MBRB1090-M3, MBRB10100-M3

Vishay General Semiconductor

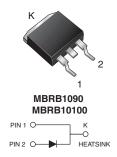
COMPLIANT

HALOGEN

FREE

High-Voltage Trench MOS Barrier Schottky Rectifier

D²PAK (TO-263AB)



DESIGN SUPPORT TOOLS

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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	D ² PAK (TO-263AB)			
Circuit configuration	Single			

FEATURES

- Trench MOS Schottky technology
- Lower power losses, high efficiency
- Low forward voltage drop
- High forward surge capability
- High frequency operation
- Meets MSL level 1, per J-STD-020, LF maximum peak of 245 °C
- Material categorization: for definitions of compliance please see <u>www.vishay.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: D²PAK (TO-263AB)

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

MAXIMUM RATINGS (T _A = 25 °C unless otherwise noted)					
PARAMETER	SYMBOL	MBRB1090	MBRB10100	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		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	

ELECTRICAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted)					
PARAMETER	TEST CONDITIONS		SYMBOL	MAX.	UNIT
Maximum instantaneous forward voltage ⁽¹⁾	I _F = 10 A	T _C = 25 °C	V _F	0.80	
	I _F = 10 A	T _C = 125 °C		0.65	V
	I _F = 20 A	T _C = 125 °C		0.75	
Maximum reverse current per at working peak reverse voltage (2)		T _J = 25 °C	I _R	100	μΑ
		T _J = 125 °C		6.0	mA

Notes

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

(2) Pulse test: Pulse width ≤ 40 ms

MBRB1090-M3, MBRB10100-M3

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THERMAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted)				
PARAMETER	SYMBOL	MBRB	UNIT	
Typical thermal resistance	$R_{\theta JA}$	60	°C/W	
Typical thermal resistance	$R_{ heta JC}$	2.0		

ORDERING INFORMATION (Example)							
PACKAGE	PREFERRED P/N	UNIT WEIGHT (g)	PACKAGE CODE	BASE QUANTITY	DELIVERY MODE		
TO-263AB	MBRB10100CT-M3/4W	1.384	4W	50/tube	Tube		
TO-263AB	MBRB10100CT-M3/8W	1.384	8W	800/reel	Tape and reel		

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

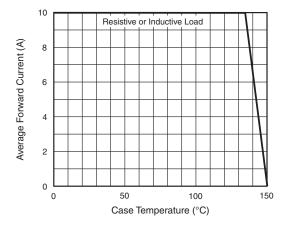


Fig. 1 - Forward Current Derating Curve

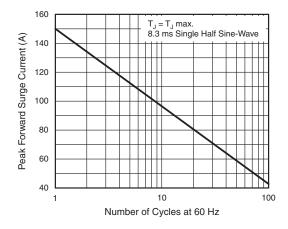


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

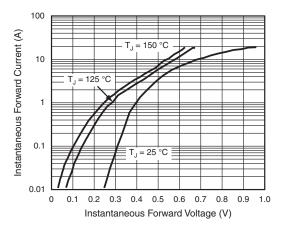


Fig. 3 - Typical Instantaneous Forward Characteristics

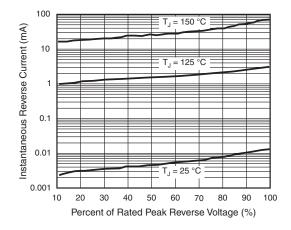
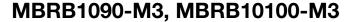


Fig. 4 - Typical Reverse Characteristics





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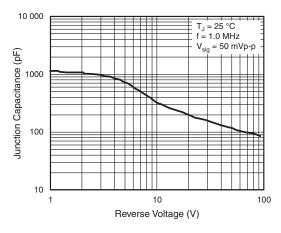


Fig. 5 - Typical Junction Capacitance

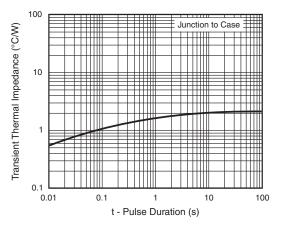
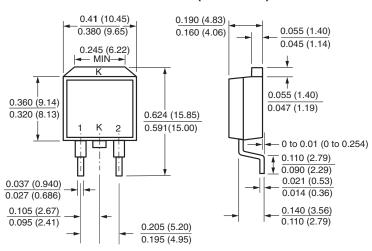


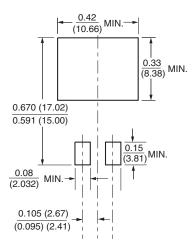
Fig. 6 - Typical Transient Thermal Impedance

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

D²PAK (TO-263AB)



Mounting Pad Layout





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