

Vishay General Semiconductor

High Voltage Trench MOS Barrier Schottky Rectifier



PRIMARY CHARACTERISTICS			
I _{F(AV)}	3.0 A		
V_{RRM}	200 V		
I _{FSM}	90 A		
V_F at $I_F = 3.0 A$	0.63 V		
T _J max.	150 °C		
Package	DO-201AD		
Diode variation	Single		

FEATURES

- Trench MOS Schottky technology
- · Low forward voltage drop, low power losses



FREE

- · High efficiency operation
- HALOGEN • Solder dip 275 °C max. 10 s, per JESD 22-B106
- Material categorization: For definitions of compliance please see www.vishav.com/doc?99912

TYPICAL APPLICATIONS

For use in high frequency rectifier of switching mode power supplies, freewheeling diodes, DC/DC converters or polarity protection application.

MECHANICAL DATA

Case: DO-201AD

Molding compound meets UL 94 V-0 flammability rating Base P/N-M3 - halogen-free, RoHS-compliant, and

commercial grade

Terminals: Matte tin plated leads, solderable per

J-STD-002 and JESD 22-B102

M3 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	VSB3200	UNIT	
Max. repetitive peak reverse voltage	V _{RRM}	200	V	
Max. average forward rectified current (fig. 1)	I _{F(AV)} ⁽¹⁾	3.0	А	
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	I _{FSM}	90	Α	
Voltage rate of change (rated V _R)	dV/dt	10 000	V/µs	
Operating junction and storage temperature range	T _J , T _{STG}	- 40 to + 150	°C	

Note

⁽¹⁾ Units mounted on PCB with 2 mm x 2 mm copper pad areas 0.375" (9.5 mm) lead length, free air



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ELECTRICAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted)						
PARAMETER	TEST CONDITIONS		SYMBOL	TYP.	MAX.	UNIT
Breakdown voltage	$I_R = 1.0 \text{ mA}$	T _A = 25 °C	V_{BR}	200 (minimum)	-	
Instantaneous forward voltage (1)	I _F = 3.0 A	T _A = 25 °C	V _F	0.86	1.20	V
		T _A = 125 °C		0.63	0.71	
Reverse current per diode (2)	V _R = 200 V	T _A = 25 °C	I _R	1.6	60	μΑ
		T _A = 125 °C		1.2	9	mA
Typical juntion capacitance	4.0 V, 1 MHz		CJ	175	-	pF

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	VSB3200	UNIT	
Typical thermal resistance (1)	$R_{\theta JA}$	62	°C/W	
Typical thermal resistance **	$R_{\theta JL}$	9	C/VV	

Note

(1) Units mounted on PCB with 2 mm x 2 mm copper pad areas 0.375" (9.5 mm) lead length, free air

ORDERING INFORMATION (Example)					
PREFERRED P/N	UNIT WEIGHT (g)	WEIGHT (g) PREFERRED PACKAGE CODE		DELIVERY MODE	
VSB3200-M3/54	1.08	54	1400	13" diameter paper tape and reel	
VSB3200-M3/73	1.08	73	1000	Ammo pack packaging	

RATINGS AND CHARACTERISTICS CURVES

(T_A = 25 °C unless otherwise noted)

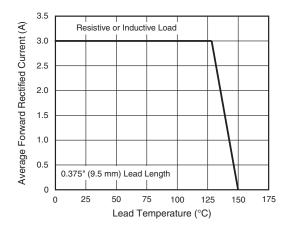


Fig. 1 - Maximum Forward Current Derating Curve

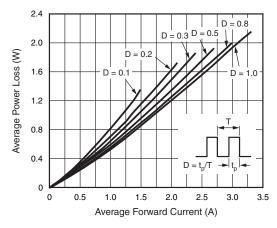


Fig. 2 - Forward Power Loss Characteristics



0.0001 20

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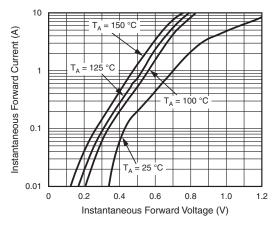
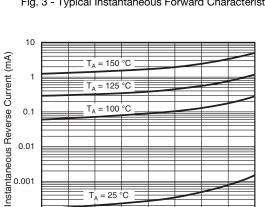


Fig. 3 - Typical Instantaneous Forward Characteristics



Percent of Rated Peak Reverse Voltage (%) Fig. 4 - Typical Reverse Characteristics

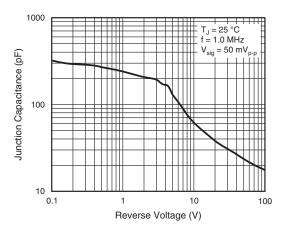


Fig. 5 - Typical Junction Capacitance

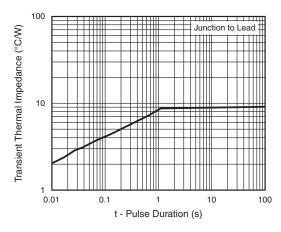
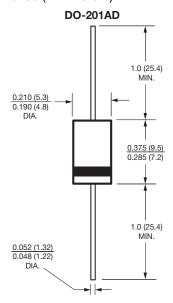


Fig. 6 - Typical Transient Thermal Impedance

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)





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