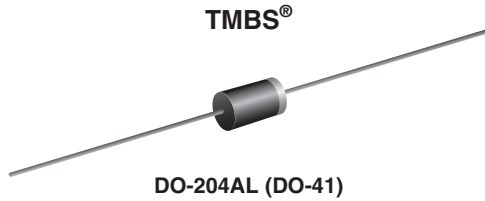


# High Voltage Trench MOS Barrier Schottky Rectifier



## 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-204AL (DO-41)

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	
$I_{F(AV)}$	2.0 A
$V_{RRM}$	200 V
$I_{FSM}$	40 A
$V_F$ at $I_F = 2.0$ A	0.65 V
$T_J$ max.	150 °C
Package	DO-204AL (DO-41)
Diode variations	Single

MAXIMUM RATINGS ( $T_A = 25$ °C unless otherwise noted)			
PARAMETER	SYMBOL	VSB2200S	UNIT
Max. repetitive peak reverse voltage	$V_{RRM}$	200	V
Max. average forward rectified current (fig. 1) (1)	$I_{F(AV)}$	2.0	A
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	$I_{FSM}$	40	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

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

ELECTRICAL CHARACTERISTICS ( $T_A = 25$ °C unless otherwise noted)						
PARAMETER	TEST CONDITIONS		SYMBOL	TYP.	MAX.	UNIT
Breakdown voltage	$I_R = 1.0$ mA	$T_A = 25$ °C	$V_{BR}$	200 (min.)	-	V
Instantaneous forward voltage (1)	$I_F = 2.0$ A	$T_A = 25$ °C	$V_F$	0.97	1.23	
		$T_A = 125$ °C		0.65	0.73	
Reverse current per diode (2)	$V_R = 200$ V	$T_A = 25$ °C	$I_R$	0.8	40	$\mu$ A
		$T_A = 125$ °C		0.6	4	mA
Typical junction capacitance	4.0 V, 1 MHz		$C_J$	110	-	pF

### Notes

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

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



THERMAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted)			
PARAMETER	SYMBOL	VSB2200S	UNIT
Typical thermal resistance <sup>(1)</sup>	R <sub>θJA</sub>	88	°C/W
	R <sub>θJL</sub>	20	

**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

ORDERING INFORMATION (Example)				
PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
VSB2200S-M3/54	0.34	54	5500	13" diameter paper tape and reel
VSB2200S-M3/73	0.34	73	3000	Ammo pack packaging

**RATINGS AND CHARACTERISTICS CURVES**

(T<sub>A</sub> = 25 °C unless otherwise noted)

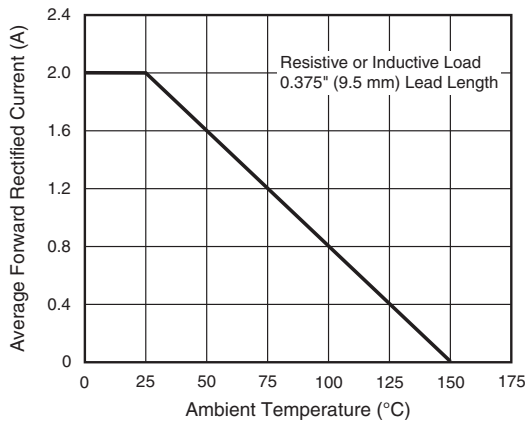


Fig. 1 - Maximum Forward Current Derating Curve

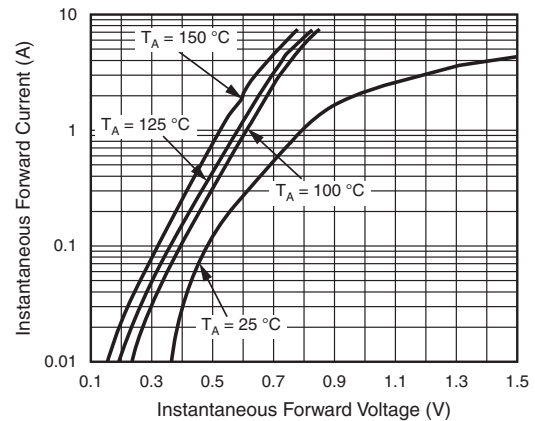


Fig. 3 - Typical Instantaneous Forward Characteristics

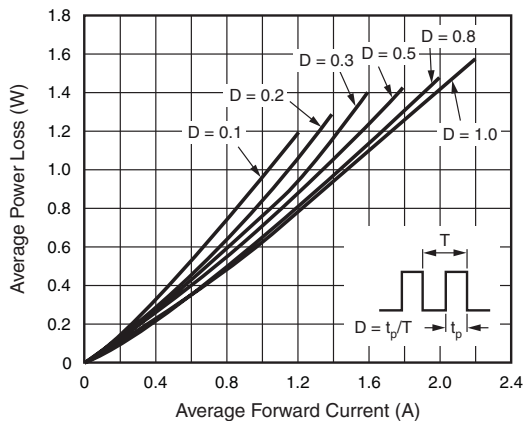


Fig. 2 - Forward Power Loss Characteristics

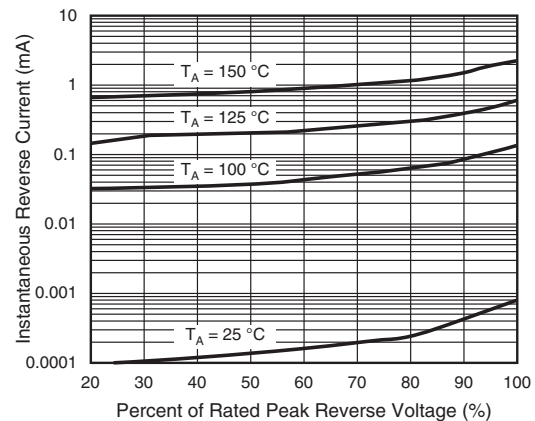


Fig. 4 - Typical Reverse Characteristics

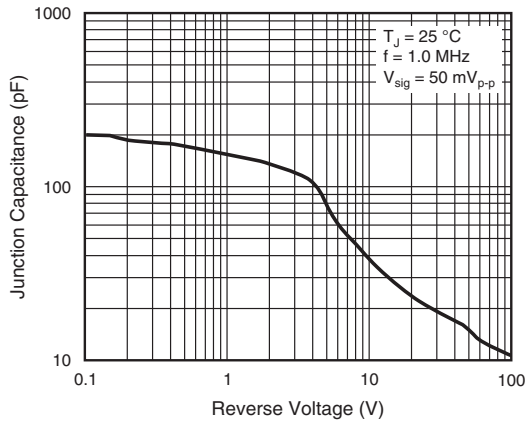


Fig. 5 - Typical Junction Capacitance

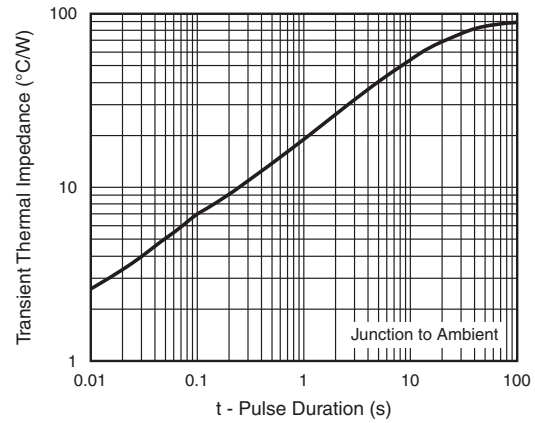
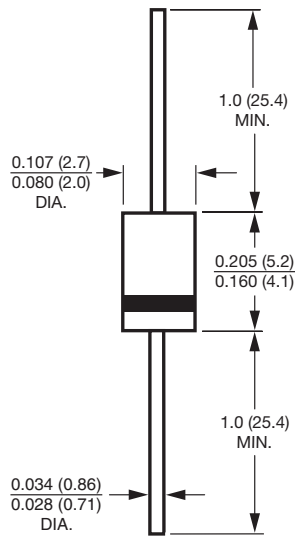


Fig. 6 - Typical Transient Thermal Impedance

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

**DO-204AL (DO-41)**





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