**New Product** 



## SB1H90, SB1H100

Vishay General Semiconductor

## **High-Voltage Schottky Rectifier**

High Barrier Technology for Improved High Temperature Performance



1.0 A

90 V, 100 V

50 A

0.62 V

1.0 µA

175 °C

**PRIMARY CHARACTERISTICS** 

I<sub>F(AV)</sub>

V<sub>RRM</sub>

I<sub>FSM</sub>

 $V_{\mathsf{F}}$ 

 $I_R$ 

T<sub>.1</sub> max.

## FEATURES

- High barrier technology for improved high  $T_{\rm J}$
- Guardring for overvoltage protection
- Low power losses and high efficiency
- Low forward voltage drop
- Very low leakage current
- High forward surge capability
- High frequency operation
- Solder dip 275 °C max. 10 s, per JESD 22-B106
- AEC-Q101 qualified
- Compliant to RoHS directive 2002/95/EC and in accordance to WEEE 2002/96/EC

### **TYPICAL APPLICATIONS**

For use in middle voltage high frequency inverters, freewheeling, dc-to-dc converters and polarity protection applications.

### **MECHANICAL DATA**

**Case:** DO-204AL (DO-41)

Molding compound meets UL 94 V-0 flammability rating Base P/N-E3 - RoHS compliant, commercial grade Base P/NHE3 - RoHS compliant, AEC-Q101 qualified

**Terminals:** Matte tin plated leads, solderable per J-STD-002 and JESD 22-B102

E3 suffix meets JESD 201 class 1A whisker test, HE3 suffix meets JESD 201 class 2 whisker test

Polarity: Color band denotes the cathode end

<b>MAXIMUM RATINGS</b> (T <sub>A</sub> = 25 °C unless otherwise noted)					
PARAMETER	SYMBOL	SB1H90	SB1H100	UNIT	
Maximum repetitive peak reverse voltage	V <sub>RRM</sub>	90	V		
Maximum RMS voltage	V <sub>RMS</sub>	63 70		V	
Maximum DC blocking voltage	V <sub>DC</sub>	90	100	V	
Maximum average forward rectified current	I <sub>F(AV)</sub>	1.0		А	
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	I <sub>FSM</sub>	50		A	
Voltage rate of change (rated V <sub>R</sub> )	dV/dt	10 000		V/µs	
Peak repetitive reverse surge current at $t_p$ = 2.0 µs, 1 kHz	I <sub>RRM</sub>	1.0		А	
Maximum operating junction temperature	TJ	175		°C	
Storage temperature range	T <sub>STG</sub>	- 55 to + 175			

e3 RoHS

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<b>ELECTRICAL CHARACTERISTICS</b> ( $T_A = 25 \text{ °C}$ unless otherwise noted)							
PARAMETER	TEST CONDITIONS		SYMBOL	SB1H90	SB1H100	UNIT	
Maximum instantaneous forward voltage	I <sub>F</sub> = 1.0 A	T <sub>J</sub> = 25 °C	V <sub>F</sub> <sup>(1)</sup>	0.77		V	
		T <sub>J</sub> = 125 °C		0.62			
	I <sub>F</sub> = 2.0 A	T <sub>J</sub> = 25 °C		0.86			
		T <sub>J</sub> = 125 °C		0.70			
Maximum reverse current at rated $V_{R}$		T <sub>J</sub> = 25 °C	I <sub>R</sub> (2)	1	.0	μA	
		T <sub>J</sub> = 125 °C		0	.5	mA	

#### Notes

 $^{(1)}\,$  Pulse test: 300 ms pulse width, 1 % duty cycle

<sup>(2)</sup> Pulse test: Pulse width  $\leq$  40 ms

<b>THERMAL CHARACTERISTICS</b> ( $T_A = 25 \text{ °C}$ unless otherwise noted)						
PARAMETER	SYMBOL	3OL SB1H90 SB1H100		UNIT		
Maximum thermal resistance	R <sub>0JA</sub> <sup>(1)</sup>	57		°C/W		
	R <sub>θJL</sub> <sup>(1)</sup>	15				

### Note

 $^{(1)}\,$  P.C.B. mounted with 0.2" x 0.2" (5.0 mm x 5.0 mm) copper pad areas

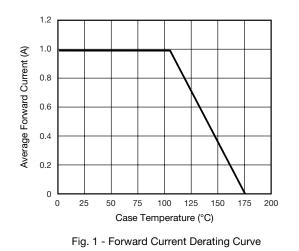
ORDERING INFORMATION (Example)						
PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE		
SB1H100-E3/54	0.34	54	5500	13" diameter paper tape and reel		
SB1H100-E3/73	0.34	73	3000	Ammo pack packaging		
SB1H100HE3/54 (1)	0.34	54	5500	13" diameter paper tape and reel		
SB1H100HE3/73 (1)	0.34	73	3000	Ammo pack packaging		

#### Note

(1) AEC-Q101 qualified

### **RATINGS AND CHARACTERISTICS CURVES**

(T<sub>A</sub> = 25 °C unless otherwise noted)



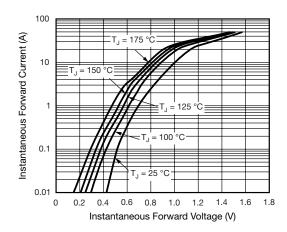


Fig. 2 - Typical Instantaneous Forward Characteristics

For technical questions within your region, please contact one of the following: <u>DiodesAmericas@vishay.com</u>, <u>DiodesAsia@vishay.com</u>, <u>DiodesEurope@vishay.com</u>



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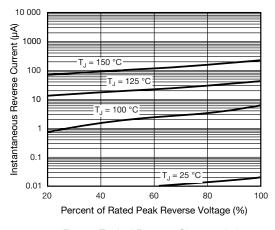


Fig. 3 - Typical Reverse Characteristics

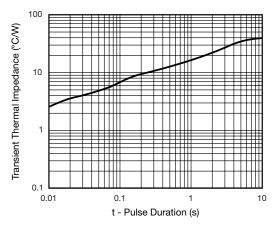


Fig. 5 - Typical Transient Thermal Impedance

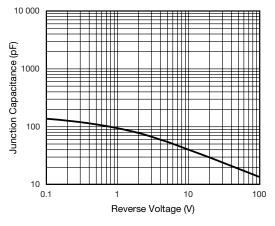
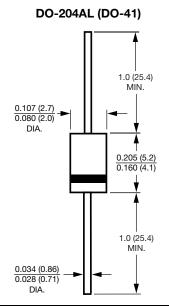


Fig. 4 - Typical Junction Capacitance

### **PACKAGE OUTLINE DIMENSIONS** in inches (millimeters)





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