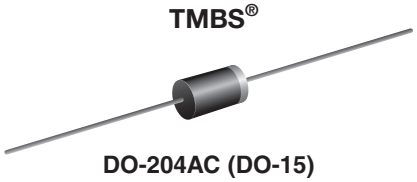
High Voltage Trench MOS Barrier Schottky Rectifier

TMBS®



DO-204AC (DO-15)

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.

MECHNICAL 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	TJ, 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	T_A = 25 °C	V_{BR}	200 (min.)	-	V
Instantaneous forward voltage (1)	I_F = 3.0 A	T_A = 25 °C	V_F	0.98	1.40	
		T_A = 125 °C		0.64	0.72	
Reverse current per diode (2)	V_R = 200 V	T_A = 25 °C	I_R	1.3	50	µA
		T_A = 125 °C		0.98	7	mA
Typical juntion 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 CHARACTERSTICS (T_A = 25 °C unless otherwise noted)			
PARAMETER	**SYMBOL**	**VSB3200S**	**UNIT**
Typical thermal resistance (1)	$R_{\theta JA}$	64	°C/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

ODERING 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 °C unless otherwise noted)

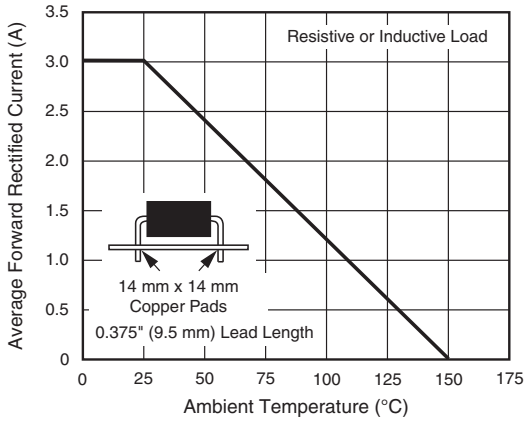


Fig. 1 - Maximum Forward Current Derating Curve

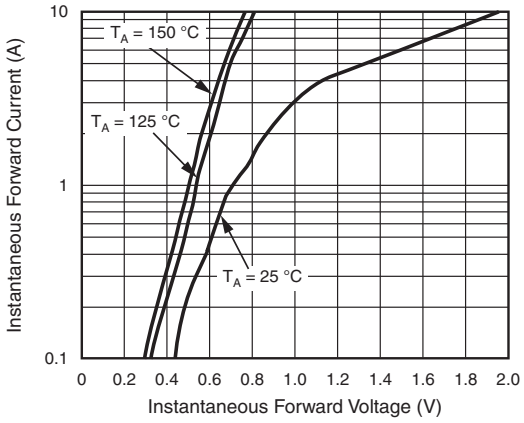


Fig. 3 - Typical Instantaneous Forward Characteristics

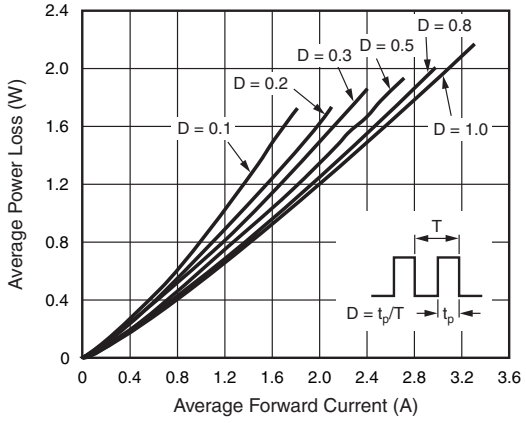


Fig. 2 - Forward Power Loss Characteristics

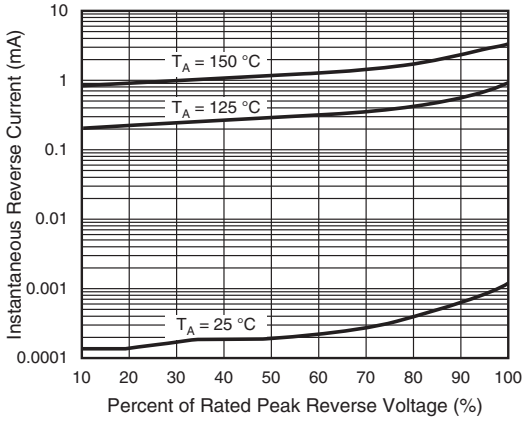


Fig. 4 - Typical Reverse Characteristics

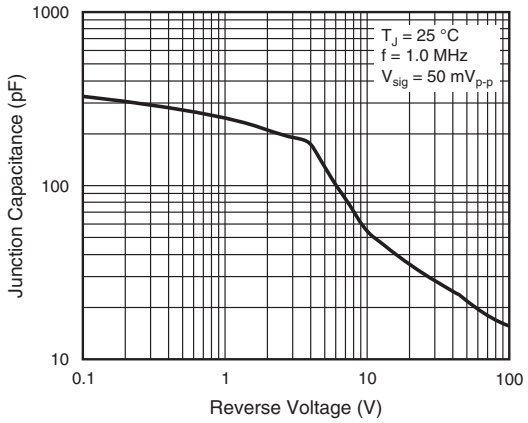


Fig. 5 - Typical Junction Capacitance

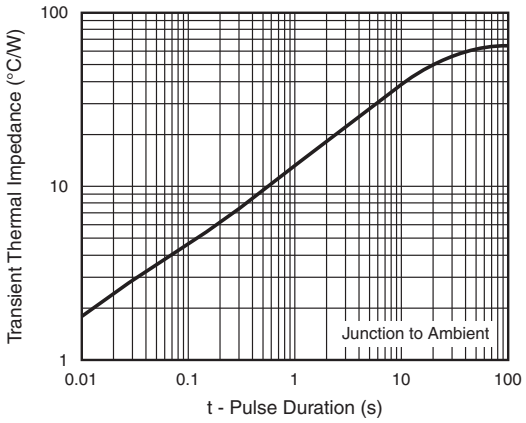
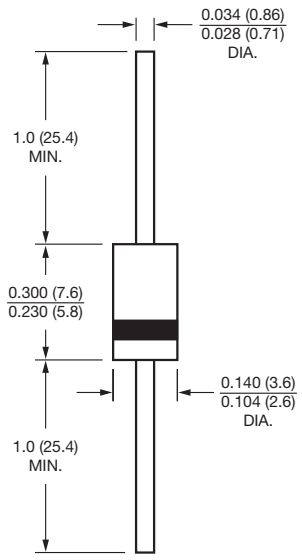


Fig. 6 - Typical Transient Thermal Impedance

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

DO-204AC (DO-15)



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