

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



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-204AC (DO-15)

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}	50 A
V_F at $I_F = 3.0$ A	0.64 V
T_J max.	150 °C
Package	DO-204AC (DO-15)
Diode variation	Single

MAXIMUM RATINGS ($T_A = 25$ °C unless otherwise noted)			
PARAMETER	SYMBOL	VSB3200S	UNIT
Max. repetitive peak reverse voltage	V_{RRM}	200	V
Max. average forward rectified current (fig. 1) ⁽¹⁾	$I_{F(AV)}$	3.0	A
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	I_{FSM}	50	A
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 14 mm x 14 mm copper pad areas 0.375" (9.5 mm) lead length

ELECTRICAL CHARACTERISTICS ($T_A = 25$ °C unless otherwise noted)					
PARAMETER	TEST CONDITIONS	SYMBOL	TYP.	MAX.	UNIT
Breakdown voltage	$I_R = 1.0$ mA	V_{BR}	200 (min.)	-	
Instantaneous forward voltage ⁽¹⁾	$I_F = 3.0$ A	V_F	0.98	1.40	V
			0.64	0.72	
Reverse current per diode ⁽²⁾	$V_R = 200$ V	I_R	1.3	50	μA
			0.98	7	mA
Typical junction capacitance	4.0 V, 1 MHz	C_J	170	-	pF

Notes

⁽¹⁾ Pulse test: 300 μs pulse width, 1 % duty cycle

⁽²⁾ Pulse test: Pulse width ≤ 40 ms

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

PARAMETER	SYMBOL	VSB3200S	UNIT
Typical thermal resistance ⁽¹⁾	$R_{\theta JA}$	64	$^\circ\text{C}/\text{W}$
	$R_{\theta JL}$	18	

Note

⁽¹⁾ Units mounted on PCB with 14 mm x 14 mm copper pad areas 0.375" (9.5 mm) lead length

ORDERING INFORMATION (Example)

PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
VSB3200S-M3/54	0.399	54	4000	13" diameter paper tape and reel
VSB3200S-M3/73	0.399	73	2000	Ammo pack packaging

RATINGS AND CHARACTERISTICS CURVES

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

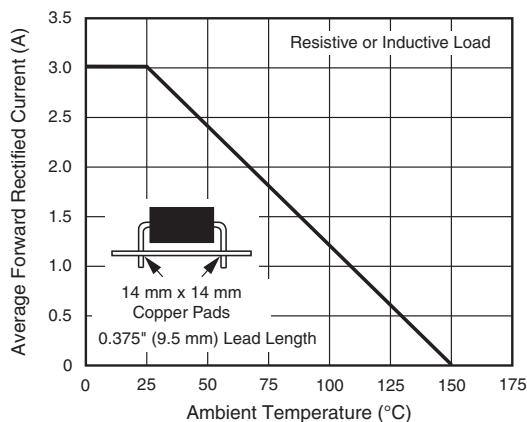


Fig. 1 - Maximum Forward Current Derating Curve

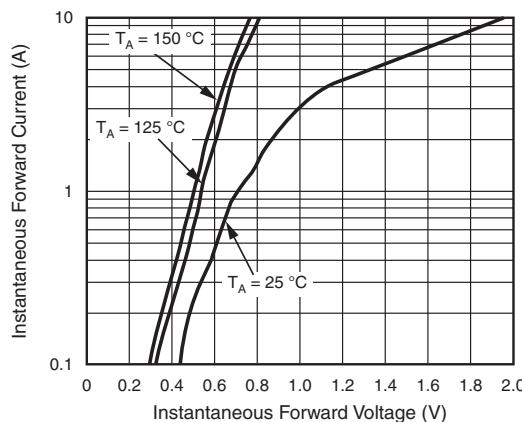


Fig. 3 - Typical Instantaneous Forward Characteristics

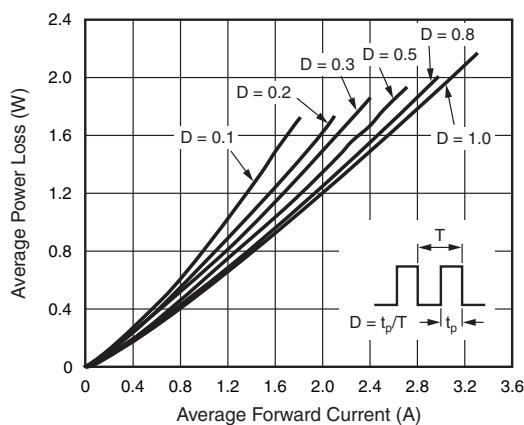


Fig. 2 - Forward Power Loss Characteristics

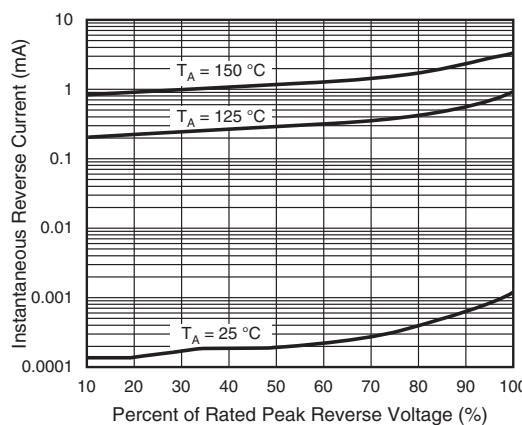


Fig. 4 - Typical Reverse Characteristics

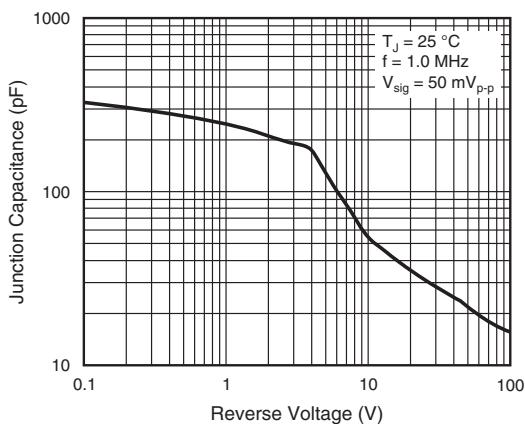


Fig. 5 - Typical Junction Capacitance

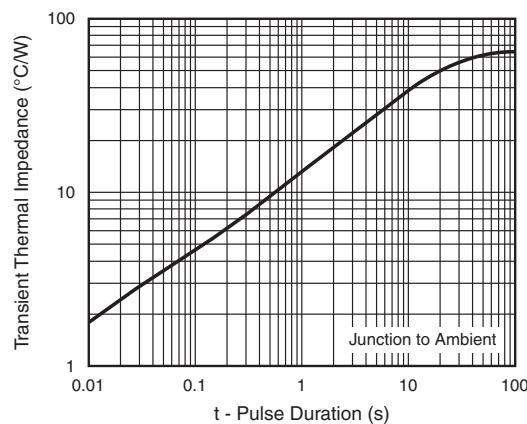
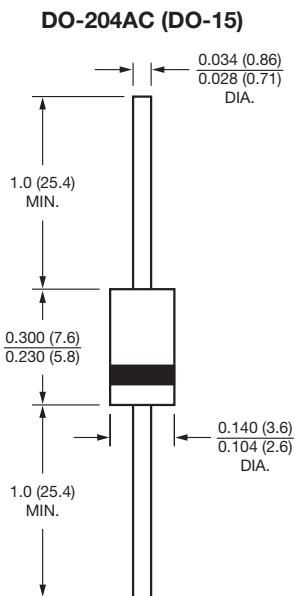


Fig. 6 - Typical Transient Thermal Impedance

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)



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