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Vishay General Semiconductor

High Voltage Schottky Plastic Rectifier

High Barrier Technology for Improved High Temperature Performance



PRIMARY CHARACTERISTICS				
I _{F(AV)}	5.0 A			
V_{RRM}	90 V, 100 V			
I _{FSM}	200 A			
V _F	0.70 V			
I _R	200 μΑ			
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 capability
- 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 °C unless otherwise noted)					
PARAMETER	SYMBOL	SB5H90	SB5H100	UNIT	
Maximum repetitive peak reverse voltage	V _{RRM}	90	100	V	
Working peak reverse voltage	V _{RWM}	90	100	V	
Maximum DC blocking voltage	V _{DC}	90	100	V	
Maximum average forward rectified current at T _C = 80 °C	I _{F(AV)}	5.0		Α	
Peak forward surge current, 8.3 ms single half sine-wave superimposed on rated load	I _{FSM}	200		А	
Peak repetitive reverse surge current at t _p = 2.0 µs, 1 kHz	I _{RRM}	1.0		Α	
Storage temperature range	T _{STG}	- 55 to + 175		°C	
Maximum operating junction temperature	TJ	17	°C		



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ELECTRICAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted)						
PARAMETER	TEST CONDITIONS		SYMBOL	SB5H90	SB5H100	UNIT
Maximum instantaneous forward voltage	I _F = 5.0 A	T _A = 25 °C	V _F ⁽¹⁾	0.80 0.70		V
Maximum instantaneous forward voltage		T _A = 125 °C				
Maximum rayaraa aurrant at rated V		T _A = 25 °C	I _R (2)	200		μΑ
Maximum reverse current at rated V _R		T _A = 125 °C	IR (=)	1	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 SB5H90 SB5H100					
Maximum thermal resistance	R _{0JA} (1)	25		°C/W	
Maximum thermal resistance	R ₀ JL (1)	8		C/VV	

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)	PPREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE		
SB5H100-E3/54	1.1	54	1400	13" diameter paper tape and reel		
SB5H100-E3/73	1.1	73	1000	Ammo pack packaging		

RATINGS AND CHARACTERISTICS CURVES

(T_A = 25 °C unless otherwise noted)

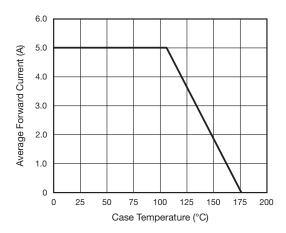


Fig. 1 - Forward Current Derating Curve

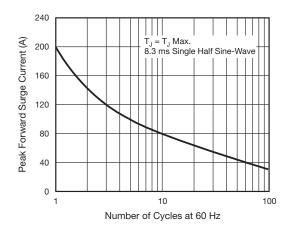


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

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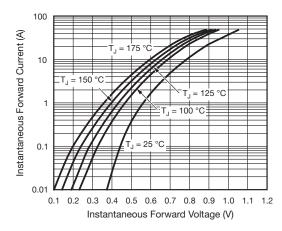


Fig. 3 - Typical Instantaneous Forward Characteristics

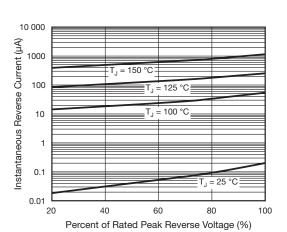


Fig. 4 - Typical Reverse Characteristics

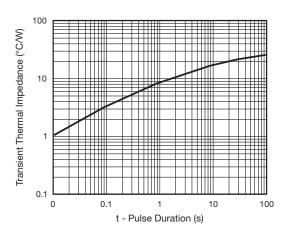


Fig. 5 - Typical Transient Thermal Impedance

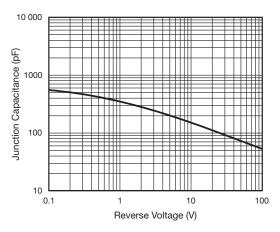
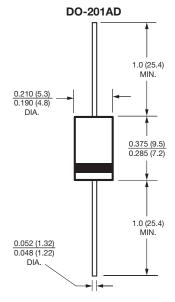


Fig. 6 - Typical Junction Capacitance

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)





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