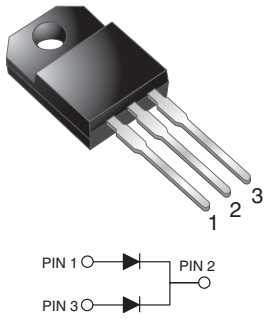
Dual High Voltage Trench MOS Barrier Schottky Rectifier

TMBS®

ITO-220AB



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 www.vishay.com/doc?99912

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.

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
Diode variations	Common cathode

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	$I_{F(AV)}$	10		A
	per diode		5.0		
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load per diode		I_{FSM}	120		A
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 µs, 1 kHz, T_J = 38 °C ± 2 °C per diode		I_{RRM}	0.5		A
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	0.75		V
	I_F = 5.0 A	T_C = 25 °C		0.85		
Maximum reverse current per diode at working peak reverse voltage (2)		T_J = 25 °C	I_R	100		µA
		T_J = 100 °C		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	UNIT
Typical thermal resistance per diode	$R_{\theta JC}$	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_A = 25 °C unless otherwise noted)

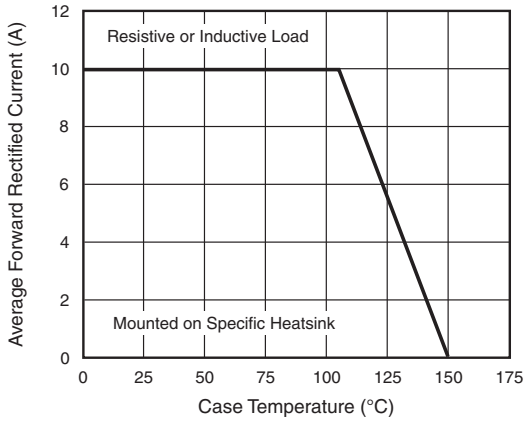

Fig. 1 - Forward Current Derating Curve

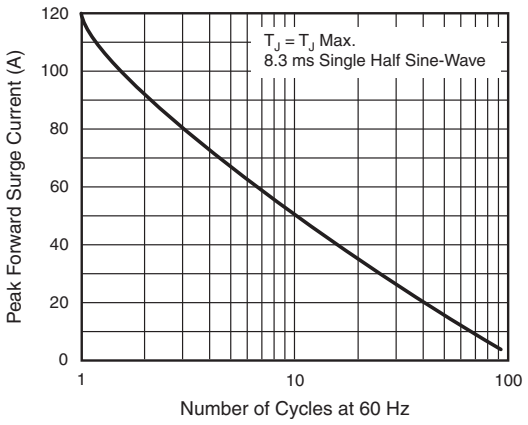

Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current Per Diode

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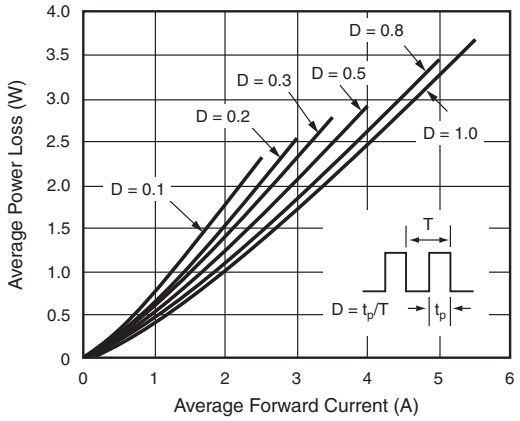

Fig. 3 - Forward Power Loss Characteristics Per Diode

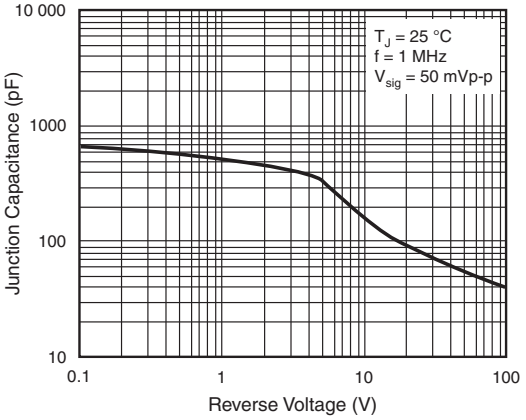

Fig. 6 - Typical Junction Capacitance Per Diode

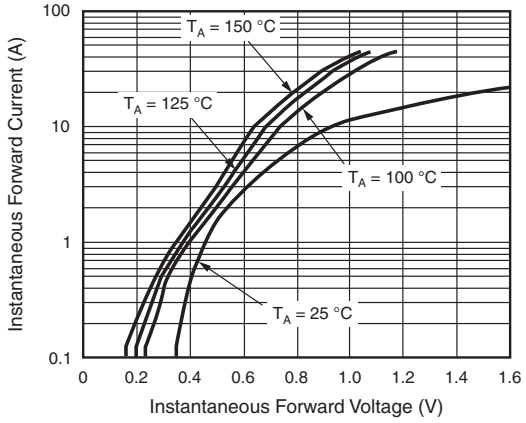

Fig. 4 - Typical Instantaneous Forward Characteristics Per Diode

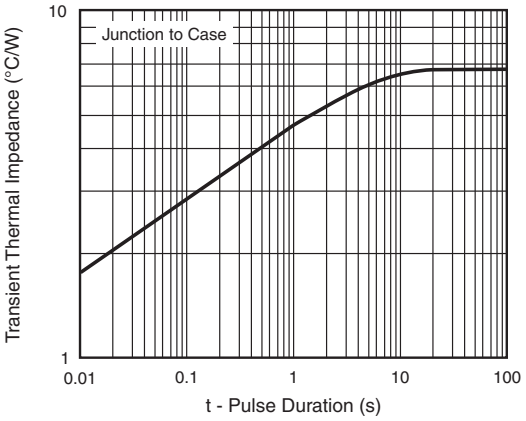

Fig. 7 - Typical Transient Thermal Impedance Per Diode

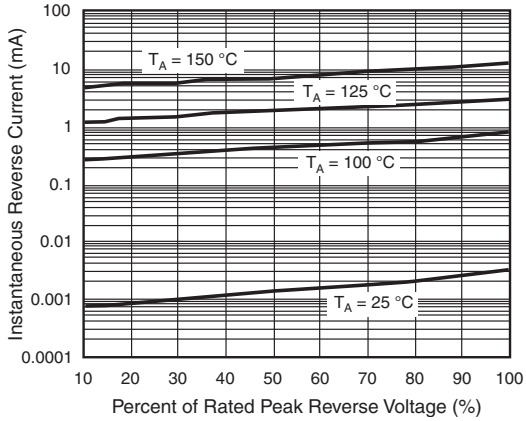

Fig. 5 - Typical Reverse Characteristics Per Diode

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PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

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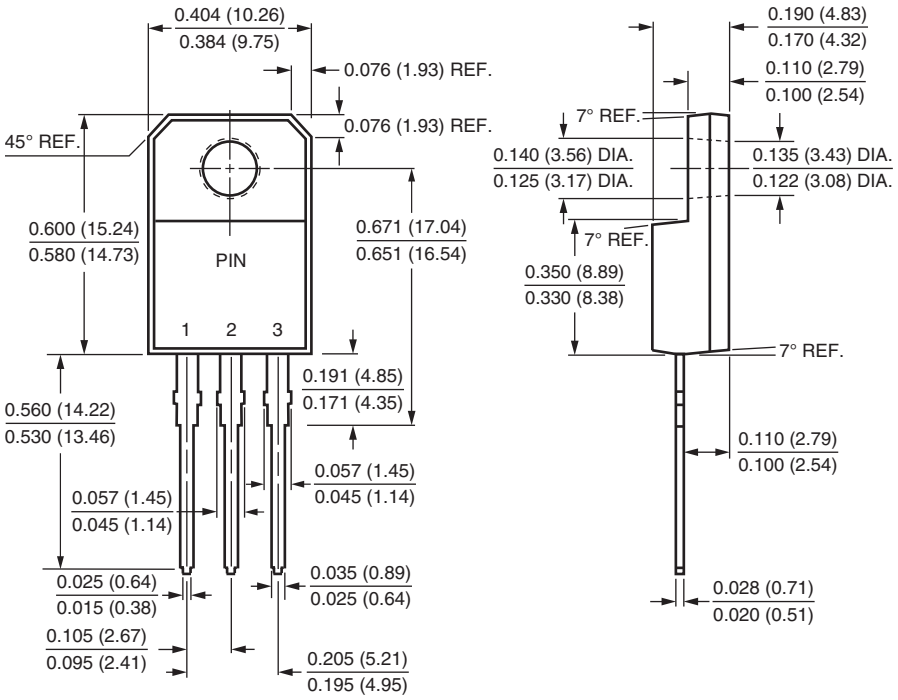

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