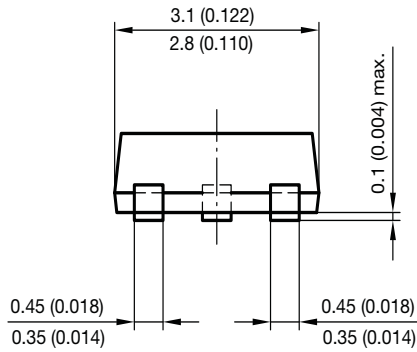


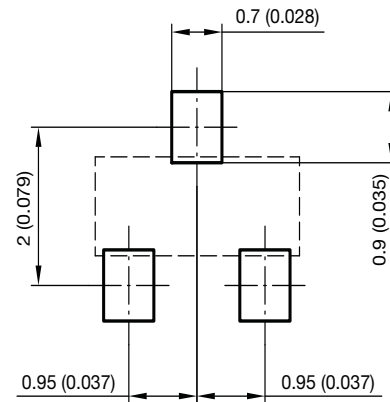
Fig. 6 - Admissible Repetitive Peak Forward Current vs. Pulse Duration



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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