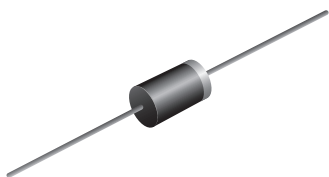




## High-Voltage Schottky Rectifier

High Barrier Technology for Improved High Temperature Performance



DO-201AD

### FEATURES

- Guardring for overvoltage protection
- Low power losses and high efficiency
- Low forward voltage drop
- 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



RoHS  
COMPLIANT

### PRIMARY CHARACTERISTICS

$I_{F(AV)}$	3.0 A
$V_{RRM}$	90 V, 100 V
$I_{FSM}$	100 A
$V_F$	0.65 V
$I_R$	20 $\mu$ A
$T_J$ max.	175 °C

### TYPICAL APPLICATIONS

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

### MECHANICAL DATA

**Case:** DO-201AD

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

### MAXIMUM RATINGS ( $T_A = 25$ °C unless otherwise noted)

PARAMETER	SYMBOL	SB3H90	SB3H100	UNIT
Maximum repetitive peak reverse voltage	$V_{RRM}$	90	100	V
Maximum working reverse voltage	$V_{RWM}$	90	100	V
Maximum DC blocking voltage	$V_{DC}$	90	100	V
Maximum average forward rectified current at $T_L = 90$ °C	$I_{F(AV)}$	3.0		A
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	$I_{FSM}$	100		A
Peak repetitive reverse surge current at $t_p = 2.0$ $\mu$ s, 1 kHz	$I_{RRM}$	1.0		A
Critical rate of rise of reverse voltage	dV/dt	10 000		V/ $\mu$ s
Storage temperature range	$T_{STG}$	- 55 to + 175		°C
Maximum operating junction temperature	$T_J$	175		°C

# SB3H90, SB3H100

Vishay General Semiconductor



ELECTRICAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted)					
PARAMETER	TEST CONDITIONS	SYMBOL	SB3H90	SB3H100	UNIT
Maximum instantaneous forward voltage	I <sub>F</sub> = 3.0 A	T <sub>J</sub> = 25 °C	0.80		V
		T <sub>J</sub> = 125 °C	0.65		
Maximum reverse current at rated V <sub>R</sub>		T <sub>J</sub> = 25 °C	20		μA
		T <sub>J</sub> = 125 °C	4.0		mA

**Notes**

- (1) Pulse test: 300 μs pulse width, 1 % duty cycle
- (2) Pulse test: Pulse width ≤ 40 ms

THERMAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted)				
PARAMETER	SYMBOL	SB3H90	SB3H100	UNIT
Maximum thermal resistance	R <sub>θJA</sub> (1)	50		°C/W
	R <sub>θJL</sub> (1)	20		

**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
SB3H100-E3/54	1.09	54	1400	13" diameter paper tape and reel
SB3H100-E3/73	1.09	73	1000	Ammo pack packaging
SB3H100HE3/54 (1)	1.09	54	1400	13" diameter paper tape and reel
SB3H100HE3/73 (1)	1.09	73	1000	Ammo pack packaging

**Note**

- (1) AEC-Q101 qualified

## RATINGS AND CHARACTERISTICS CURVES

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

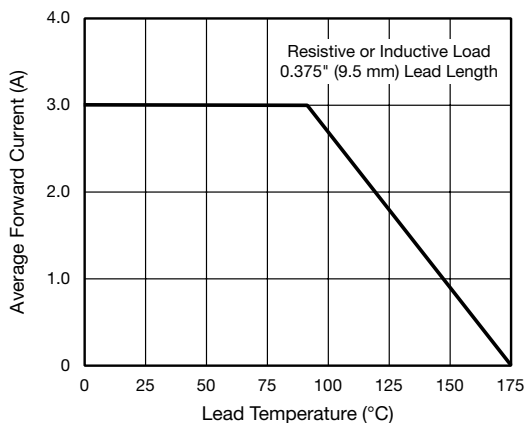


Fig. 1 - Forward Current Derating Curve

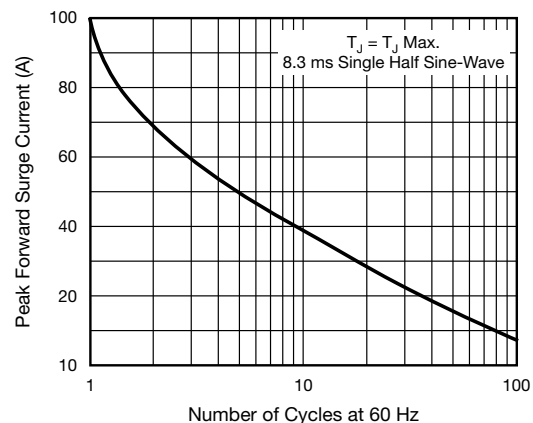


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

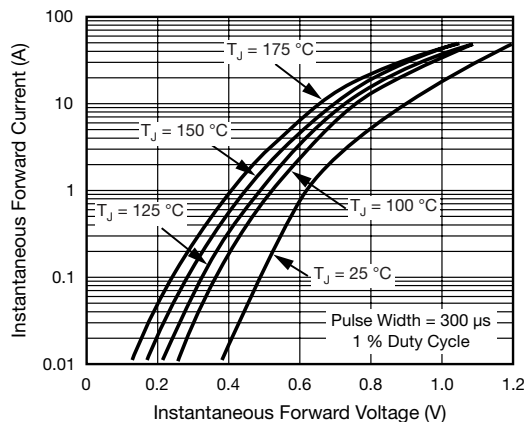


Fig. 3 - Typical Instantaneous Forward Characteristics

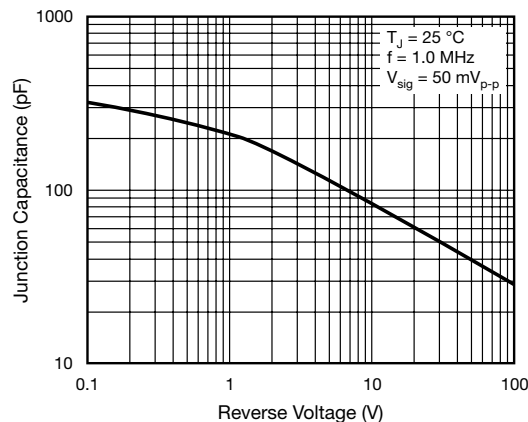


Fig. 5 - Typical Junction Capacitance

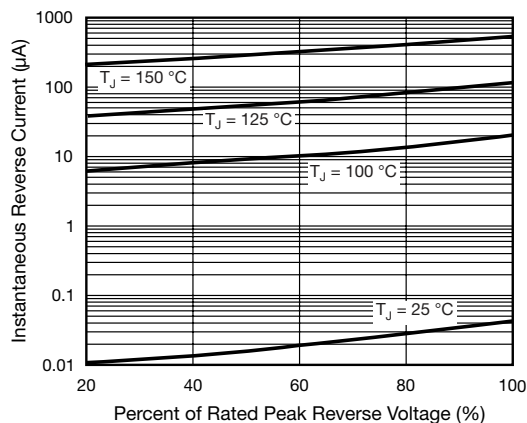


Fig. 4 - Typical Reverse Characteristics

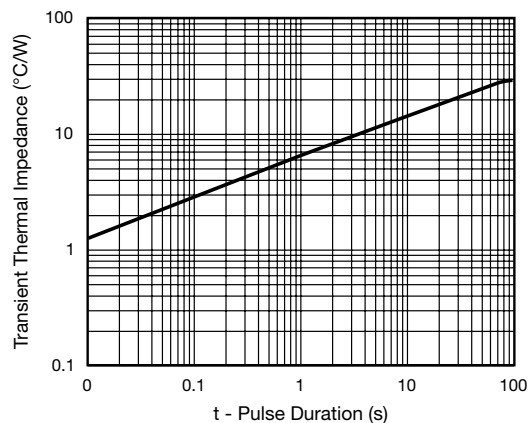
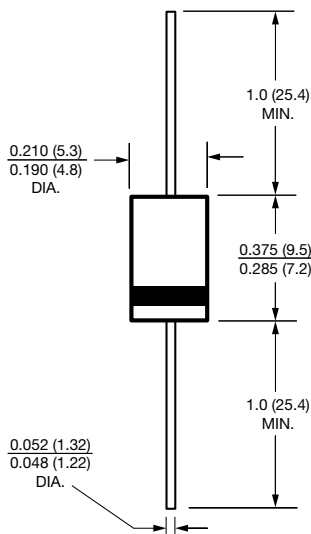


Fig. 6 - Typical Transient Thermal Impedance

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

**DO-201AD**





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