

## High Voltage Schottky Plastic 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
- Material categorization: For definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)



**RoHS**  
COMPLIANT

### 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

### 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 $\mu$ A
$T_J$ max.	175 °C
Package	DO-201AD
Diode variations	Single

### 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		A
Peak forward surge current, 8.3 ms single half sine-wave superimposed on rated load	$I_{FSM}$	200		A
Peak repetitive reverse surge current at $t_p = 2.0$ $\mu$ s, 1 kHz	$I_{RRM}$	1.0		A
Storage temperature range	$T_{STG}$	- 55 to + 175		°C
Maximum operating junction temperature	$T_J$	175		°C

**ELECTRICAL CHARACTERISTICS** ( $T_A = 25^\circ\text{C}$  unless otherwise noted)

PARAMETER	TEST CONDITIONS	SYMBOL	SB5H90	SB5H100	UNIT
Maximum instantaneous forward voltage	$I_F = 5.0 \text{ A}$	$T_A = 25^\circ\text{C}$ $T_A = 125^\circ\text{C}$	$V_F$ <sup>(1)</sup>	0.80	V
				0.70	
Maximum reverse current at rated $V_R$		$T_A = 25^\circ\text{C}$ $T_A = 125^\circ\text{C}$	$I_R$ <sup>(2)</sup>	200	$\mu\text{A}$
				10	

**Notes**

(1) Pulse test: 300  $\mu\text{s}$  pulse width, 1 % duty cycle

(2) Pulse test: Pulse width  $\leq 40 \text{ ms}$

**THERMAL CHARACTERISTICS** ( $T_A = 25^\circ\text{C}$  unless otherwise noted)

PARAMETER	SYMBOL	SB5H90	SB5H100	UNIT
Maximum thermal resistance	$R_{\theta JA}$ <sup>(1)</sup>	25	8	$^\circ\text{C/W}$
	$R_{\theta JL}$ <sup>(1)</sup>			

**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
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**

( $T_A = 25^\circ\text{C}$  unless otherwise noted)

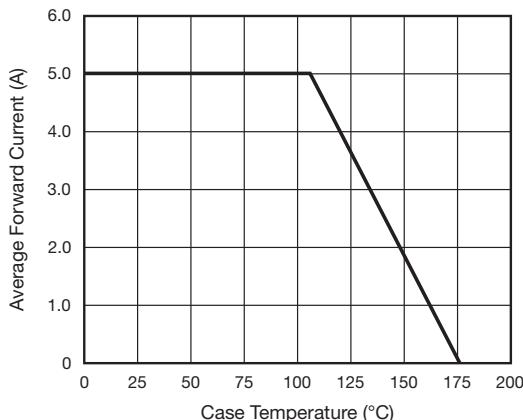


Fig. 1 - Forward Current Derating Curve

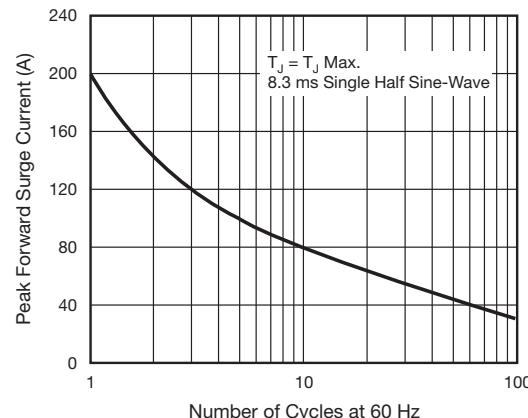


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

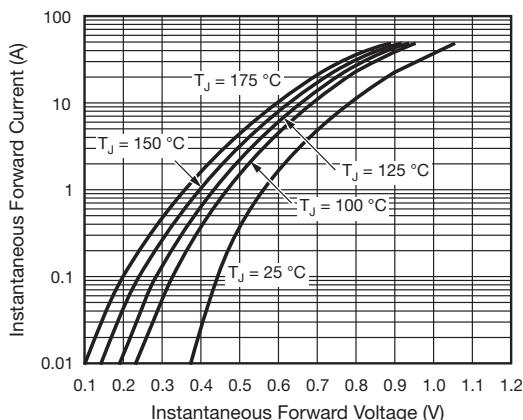


Fig. 3 - Typical Instantaneous Forward Characteristics

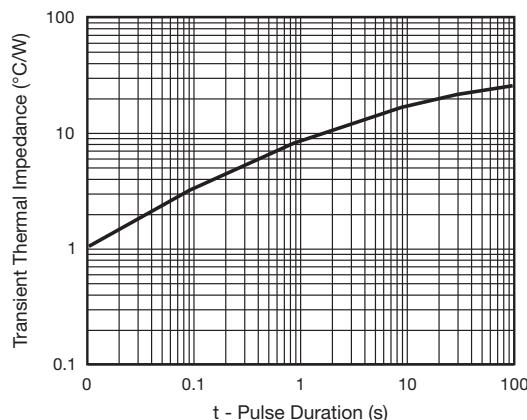


Fig. 5 - Typical Transient Thermal Impedance

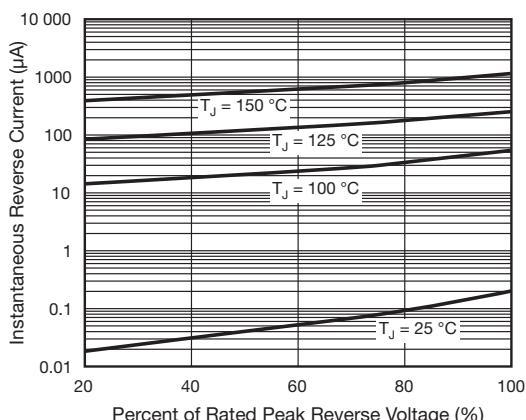


Fig. 4 - Typical Reverse Characteristics

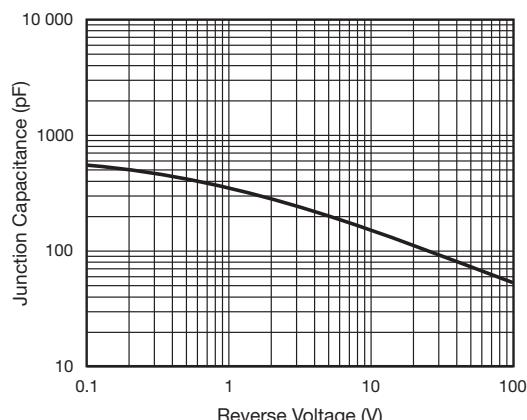
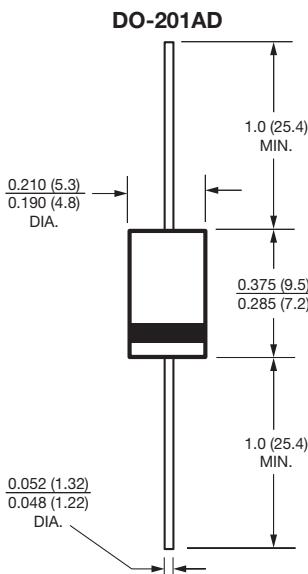


Fig. 6 - Typical Junction Capacitance

### PACKAGE OUTLINE DIMENSIONS in inches (millimeters)



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