Vishay General Semiconductor

High Voltage Schottky Plastic Rectifier

High Barrier Technology for Improved High Temperature Performance



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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				
Package	DO-201AD				
Diode variations	Single				

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
- Material categorization: For definitions of compliance please see <u>www.vishay.com/doc?99912</u>

TYPICAL APPLICATIONS

For use in middle voltage high frequency inverters, freewheeling, DC/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

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

E3 suffix meets JESD 201 class 1A whisker test

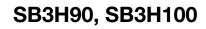
Polarity: Color band denotes the cathode end

MAXIMUM RATINGS ($T_A = 25 \text{ °C}$ 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		А	
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	TJ	175		°C	



COMPLIANT

1





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ELECTRICAL CHARACTERISTICS ($T_A = 25 \text{ °C}$ 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
	$I_{\rm F} = 3.0 \rm{A}$	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	'R (=)	4.0		mA

Notes

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

⁽²⁾ Pulse test: Pulse width \leq 40 ms

THERMAL CHARACTERISTICS ($T_A = 25 \text{ °C}$ unless otherwise noted)					
PARAMETER	SYMBOL	. SB3H90 SB3H100		UNIT	
Maximum thermal resistance	R _{0JA} ⁽¹⁾	50		°C/W	
	R _{0JL} ⁽¹⁾	20			

Note

⁽¹⁾ PCB 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		

RATINGS AND CHARACTERISTICS CURVES

(T_A = 25 °C unless otherwise noted)

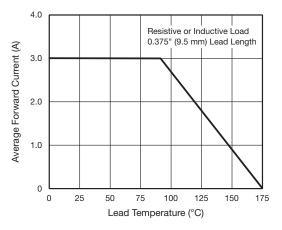


Fig. 1 - Forward Current Derating Curve

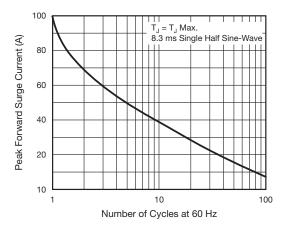


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

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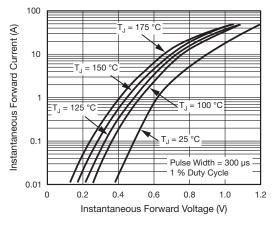


Fig. 3 - Typical Instantaneous Forward Characteristics

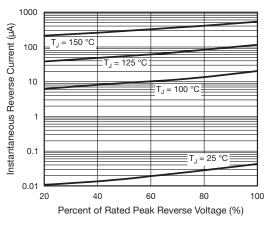


Fig. 4 - Typical Reverse Characteristics

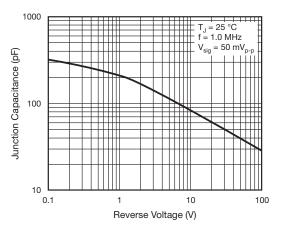


Fig. 5 - Typical Junction Capacitance

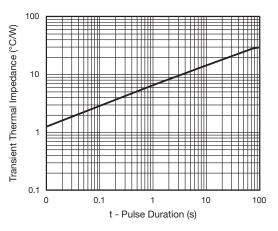
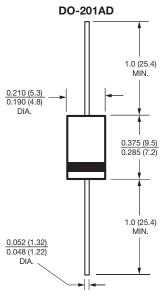


Fig. 6 - Typical Transient Thermal Impedance

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)



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