

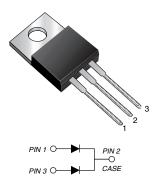
## MBR1090CT-E3, MBR10100CT-E3

Vishay General Semiconductor

## **Dual Common Cathode High Voltage Schottky Rectifier**

#### TMBS®

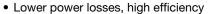
**TO-220AB** 



PRIMARY CHARACTERISTICS					
I <sub>F(AV)</sub>	2 x 5.0 A				
$V_{RRM}$	90 V, 100 V				
I <sub>FSM</sub>	120 A				
V <sub>F</sub>	0.75 V				
T <sub>J</sub> max.	150 °C				
Package	TO-220AB				
Diode variation	Dual common cathode				

#### **FEATURES**

Trench MOS Schottky technology



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 <a href="https://www.vishay.com/doc?99912"><u>www.vishay.com/doc?99912</u></a>

#### 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.

MAXIMUM RATINGS (T <sub>C</sub> = 25 °C unless otherwise noted)							
PARAMETER			MBR1090CT	MBR10100CT	UNIT		
Max. repetitive peak reverse voltage			90	100	V		
Working peak reverse voltage			90	100	V		
Max. DC blocking voltage			90	100	V		
Max. average forward rectified current at T <sub>C</sub> = 105 °C	total device	I <sub>F(AV)</sub>	10		Α		
	per diode		5.0				
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load per diode			120		Α		
Non-repetitive avalanche energy at T <sub>J</sub> = 25 °C, L = 60 mH per diode			60		mJ		
Peak repetitive reverse current at $t_p$ = 2 $\mu$ s, 1 kHz, $T_J$ = 38 °C $\pm$ 2 °C per diode		I <sub>RRM</sub>	0.5		Α		
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		

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<b>ELECTRICAL CHARACTERISTICS</b> (T <sub>C</sub> = 25 °C unless otherwise noted)						
PARAMETER	TEST CONDITIONS		SYMBOL	MBR1090CT	MBR10100CT	UNIT
Maximum instantaneous forward voltage per diode	$I_F = 5.0 A$	T <sub>C</sub> = 125 °C	V <sub>F</sub> <sup>(1)</sup>	0.75		
	$I_F = 5.0 A$	T <sub>C</sub> = 25 °C		0.	85	, v
Maximum reverse current per diode at working peak		T <sub>J</sub> = 25 °C	I <sub>R</sub> <sup>(2)</sup>	100		μΑ
reverse voltage		T <sub>J</sub> = 100 °C	ik (=)	6	.0	mA

#### Notes

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

(2) Pulse test: Pulse width ≤ 40 ms

THERMAL CHARACTERISTICS (T <sub>C</sub> = 25 °C unless otherwise noted)					
PARAMETER	SYMBOL	MBR1090CT MBR10100CT		UNIT	
Typical thermal resistance per diode	$R_{ heta JC}$	4.4		°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<sub>A</sub> = 25 °C unless otherwise noted)

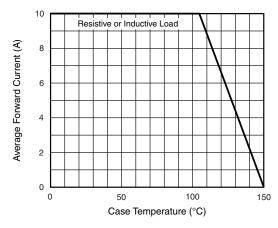


Fig. 1 - Forward Current Derating Curve

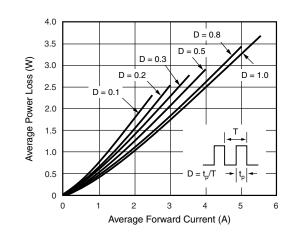
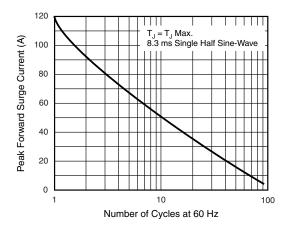


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current Per Diode

Fig. 3 - Forward Power Loss Characteristics Per Diode







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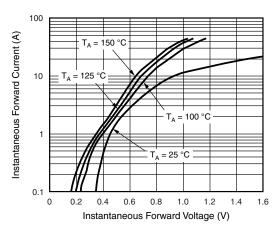


Fig. 4 - Typical Instantaneous Forward Characteristics Per Diode

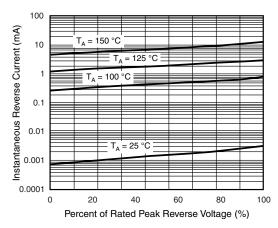


Fig. 5 - Typical Reverse Characteristics Per Diode

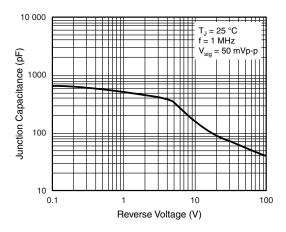


Fig. 6 - Typical Junction Capacitance Per Diode

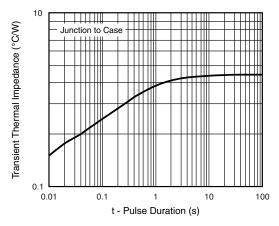


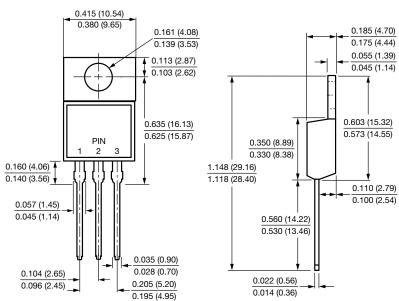
Fig. 7 - Typical Transient Thermal Impedance Per Diode

# MBR1090CT-E3, MBR10100CT-E3

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#### **PACKAGE OUTLINE DIMENSIONS** in inches (millimeters)

#### **TO-220AB**





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Revision: 13-Jun-16 1 Document Number: 91000

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