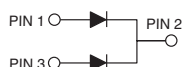
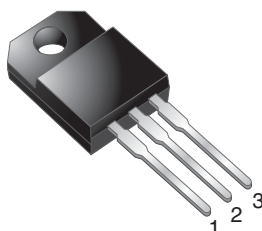


# Dual High Voltage Trench MOS Barrier Schottky Rectifier

**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](http://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
Circuit configuration	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 ( $T_C = 25\text{ °C}$ unless otherwise noted)

PARAMETER	SYMBOL	MBRF1090CT	MBRF10100CT	UNIT
Max. repetitive peak reverse voltage	V <sub>RRM</sub>	90	100	V
Working peak reverse voltage	V <sub>RWM</sub>	90	100	V
Max. DC blocking voltage	V <sub>DC</sub>	90	100	V
Max. average forward rectified current at T <sub>C</sub> = 105 °C	total device per diode I <sub>F(AV)</sub>	10		A
		5.0		
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load per diode	I <sub>FSM</sub>	120		A
Non-repetitive avalanche energy at T <sub>J</sub> = 25 °C, L = 60 mH per diode	E <sub>AS</sub>	60		mJ
Peak repetitive reverse current at t <sub>p</sub> = 2 μs, 1 kHz, T <sub>J</sub> = 38 °C ± 2 °C per diode	I <sub>RRM</sub>	0.5		A
Voltage rate of change (rated V <sub>R</sub> )	dV/dt	10 000		V/μs
Operating junction and storage temperature range	T <sub>J</sub> , T <sub>STG</sub>	-65 to +150		°C
Isolation voltage from terminal to heatsink with t = 1 min	V <sub>AC</sub>	1500		V

**ELECTRICAL CHARACTERISTICS** ( $T_C = 25\text{ }^{\circ}\text{C}$  unless otherwise noted)

PARAMETER	TEST CONDITIONS		SYMBOL	MBRF1090CT	MBRF10100CT	UNIT
Maximum instantaneous forward voltage per diode <sup>(1)</sup>	$I_F = 5.0\text{ A}$	$T_C = 125\text{ }^{\circ}\text{C}$	$V_F$	0.75		V
	$I_F = 5.0\text{ A}$	$T_C = 25\text{ }^{\circ}\text{C}$		0.85		
Maximum reverse current per diode at working peak reverse voltage <sup>(2)</sup>		$T_J = 25\text{ }^{\circ}\text{C}$	$I_R$	100		$\mu\text{A}$
		$T_J = 100\text{ }^{\circ}\text{C}$		6.0		mA

**Notes**(1) Pulse test: 300  $\mu\text{s}$  pulse width, 1 % duty cycle(2) Pulse test: Pulse width  $\leq 40\text{ ms}$ **THERMAL CHARACTERISTICS** ( $T_C = 25\text{ }^{\circ}\text{C}$  unless otherwise noted)

PARAMETER	SYMBOL	MBRF1090CT	MBRF10100CT	UNIT
Typical thermal resistance per diode	$R_{\theta JC}$	6.8		$^{\circ}\text{C/W}$

**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

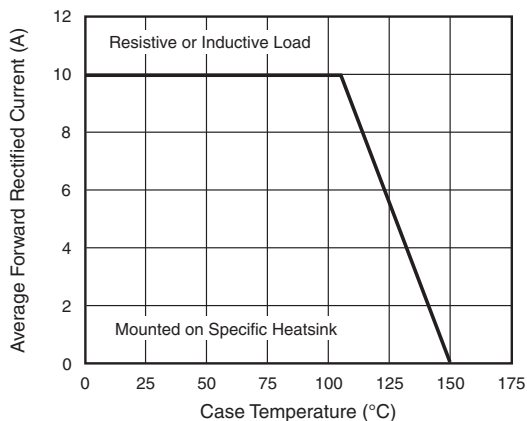
**RATINGS AND CHARACTERISTICS CURVES** ( $T_C = 25\text{ }^{\circ}\text{C}$  unless otherwise noted)

Fig. 1 - Forward Current Derating Curve

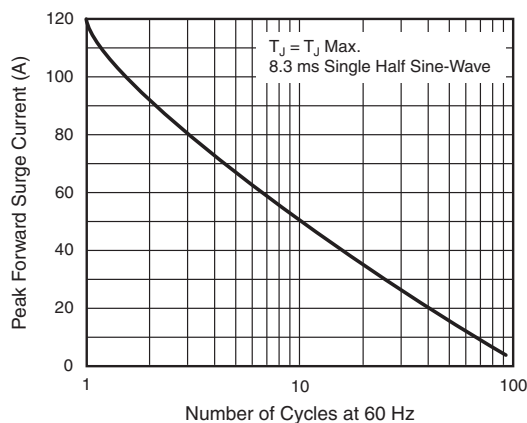


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current Per Diode

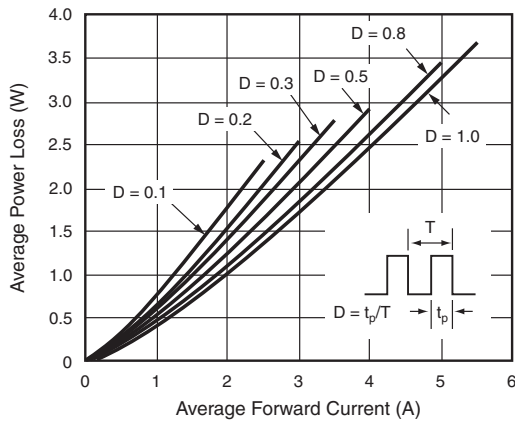


Fig. 3 - Forward Power Loss Characteristics Per Diode

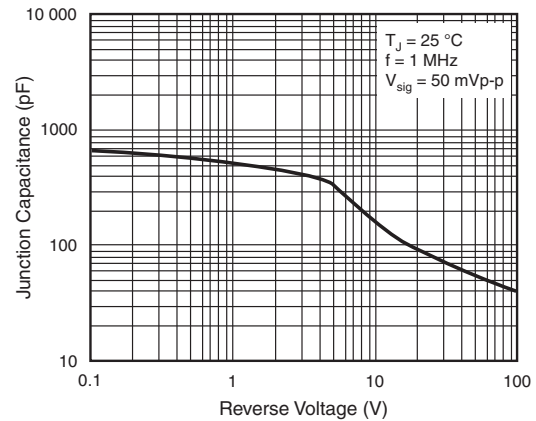


Fig. 6 - Typical Junction Capacitance Per Diode

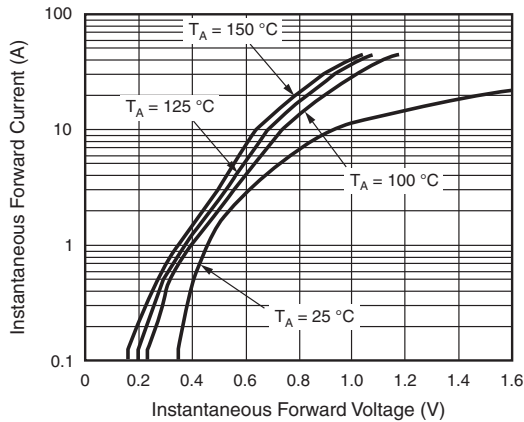


Fig. 4 - Typical Instantaneous Forward Characteristics Per Diode

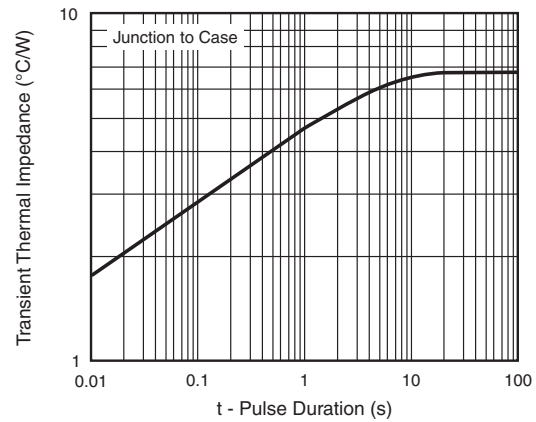


Fig. 7 - Typical Transient Thermal Impedance Per Diode

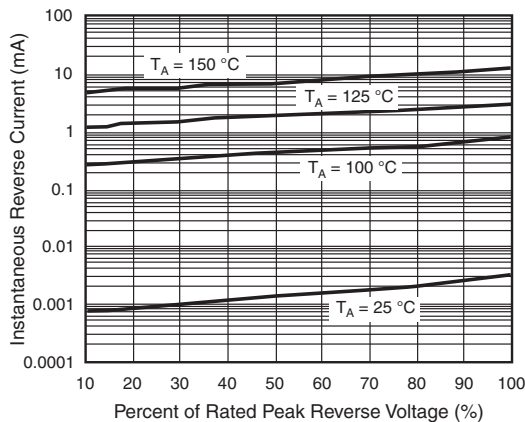
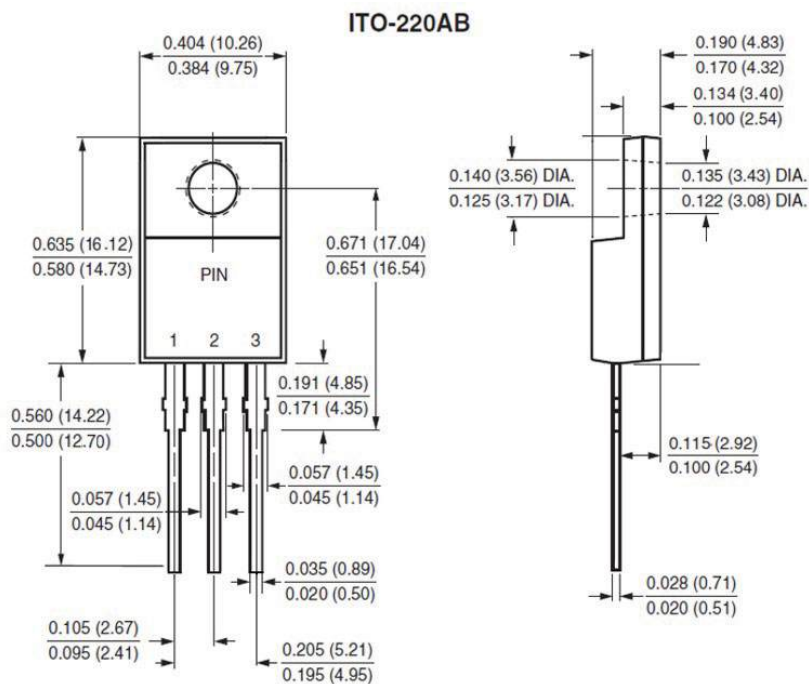


Fig. 5 - Typical Reverse Characteristics Per Diode



## PACKAGE OUTLINE DIMENSIONS in inches (millimeters)





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