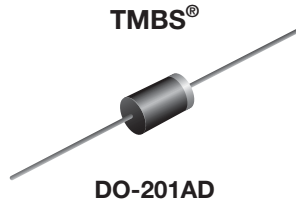


# High Voltage Trench MOS Barrier Schottky Rectifier



## FEATURES

- Trench MOS Schottky technology
- Low forward voltage drop, low power losses
- High efficiency 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  
HALOGEN  
**FREE**

## 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

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

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)	$I_{F(AV)}$ <sup>(1)</sup>	3.0	A
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	$I_{FSM}$	90	A
Voltage rate of change (rated $V_R$ )	dV/dt	10 000	V/ $\mu$ s
Operating junction and storage temperature range	$T_J, T_{STG}$	- 40 to + 150	°C

### Note

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

<b>ELECTRICAL CHARACTERISTICS</b> ( $T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)						
PARAMETER	TEST CONDITIONS		SYMBOL	TYP.	MAX.	UNIT
Breakdown voltage	$I_R = 1.0\text{ mA}$	$T_A = 25\text{ }^\circ\text{C}$	$V_{BR}$	200 (minimum)	-	V
Instantaneous forward voltage <sup>(1)</sup>	$I_F = 3.0\text{ A}$	$T_A = 25\text{ }^\circ\text{C}$	$V_F$	0.86	1.20	
		$T_A = 125\text{ }^\circ\text{C}$		0.63	0.71	
Reverse current per diode <sup>(2)</sup>	$V_R = 200\text{ V}$	$T_A = 25\text{ }^\circ\text{C}$	$I_R$	1.6	60	$\mu\text{A}$
		$T_A = 125\text{ }^\circ\text{C}$		1.2	9	mA
Typical junction capacitance	4.0 V, 1 MHz		$C_J$	175	-	pF

**Notes**

- (1) Pulse test: 300  $\mu\text{s}$  pulse width, 1 % duty cycle  
 (2) Pulse test: Pulse width  $\leq 40\text{ ms}$

<b>THERMAL CHARACTERISTICS</b> ( $T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)			
PARAMETER	SYMBOL	VSB3200	UNIT
Typical thermal resistance <sup>(1)</sup>	$R_{\theta JA}$	62	$^\circ\text{C/W}$
	$R_{\theta JL}$	9	

**Note**

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

<b>ORDERING INFORMATION</b> (Example)				
PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	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**

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

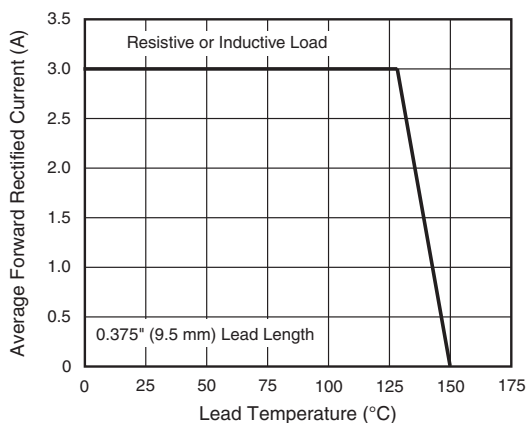


Fig. 1 - Maximum Forward Current Derating Curve

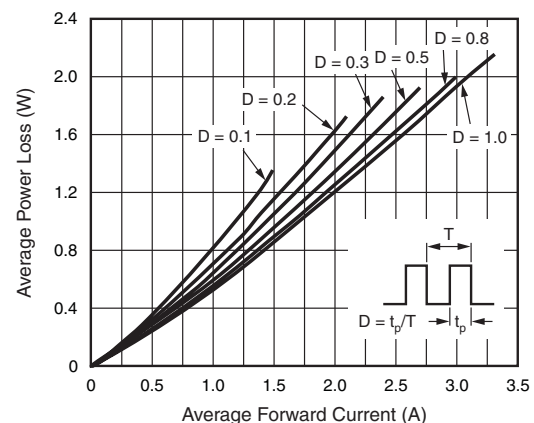


Fig. 2 - Forward Power Loss Characteristics

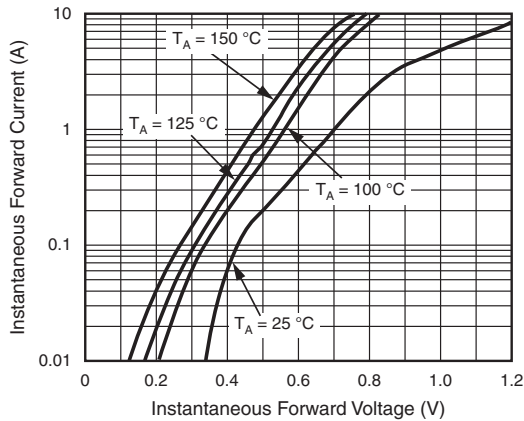


Fig. 3 - Typical Instantaneous Forward Characteristics

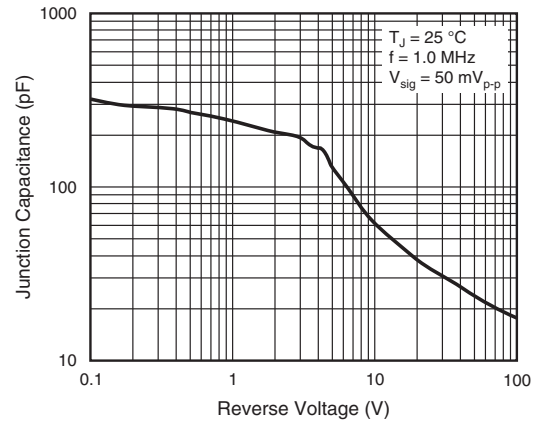


Fig. 5 - Typical Junction Capacitance

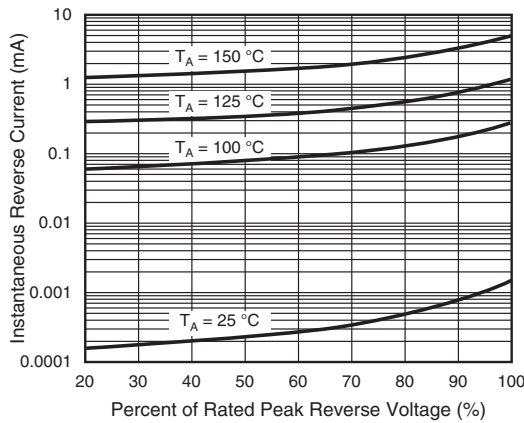


Fig. 4 - Typical Reverse Characteristics

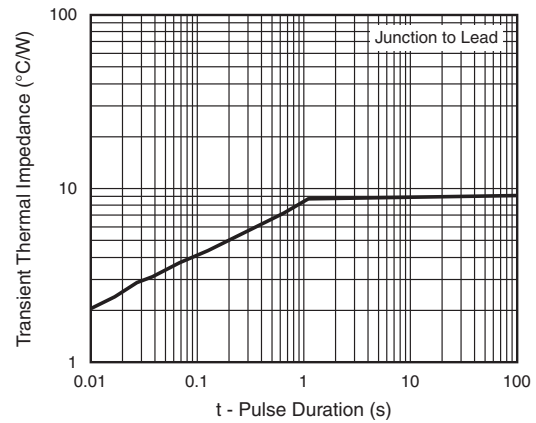
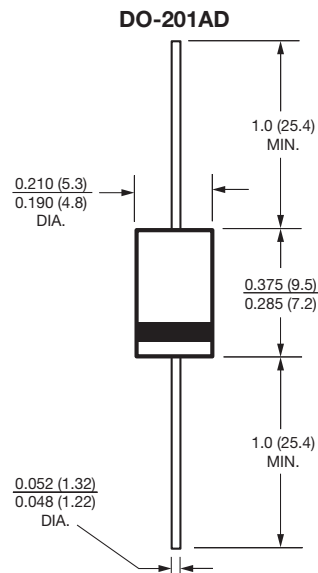


Fig. 6 - Typical Transient Thermal Impedance

**PACKAGE OUTLINE DIMENSIONS** in inches (millimeters)





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