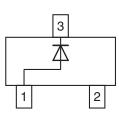
# **IMBD4148**

**Vishay Semiconductors** 



**Small Signal Switching Diode** 





### 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

## 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 RoHS
- Base P/N-HE3 RoHS-compliant, AEC-Q101 qualified
- Material categorization: for definitions of compliance please see <u>www.vishay.com/doc?99912</u>

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	Single	AZ	

<b>ABSOLUTE MAXIMUM RATINGS</b> (T <sub>amb</sub> = 25 °C, unless otherwise specified)					
PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT	
Reverse voltage		V <sub>R</sub>	75	V	
Peak reverse voltage		V <sub>RM</sub>	100	V	
Rectified current (average) half wave rectification with resist. <sup>(1)</sup>	f ≥ 50 Hz	I <sub>F(AV)</sub>	150	mA	
Surge forward current	t < 1 s, T <sub>j</sub> = 25 °C	I <sub>FSM</sub>	500	mA	
Power dissipation <sup>(1)</sup>	up to T <sub>amb</sub> = 25 °C	P <sub>tot</sub>	350	mW	

<b>THERMAL CHARACTERISTICS</b> (T <sub>amb</sub> = 25 °C, unless otherwise specified)					
PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT	
Thermal resistance junction to ambient air (1)		R <sub>thJA</sub>	450	°C/W	
Junction temperature		Тj	150	°C	
Storage temperature range		T <sub>stg</sub>	-65 to +150	°C	
Operating temperature range		T <sub>op</sub>	-55 to +150	°C	

#### Note

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

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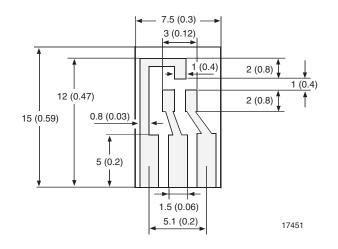
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ELECTRICAL CHARACTERISTICS (T <sub>amb</sub> = 25 °C, unless otherwise specified)						
PARAMETER	TEST CONDITION	SYMBOL	MIN.	TYP.	MAX.	UNIT
Forward voltage	I <sub>F</sub> = 10 mA	V <sub>F</sub>			1.0	V
	V <sub>R</sub> = 70 V	I <sub>R</sub>			2500	nA
Leakage current	V <sub>R</sub> = 70 V, Tj = 150 °C	I <sub>R</sub>			50	μA
	V <sub>R</sub> = 25 V, Tj = 150 °C	I <sub>R</sub>			30	μA
Diode capacitance	$V_F = V_R = 0$	CD			4	pF
Reverse recovery time (see figures)	$I_{F} = 10 \text{ mA to } i_{R} = 1 \text{ mA},$ $V_{R} = 6 \text{ V}, \text{ R}_{L} = 100 \Omega$	t <sub>rr</sub>			4	ns

### LAYOUT FOR R<sub>thJA</sub> TEST

Thickness:

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



TYPICAL CHARACTERISTICS (Tamb = 25 °C, unless otherwise specified)

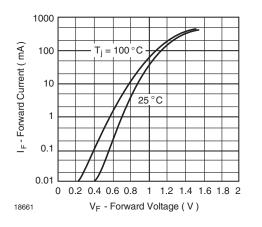


Fig. 1 - Forward Current vs. Forward Voltage

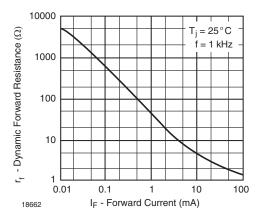
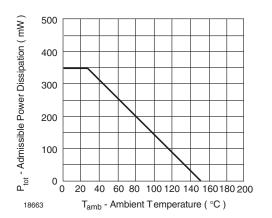


Fig. 2 - Dynamic Forward Resistance vs. Forward Current

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Fig. 3 - Admissible Power Dissipation vs. Ambient Temperature

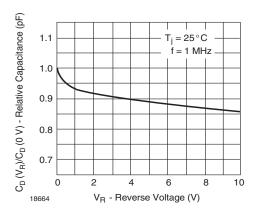


Fig. 4 - Relative Capacitance vs. Reverse Voltage

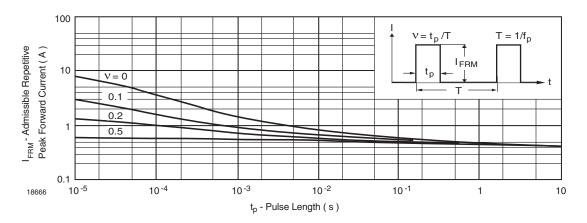


Fig. 6 - Admissible Repetitive Peak Forward Current vs. Pulse Duration

 $(V) = 1000 \\ (V) = 1000 \\ 1000 \\ (V) = 1000 \\ 100 \\ (V) = 100 \\$ 

Fig. 5 - Leakage Current vs. Junction Temperature

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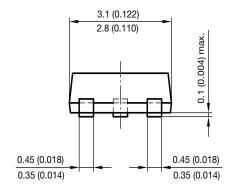
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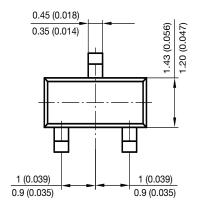
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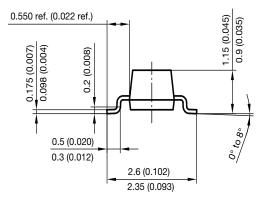


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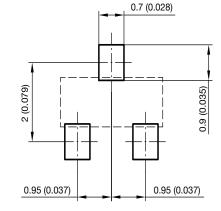
### PACKAGE DIMENSIONS in millimeters (inches): SOT-23







Foot print recommendation:



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 For technical questions within your region:
 DiodesAmericas@vishay.com, DiodesAsia@vishay.com, DiodesEurope@vishay.com

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