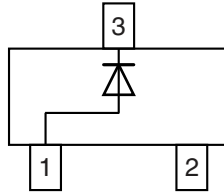


## Small Signal Switching Diode



### FEATURES

- Silicon epitaxial planar diodes
- 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
IMBD4148	IMBD4148-E3-08 or IMBD4148-E3-18	Single diode	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	$^{\circ}\text{C/W}$
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.

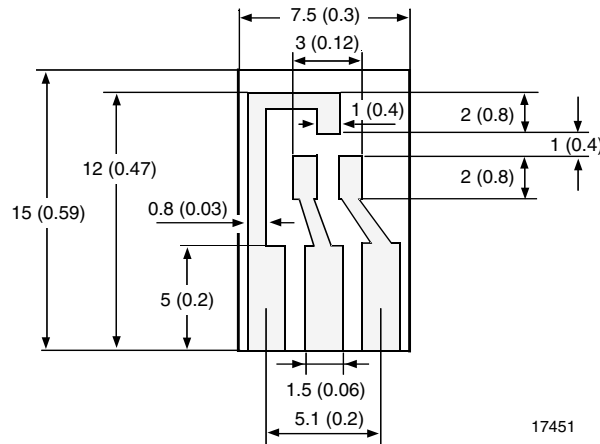
ELECTRICAL CHARACTERISTICS ( $T_{amb} = 25\text{ }^{\circ}\text{C}$ , unless otherwise specified)						
PARAMETER	TEST CONDITION	SYMBOL	MIN.	TYP.	MAX.	UNIT
Forward voltage	$I_F = 10\text{ mA}$	$V_F$			1.0	V
Leakage current	$V_R = 70\text{ V}$	$I_R$			2500	nA
	$V_R = 70\text{ V}, T_j = 150\text{ }^{\circ}\text{C}$	$I_R$			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 $I_R = 1\text{ mA}$ , $V_R = 6\text{ V}, R_L = 100\text{ }\Omega$	$t_{rr}$			4	ns

**LAYOUT FOR  $R_{thJA}$  TEST**

Thickness:

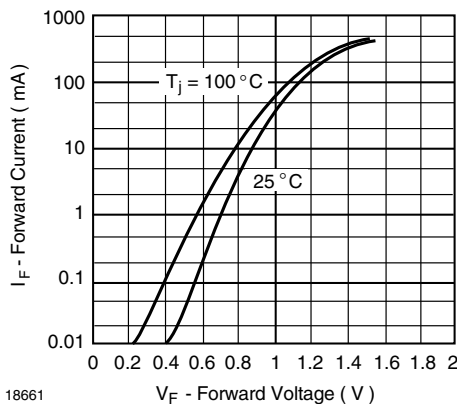
Fiberglass 1.5 mm (0.059 inches)

Copper leads 0.3 mm (0.012 inches)



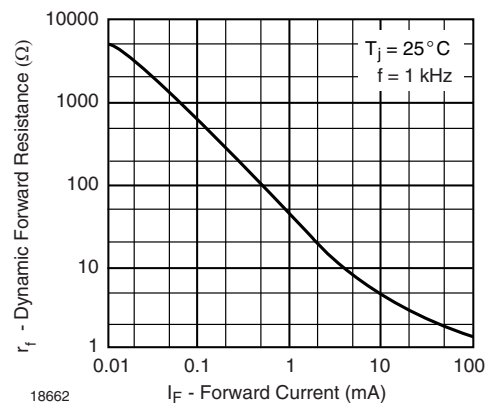
17451

**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

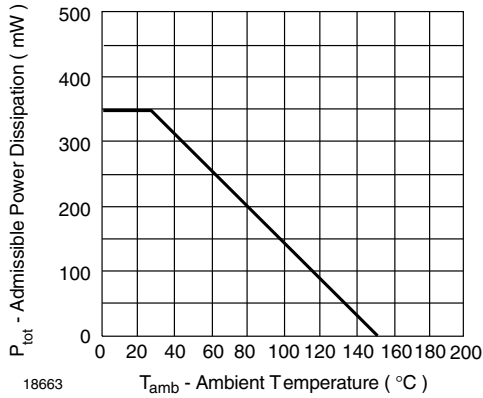


Fig. 3 - Admissible Power Dissipation vs. Ambient Temperature

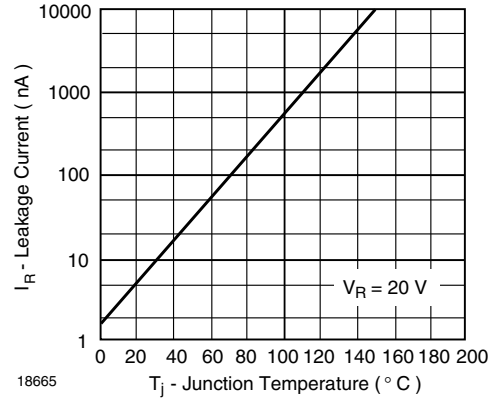


Fig. 5 - Leakage Current vs. Junction Temperature

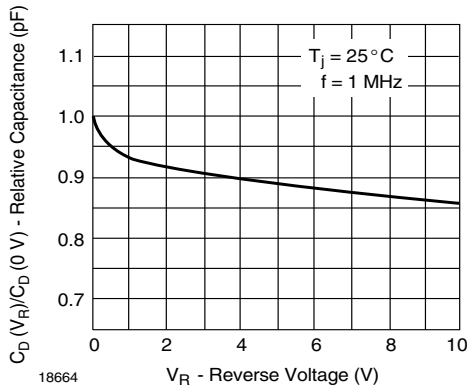


Fig. 4 - Relative Capacitance vs. Reverse Voltage

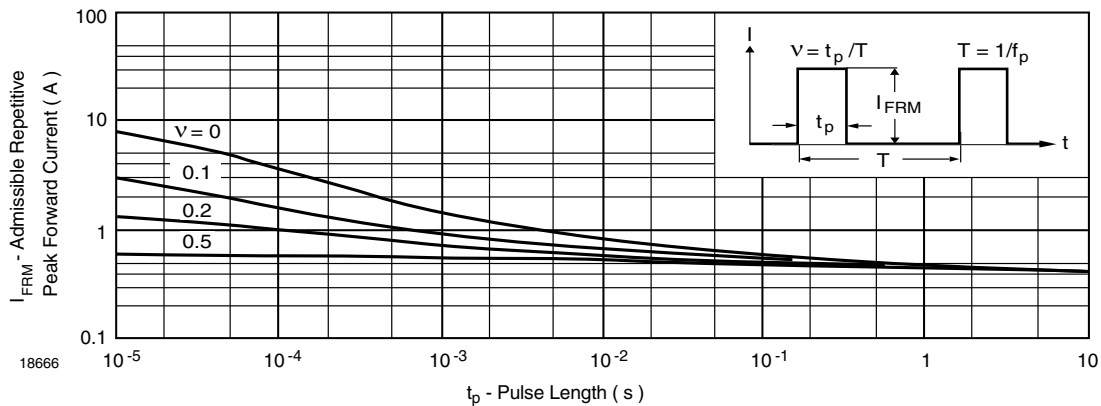
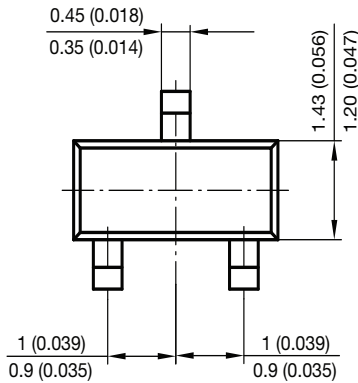
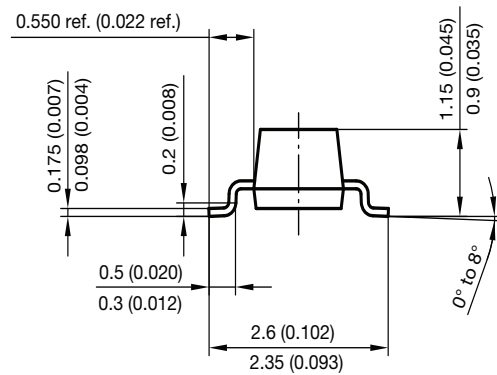
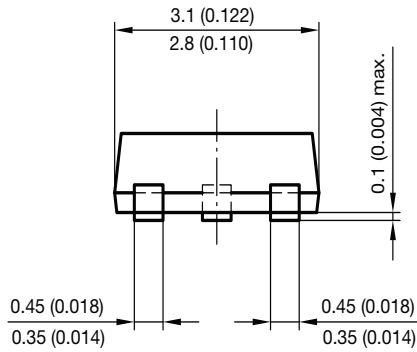


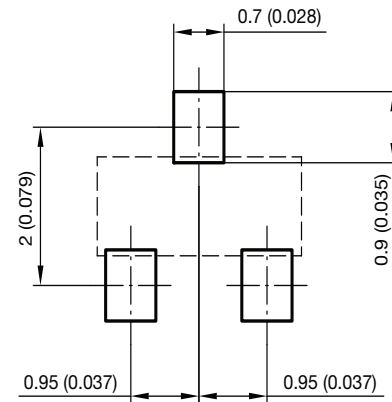
Fig. 6 - Admissible Repetitive Peak Forward Current vs. Pulse Duration



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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Телефон: 8 (812) 309-75-97 (многоканальный)

Факс: 8 (812) 320-03-32

Электронная почта: [ocean@oceanchips.ru](mailto:ocean@oceanchips.ru)

Web: <http://oceanchips.ru/>

Адрес: 198099, г. Санкт-Петербург, ул. Калинина, д. 2, корп. 4, лит. А