

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

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
- Compliant to RoHS directive 2002/95/EC and in accordance to WEEE 2002/96/EC
- Halogen-free according to IEC 61249-2-21 definition



RoHS
COMPLIANT
HALOGEN
FREE

TYPICAL APPLICATIONS

For use in high frequency rectifier of switching mode power supplies, freewheeling diodes, dc-to-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 and RoHS compliant, 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
Maximum repetitive peak reverse voltage	V_{RRM}	200	V
Maximum 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}	90	A
Voltage rate of change (rated V_R)	dV/dt	10 000	V/ μ 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 (minimum)	-	V
Instantaneous forward voltage ⁽¹⁾	I _F = 3.0 A	T _A = 25 °C	V _F	0.86	1.20	
		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	μA
		T _A = 125 °C		1.2	9	mA
Typical junction capacitance	4.0 V, 1 MHz		C _J	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 _{θJA}	62	°C/W
	R _{θJL}	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

ORDERING INFORMATION (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 °C unless otherwise noted)

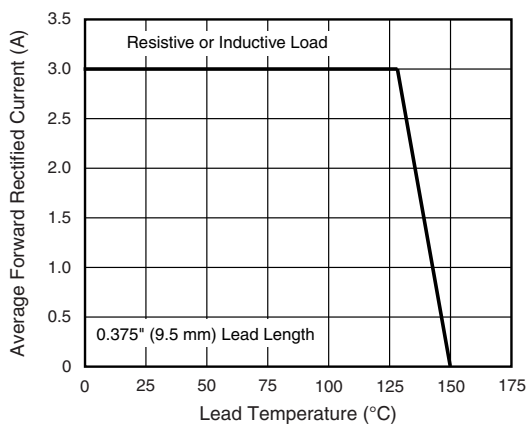


Fig. 1 - Maximum Forward Current Derating Curve

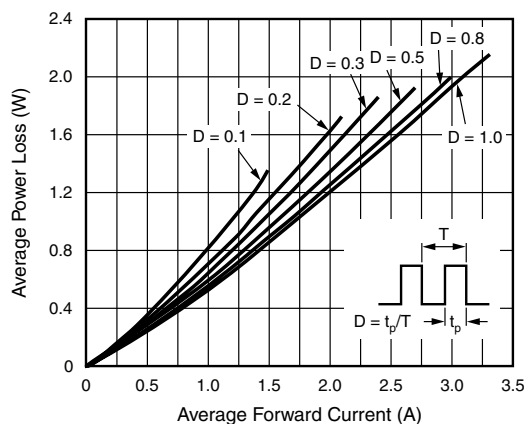


Fig. 2 - Forward Power Loss Characteristics

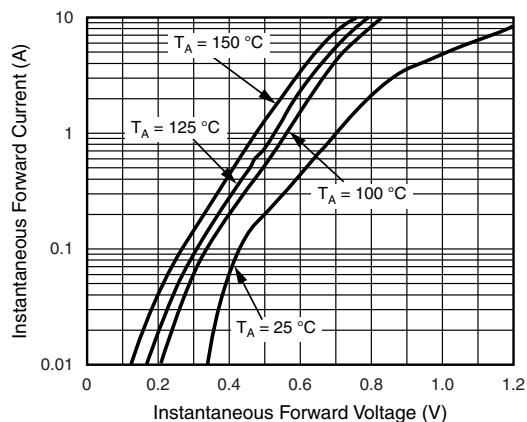


Fig. 3 - Typical Instantaneous Forward Characteristics

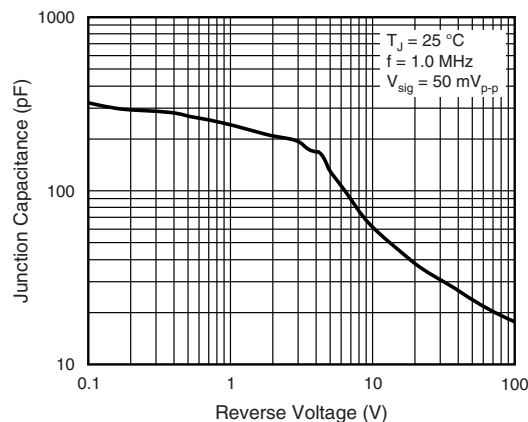


Fig. 5 - Typical Junction Capacitance

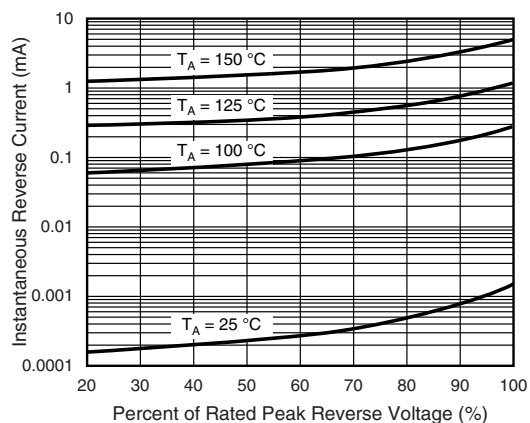


Fig. 4 - Typical Reverse Characteristics

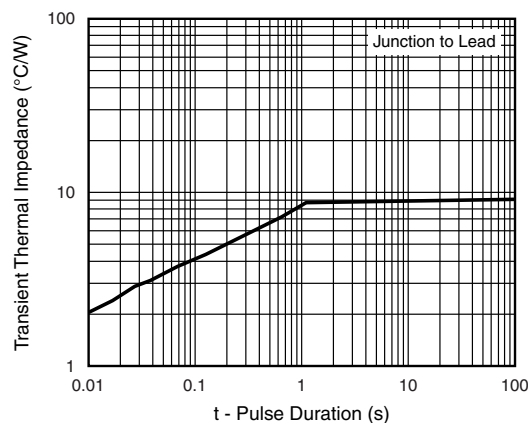
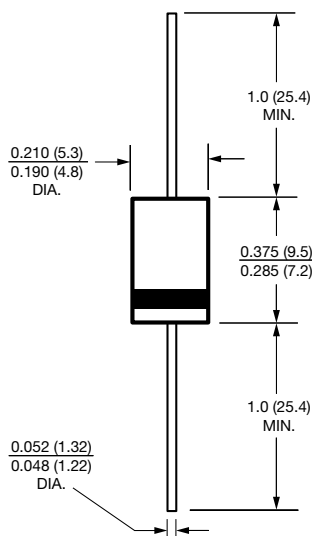


Fig. 6 - Typical Transient Thermal Impedance

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

DO-201AD





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