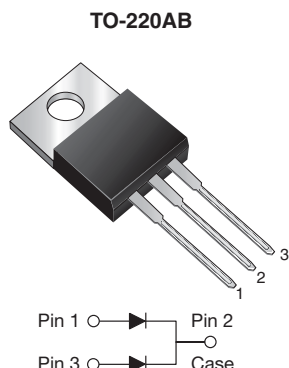


Dual High-Voltage TMBS® (Trench MOS Barrier Schottky) Rectifier



FEATURES

- Trench MOS Schottky technology
- Lower power losses, high efficiency
- Low forward voltage drop
- High forward surge capability
- High frequency operation
- Solder bath temperature 275 °C maximum, 10 s, per JESD 22-B106
- Material categorization: for definitions of compliance please see www.vishay.com/doc?999912



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

MECHANICAL DATA

Case: TO-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 maximum

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	TO-220AB
Circuit configuration	Common cathode

MAXIMUM RATINGS (T _A = 25 °C unless otherwise noted)				
PARAMETER	SYMBOL	MBR1090CT	MBR10100CT	UNIT
Maximum repetitive peak reverse voltage	V _{RRM}	90	100	V
Maximum 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 = 105 °C — total device per diode	I _{F(AV)}	10		A
		5.0		
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load per diode	I _{FSM}	120		A
Voltage rate of change	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	MBR1090CT	MBR10100CT	UNIT
Maximum instantaneous forward voltage	I _F = 5.0 A	T _A = 125 °C	V _F ⁽¹⁾	0.75	V	
		T _A = 25 °C		0.85		
Maximum reverse current per diode at working peak reverse voltage		T _A = 25 °C	I _R ⁽²⁾	100	μA	
		T _A = 100 °C		6.0	mA	

Notes

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

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



THERMAL CHARACTERISTICS ($T_A = 25\text{ }^{\circ}\text{C}$ unless otherwise noted)

PARAMETER	SYMBOL	MBR1090CT	MBR10100CT	UNIT
Typical thermal resistance per diode	$R_{\theta JC}$	4.4		$^{\circ}\text{C/W}$

ORDERING INFORMATION (Example)

PACKAGE	PREFERRED P/N	UNIT WEIGHT (g)	PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
TO-220AB	MBR10100CT-M3/4W	1.87	4W	50/tube	Tube

RATINGS AND CHARACTERISTICS CURVES ($T_A = 25\text{ }^{\circ}\text{C}$ unless otherwise noted)

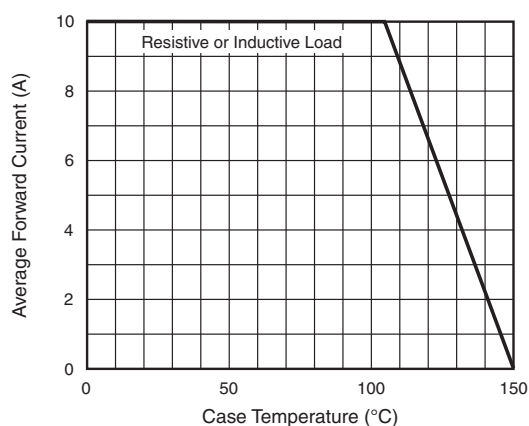


Fig. 1 - Forward Current Derating Curve

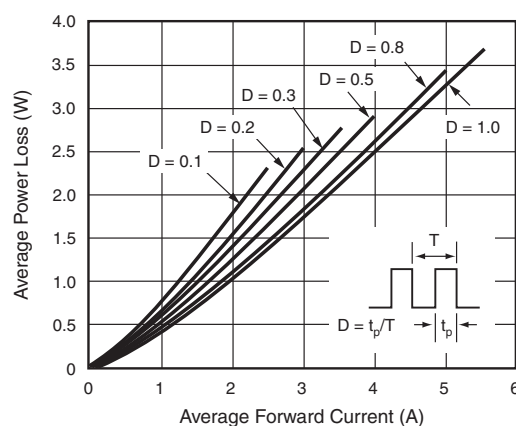


Fig. 3 - Forward Power Loss Characteristics Per Diode

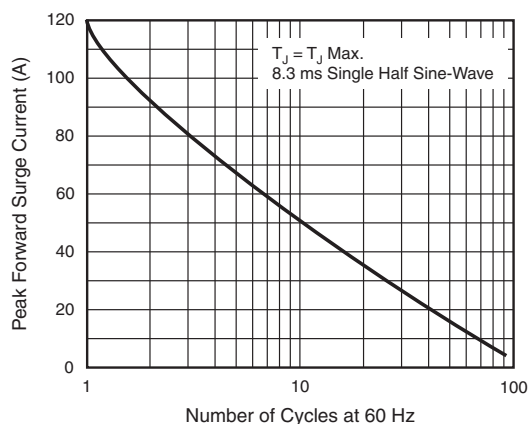


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current Per Diode

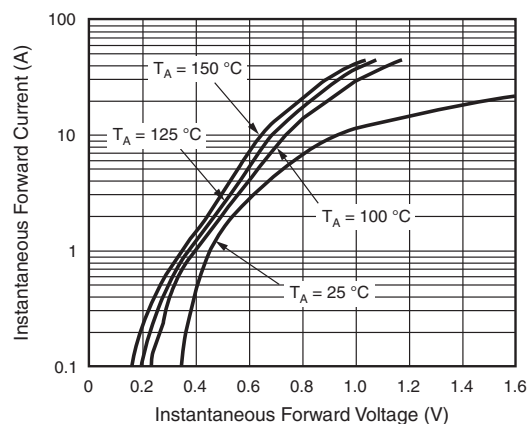


Fig. 4 - Typical Instantaneous Forward Characteristics Per Diode

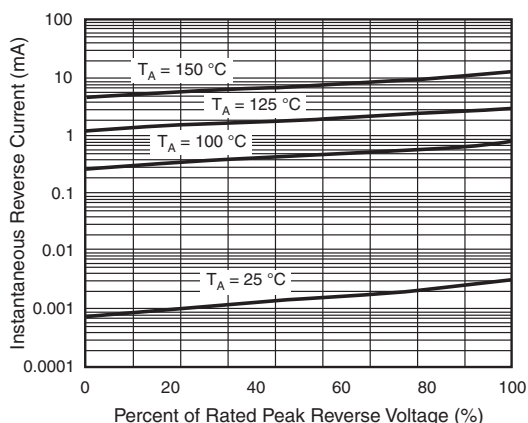


Fig. 5 - Typical Reverse Characteristics Per Diode

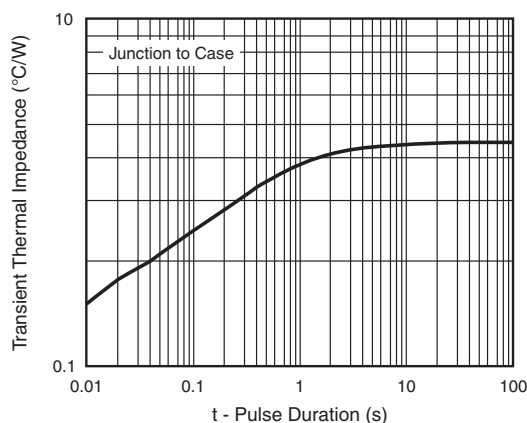


Fig. 7 - Typical Transient Thermal Impedance Per Diode

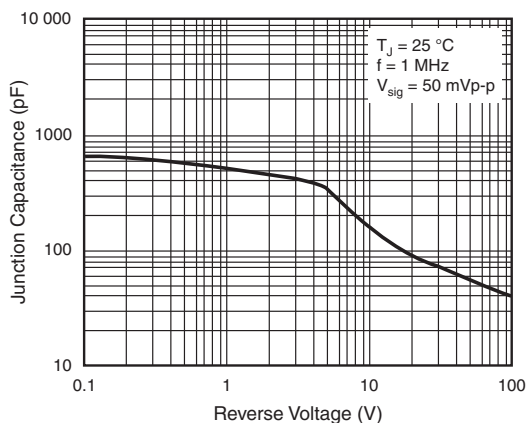
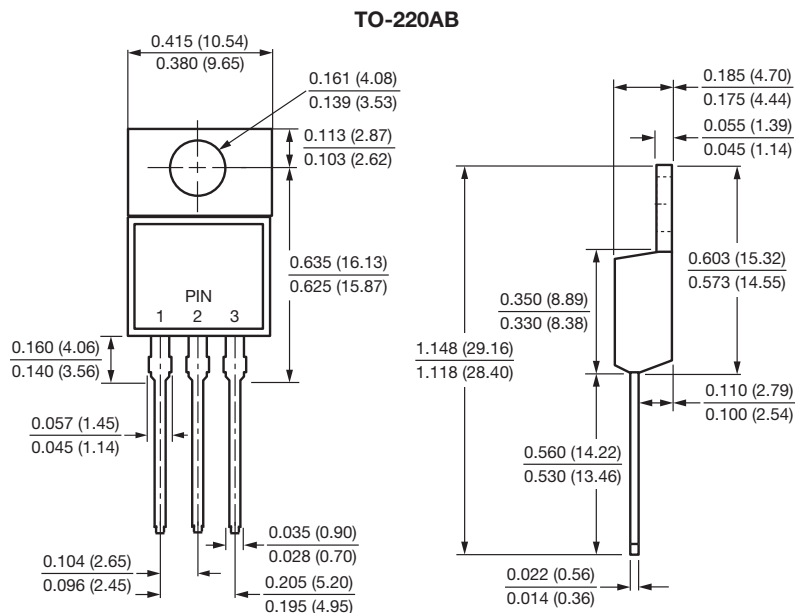


Fig. 6 - Typical Junction Capacitance Per Diode

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)




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