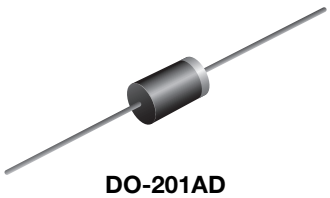
SB3H90, SB3H100

Vishay General Semiconductor

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 capabilitmy
- 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

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

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 µA
T_J max.	175 °C

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 µs, 1 kHz	I_{RRM}	1.0		A
Critical rate of rise of reverse voltage	dV/dt	10 000		V/µs
Storage temperature range	T_{STG}	- 55 to + 175		°C
Maximum operating junction temperature	T_J	175		°C

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ELECTRICAL CHARACTERISTICS (T_A = 25 °C unless otherwise noted)						
PARAMETER	TEST CONDITIONS		SYMBOL	SB3H90	SB3H100	UNIT
Maximum instantaneous forward voltage	I_F = 3.0 A	T_J = 25 °C	V_F (1)	0.80		V
		T_J = 125 °C		0.65		
Maximum reverse current at rated V_R		T_J = 25 °C	I_R (2)	20		μA
		T_J = 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_A = 25 °C unless otherwise noted)				
PARAMETER	SYMBOL	SB3H90	SB3H100	UNIT
Maximum thermal resistance	$R_{\theta JA}$ (1)	50		°C/W
	$R_{\theta JL}$ (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_A = 25 °C unless otherwise noted)

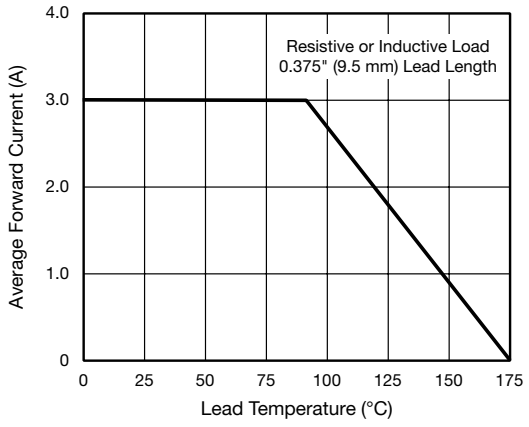

Fig. 1 - Forward Current Derating Curve

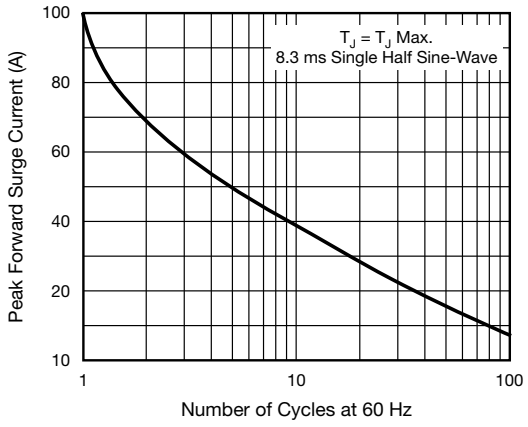

Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

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Document Number: 88720
Revision: 04-Aug-09

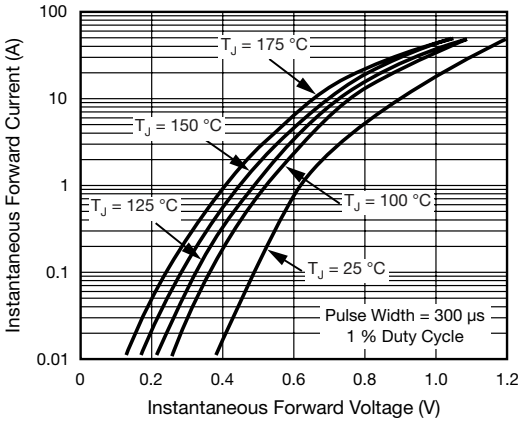


Fig. 3 - Typical Instantaneous Forward Characteristics

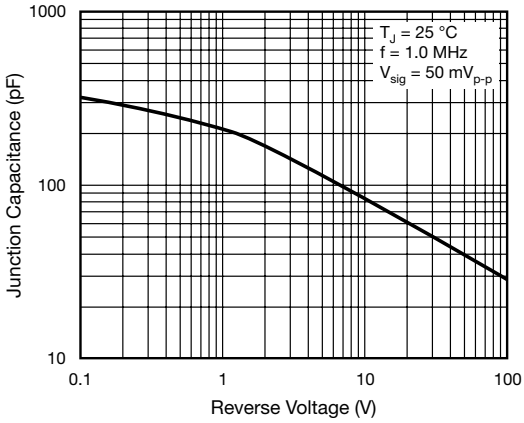


Fig. 5 - Typical Junction Capacitance

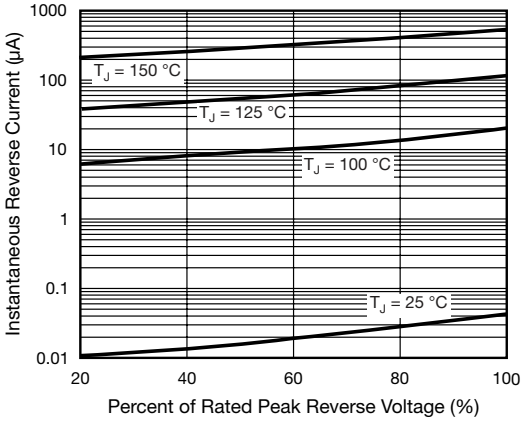


Fig. 4 - Typical Reverse Characteristics

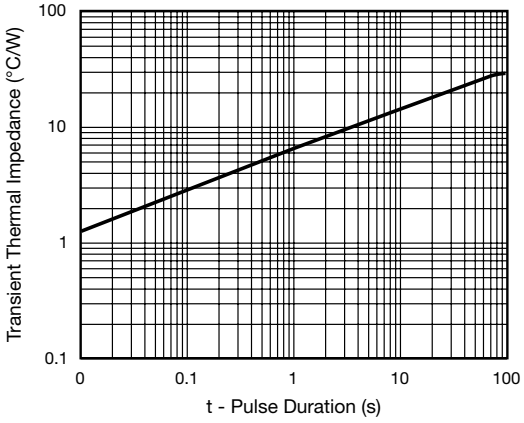
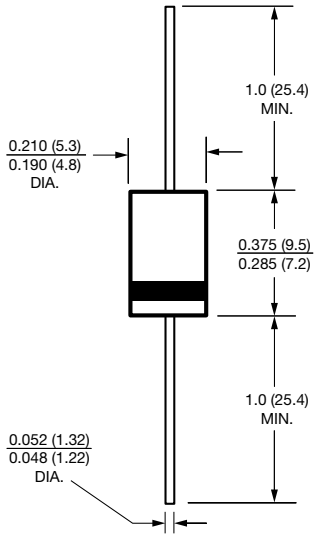


Fig. 6 - Typical Transient Thermal Impedance

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

DO-201AD



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