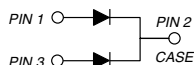
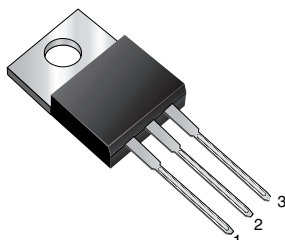


# Dual Common Cathode High Voltage Schottky Rectifier

**TMBS®**
**TO-220AB**


## 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?99912](http://www.vishay.com/doc?99912)


**RoHS**  
COMPLIANT

## 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-E3 - RoHS-compliant, commercial grade

**Terminals:** Matte tin plated leads, solderable per J-STD-002 and JESD 22-B102

E3 suffix meets JESD 201 class 1A whisker test

**Polarity:** As marked

**Mounting Torque:** 10 in-lbs max.

## 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
$T_J \text{ max.}$	150 °C
Package	TO-220AB
Diode variation	Dual common cathode

## MAXIMUM RATINGS ( $T_C = 25\text{ °C}$ unless otherwise noted)

PARAMETER	SYMBOL	MBR1090CT	MBR10100CT	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 $T_C = 105\text{ °C}$	$I_{F(AV)}$	<div>total device</div> <div>per diode</div> <div>10</div> <div>5.0</div>		A
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 $T_J = 25\text{ °C}$ , $L = 60\text{ mH}$ per diode	$E_{AS}$	60		mJ
Peak repetitive reverse current at $t_p = 2\text{ }\mu\text{s}$ , 1 kHz, $T_J = 38\text{ °C} \pm 2\text{ °C}$ per diode	$I_{RRM}$	0.5		A
Voltage rate of change (rated $V_R$ )	$dV/dt$	10 000		V/ $\mu\text{s}$
Operating junction and storage temperature range	$T_J, T_{STG}$	-65 to +150		°C

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

PARAMETER	TEST CONDITIONS		SYMBOL	MBR1090CT	MBR10100CT	UNIT
Maximum instantaneous forward voltage per diode	I <sub>F</sub> = 5.0 A	T <sub>C</sub> = 125 °C	V <sub>F</sub> <sup>(1)</sup>	0.75		V
	I <sub>F</sub> = 5.0 A	T <sub>C</sub> = 25 °C		0.85		
Maximum reverse current per diode at working peak reverse voltage		T <sub>J</sub> = 25 °C	I <sub>R</sub> <sup>(2)</sup>	100		μA
		T <sub>J</sub> = 100 °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	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-E3/4W	1.87	4W	50/tube	Tube

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

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

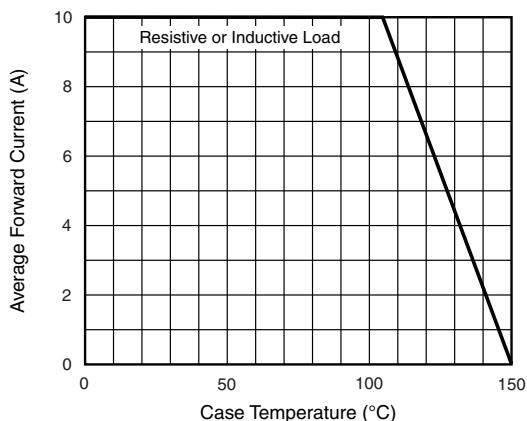


Fig. 1 - Forward Current Derating Curve

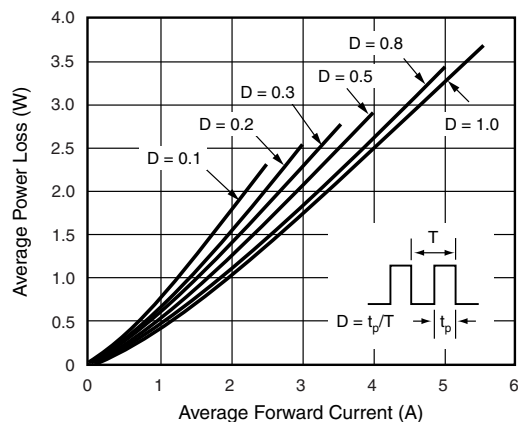
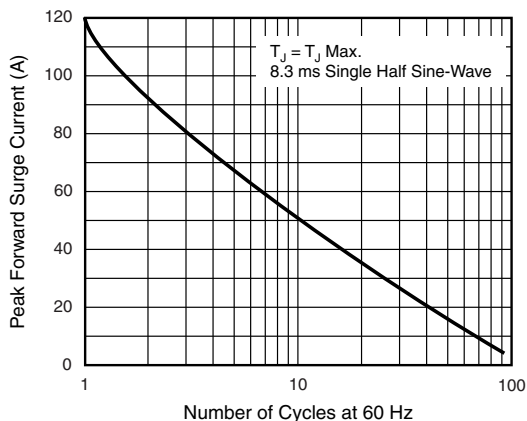


Fig. 3 - Forward Power Loss Characteristics Per Diode



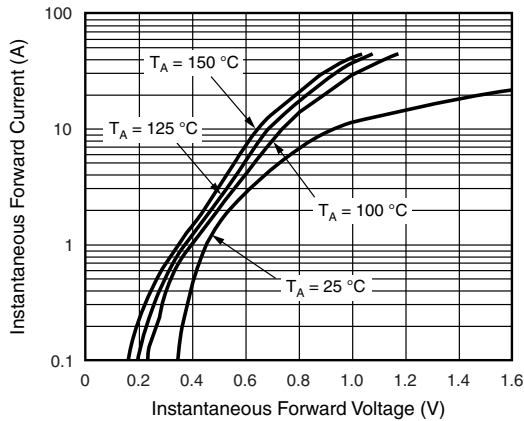


Fig. 4 - Typical Instantaneous Forward Characteristics Per Diode

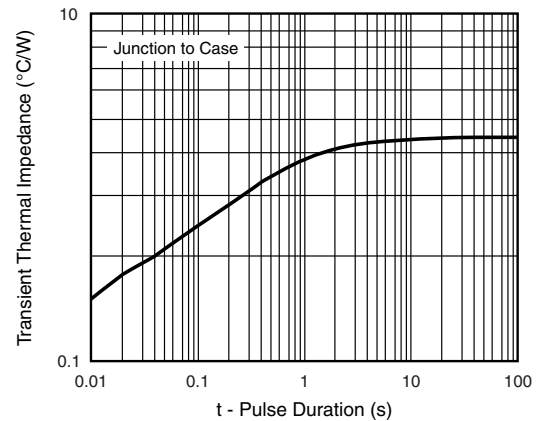


Fig. 7 - Typical Transient Thermal Impedance Per Diode

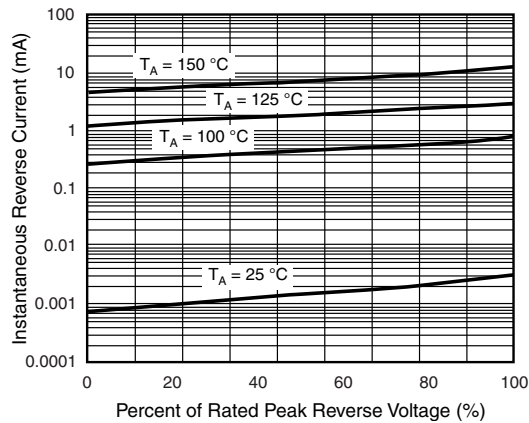


Fig. 5 - Typical Reverse Characteristics Per Diode

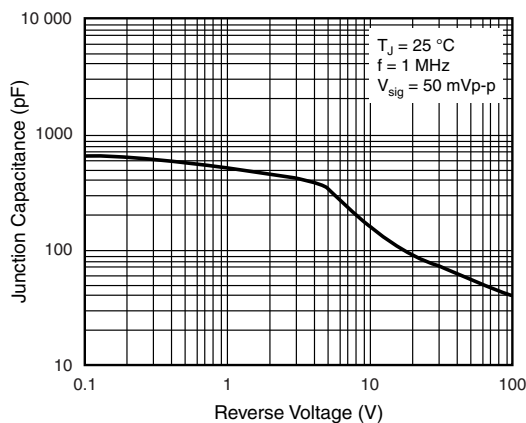
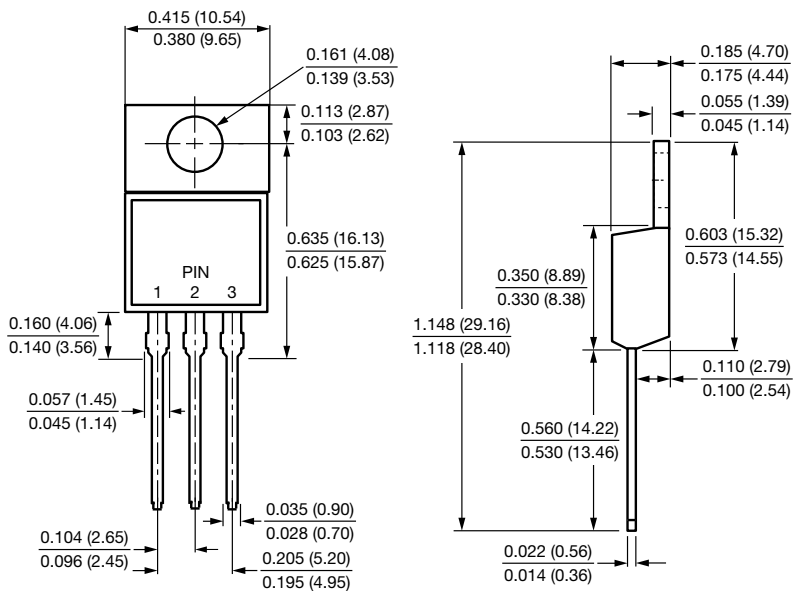


Fig. 6 - Typical Junction Capacitance Per Diode



PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

TO-220AB





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