

MBRF1090CT-M3, MBRF10100CT-M3

Vishay General Semiconductor

COMPLIANT

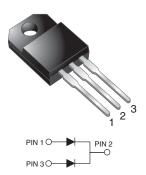
HALOGEN

FREE

Dual High Voltage Trench MOS Barrier Schottky Rectifier

TMBS®





PRIMARY CHARACTERISTICS					
I _{F(AV)}	2 x 5.0 A				
V_{RRM}	90 V, 100 V				
I _{FSM}	120 A				
V _F	0.75 V				
T _J max.	150 °C				
Package	ITO-220AB				
Circuit configuration	Common cathode				

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: ITO-220AB

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 max.

MAXIMUM RATINGS (T _C = 25 °C unless otherwise noted)						
PARAMETER		SYMBOL	MBRF1090CT	MBRF10100CT	UNIT	
Max. repetitive peak reverse voltage		V_{RRM}	90	100	V	
Working peak reverse voltage		V_{RWM}	90	100	V	
Max. DC blocking voltage		V_{DC}	90	100	V	
Max. average forward rectified current at T _C = 105 °C	total device	1	10		Α	
	per diode	I _{F(AV)}	5.0			
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load per diode		I _{FSM}	120		Α	
Non-repetitive avalanche energy at $T_J = 25$ °C, L = 60 mH per diode		E _{AS}	60		mJ	
Peak repetitive reverse current at t_p = 2 μ s, 1 kHz, T_J = 38 °C \pm 2 °C per diode		I _{RRM}	0.5		Α	
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	
Isolation voltage from terminal to heatsink with t = 1 min		V _{AC}	1500		V	



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ELECTRICAL CHARACTERISTICS (T _C = 25 °C unless otherwise noted)						
PARAMETER	TEST CONDITIONS		SYMBOL	MBRF1090CT	MBRF10100CT	UNIT
Maximum instantaneous forward voltage per diode (1)	I _F = 5.0 A	T _C = 125 °C	V _F	0.	0.75	
	$I_F = 5.0 \text{ A}$	T _C = 25 °C	VF	VF 0.85		V
Maximum reverse current per diode at		T _J = 25 °C	ı	100		μΑ
working peak reverse voltage (2)		T _J = 100 °C	IR	6.0		mA

Notes

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

(2) Pulse test: Pulse width ≤ 40 ms

THERMAL CHARACTERISTICS (T _C = 25 °C unless otherwise noted)					
PARAMETER	SYMBOL	MBRF1090CT MBRF10100CT U		UNIT	
Typical thermal resistance per diode	$R_{ heta JC}$	6.8		°C/W	

ORDERING INFORMATION (EXAMPLE)						
PACKAGE	PREFERRED P/N	UNIT WEIGHT (g)	PACKAGE CODE	BASE QUANTITY	DELIVERY MODE	
ITO-220AB	MBRF10100CT-M3/4W	1.75	4W	50/tube	Tube	

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

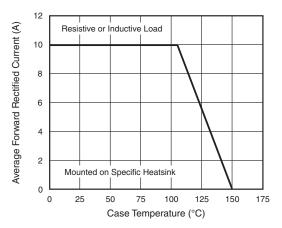


Fig. 1 - Forward Current Derating Curve

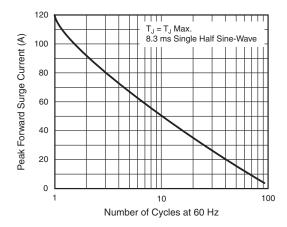
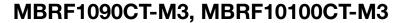


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current Per Diode





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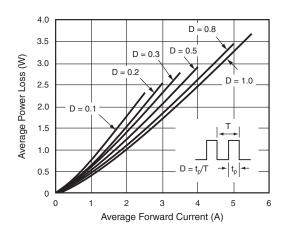


Fig. 3 - Forward Power Loss Characteristics Per Diode

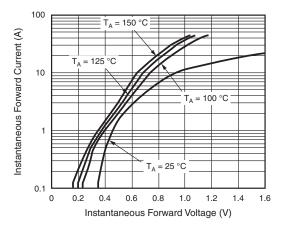


Fig. 4 - Typical Instantaneous Forward Characteristics Per Diode

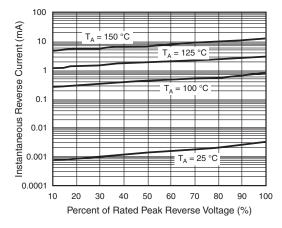


Fig. 5 - Typical Reverse Characteristics Per Diode

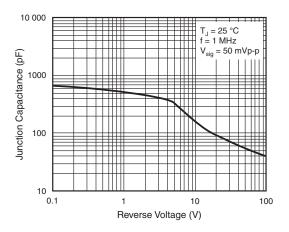


Fig. 6 - Typical Junction Capacitance Per Diode

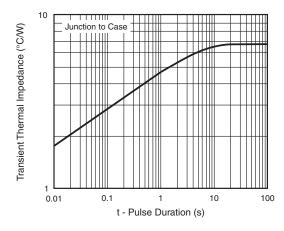


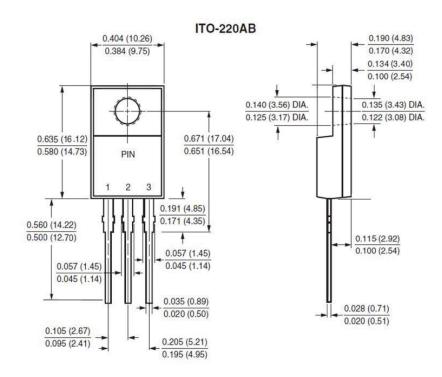
Fig. 7 - Typical Transient Thermal Impedance Per Diode



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PACKAGE OUTLINE DIMENSIONS in inches (millimeters)





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