HALOGEN

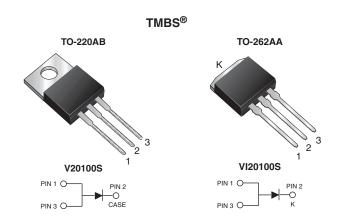
FREE



Vishay General Semiconductor

High-Voltage TMBS® (Trench MOS Barrier Schottky) Rectifier

Ultra Low $V_F = 0.446 \text{ V}$ at $I_F = 5 \text{ A}$



PRIMARY CHARACTERISTICS				
I _{F(AV)}	20 A			
V _{RRM} 100 V				
I _{FSM}	250 A			
V _F at I _F = 20 A	0.69 V			
T _J max.	150 °C			
Package	TO-220AB, TO-262AA			
Circuit configuration	Single			

FEATURES

- Trench MOS Schottky technology
- · Low forward voltage drop, low power losses
- High efficiency operation
- Low thermal resistance
- Solder dip 275 °C max. 10 s, per JESD 22-B106
- Material categorization: for definitions of compliance please see <u>www.vishay.com/doc?99912</u>

TYPICAL APPLICATIONS

For use in high frequency DC/DC converters, switching power supplies, freewheeling diodes, OR-ing diode, and reverse battery protection.

MECHANICAL DATA

Case: TO-220AB and TO-262AA

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: as marked

Mounting Torque: 10 in-lbs maximum

MAXIMUM RATINGS (T _A = 25 °C unless otherwise noted)					
PARAMETER	SYMBOL	V20100S	VI20100S	UNIT	
Maximum repetitive peak reverse voltage	V_{RRM}	100		V	
Maximum average forward rectified current (fig. 1)	I _{F(AV)}	20		Α	
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	I _{FSM}	250		А	
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	



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ELECTRICAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted)						
PARAMETER	TEST CONDITIONS		SYMBOL	TYP.	MAX.	UNIT
Maximum instantaneous forward voltage	I _F = 5 A	T _A = 25 °C	- V _F ⁽¹⁾	0.51	-	V
	I _F = 10 A			0.60	-	
	$I_F = 20 \text{ A}$			0.79	0.90	
	I _F = 5 A	T _A = 125 °C		0.45	-	
	I _F = 10 A			0.53	=	
	I _F = 20 A			0.69	0.76	
Reverse current	V _R = 70 V	T _A = 25 °C	I _R ⁽²⁾	17	-	μΑ
		T _A = 125 °C		7	-	mA
	V _R = 100 V	T _A = 25 °C		70	500	μΑ
		T _A = 125 °C		14	30	mA

Notes

 $^{(1)}$ Pulse test: 300 μs pulse width, 1 % duty cycle

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

THERMAL CHARACTERISTICS (T _A = 25 °C unless otherwise specified)						
PARAMETER	SYMBOL	V20100S VI20100S		UNIT		
Typical thermal resistance	$R_{ heta JC}$	2.0		°C/W		

ORDERING INFORMATION (Example)							
PACKAGE	PREFERRED P/N	UNIT WEIGHT (g)	PACKAGE CODE	BASE QUANTITY	DELIVERY MODE		
TO-220AB	V20100S-M3/4W	1.88	4W	50/tube	Tube		
TO-262AA	VI20100S-M3/4W	1.45	4W	50/tube	Tube		

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RATINGS AND CHARACTERISTICS CURVES (T_A = 25 °C unless otherwise noted)

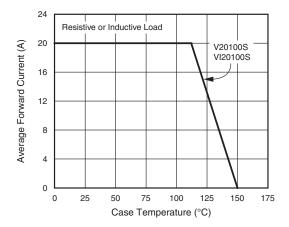


Fig. 1 - Maximum Forward Current Derating Curve

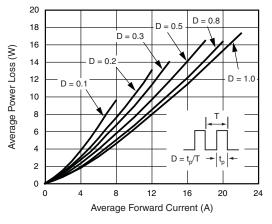


Fig. 2 - Forward Power Loss Characteristics

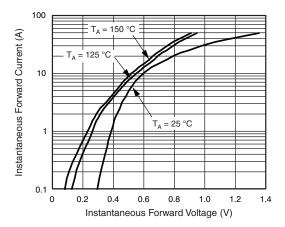


Fig. 3 - Typical Instantaneous Forward Characteristics

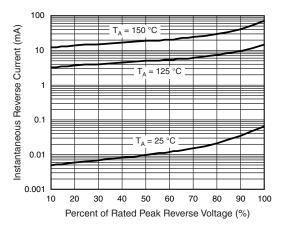


Fig. 4 - Typical Reverse Leakage Characteristics

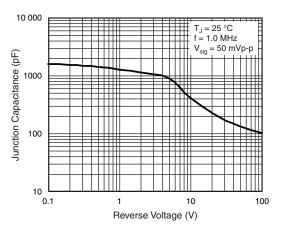


Fig. 5 - Typical Junction Capacitance

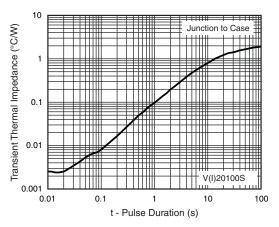
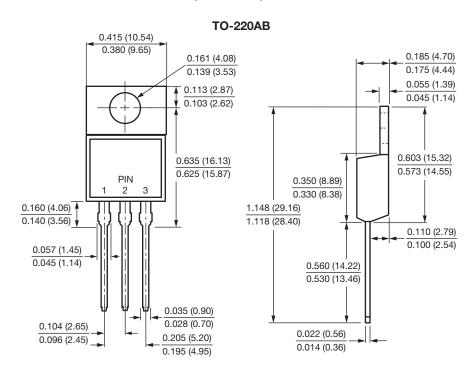


Fig. 6 - Typical Transient Thermal Impedance

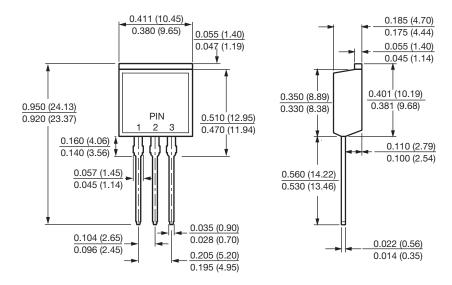


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PACKAGE OUTLINE DIMENSIONS in inches (millimeters)



TO-262AA





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