

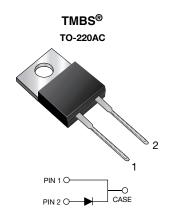
Vishay General Semiconductor

COMPLIANT

HALOGEN

FREE

High Voltage Trench MOS Barrier Schottky Rectifier



PRIMARY CHARACTERISTICS				
I _{F(AV)}	10 A			
V_{RRM}	90 V, 100 V			
I _{FSM}	150 A			
V _F	0.65 V			
T _J max.	150 °C			
Package	TO-220AC			
Diode variations	Single die			

FEATURES

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

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: TO-220AC

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 _C = 25 °C unless otherwise noted)					
PARAMETER	SYMBOL	MBR1090	MBR10100	UNIT	
Maximum repetitive peak reverse voltage	V_{RRM}	90	100	V	
Working peak reverse voltage	V_{RWM}	90	100	V	
Maximum DC blocking voltage	V_{DC}	90	100	V	
Maximum average forward rectified current at T _C = 133 °C	I _{F(AV)}	10		Α	
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	I _{FSM}	150		А	
Voltage rate of change (rated V _R)	dV/dt	10 000		V/µs	
Operating junction and storage temperature range	T _J , T _{STG}	-65 to +150		°C	

ELECTRICAL CHARACTERISTICS (T _C = 25 °C unless otherwise noted)					
PARAMETER	TEST CONDITIONS		SYMBOL	VALUE	UNIT
	I _E = 10 A	T _C = 25 °C		0.80	
Maximum instantaneous forward voltage	IF = IUA	T _C = 125 °C	V _F ⁽¹⁾	0.65	V
	$I_F = 20 \text{ A}$			0.75	
Maximum reverse current per diode at working peak reverse voltage		T _J = 25 °C	I _R ⁽²⁾	100	μΑ
	T _J = 100 °C	'R`'	6.0	mA	

Notes

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

(2) Pulse test: Pulse width ≤ 40 ms



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THERMAL CHARACTERISTICS (T _C = 25 °C unless otherwise noted)						
PARAMETER	SYMBOL	MBR1090	UNIT			
Typical thermal resistance	$R_{\theta JA}$	6	°C/W			
Typical thermal resistance	$R_{ heta JC}$	2.	0	C/VV		

ORDERING INFORMATION (Example)						
PACKAGE	PREFERRED P/N	UNIT WEIGHT (g)	PACKAGE CODE	BASE QUANTITY	DELIVERY MODE	
TO-220AC	MBR10100-M3/4W	1.845	4W	50/tube	Tube	

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

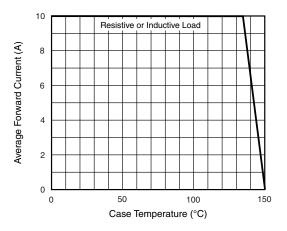


Fig. 1 - Forward Current Derating Curve

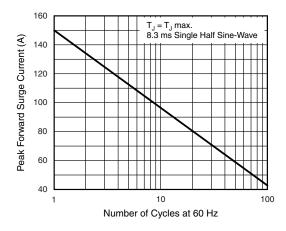


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

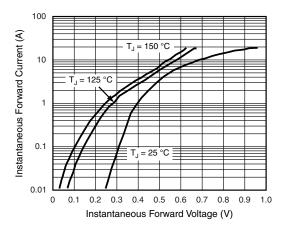


Fig. 3 - Typical Instantaneous Forward Characteristics

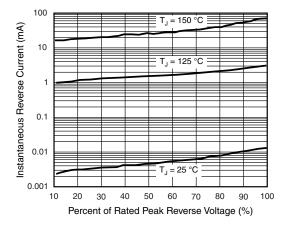


Fig. 4 - Typical Reverse Characteristics



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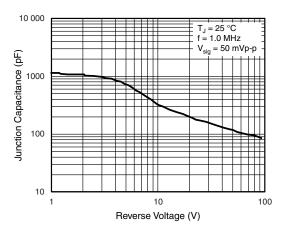


Fig. 5 - Typical Junction Capacitance

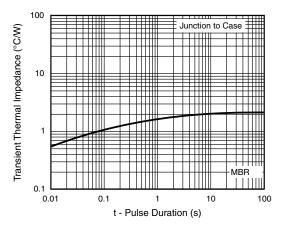
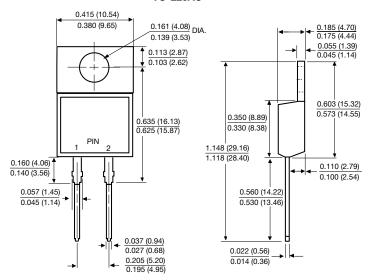


Fig. 6 - Typical Transient Thermal Impedance

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

TO-220AC





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