

FEATURES

- Guardring for overvoltage protection
- Lower power losses, high efficiency
- Low forward voltage drop
- High forward surge capability
- High frequency operation
- Solder dip 260 °C, 40 s
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC



RoHS
COMPLIANT

TYPICAL APPLICATIONS

For use in high frequency rectifier of switching mode power supplies, freewheeling diodes, dc-to-dc converters or polarity protection application.

MECHANICAL DATA

Case: ITO-220AB

Epoxy meets UL 94V-0 flammability rating

Terminals: Matte tin plated leads, solderable per J-STD-002 and JESD22-B102

E3 suffix for consumer grade, meets JESD 201 class 1A whisker test

Polarity: As marked

Mounting Torque: 10 in-lbs maximum

PRIMARY CHARACTERISTICS

$I_{F(AV)}$	5.0 A x 2
V_{RRM}	90 V, 100 V
I_{FSM}	120 A
V_F	0.75 V
$T_J \text{ max.}$	150 °C

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

PARAMETER	SYMBOL	MBRF1090CT	MBRF10100CT	UNIT
Maximum repetitive peak reverse voltage	V_{RRM}	90	100	V
Working peak reverse voltage	V_{RWM}	90	100	V
Maximum DC blocking voltage	V_{DC}	90	100	V
Maximum average forward rectified current at $T_C = 105 \text{ °C}$ total device per diode	$I_{F(AV)}$	10 5.0		A
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load per diode	I_{FSM}	120		A
Peak repetitive reverse current per diode at $t_p = 2 \text{ } \mu\text{s}$, 1 kHz	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 $t = 1 \text{ min}$	V_{AC}	1500		V

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

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

Note:

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

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-E3/45	1.99	45	50/tube	Tube

RATINGS AND CHARACTERISTICS CURVES

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

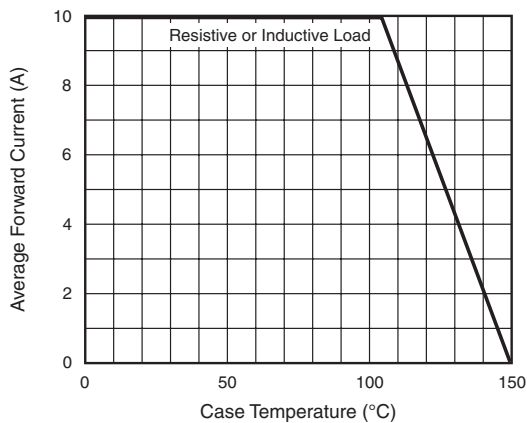


Figure 1. Forward Current Derating Curve

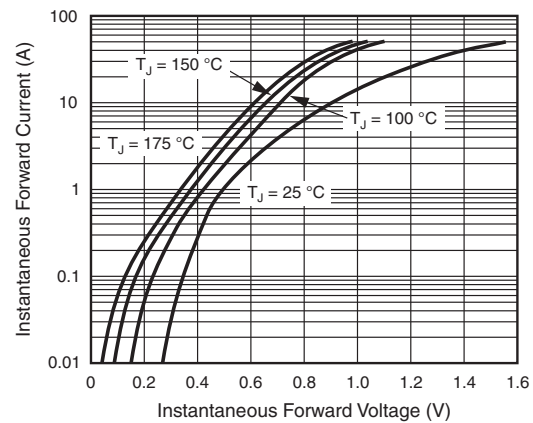


Figure 3. Typical Instantaneous Forward Characteristics Per Diode

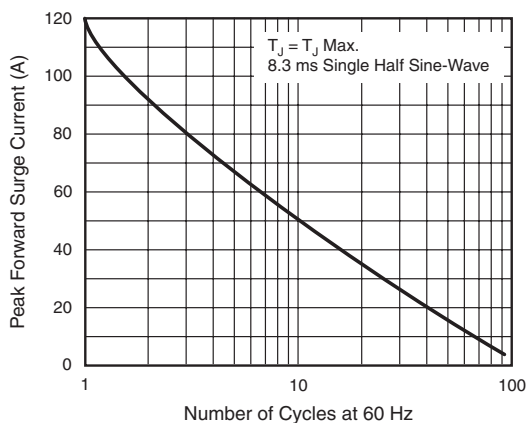


Figure 2. Maximum Non-Repetitive Peak Forward Surge Current Per Diode

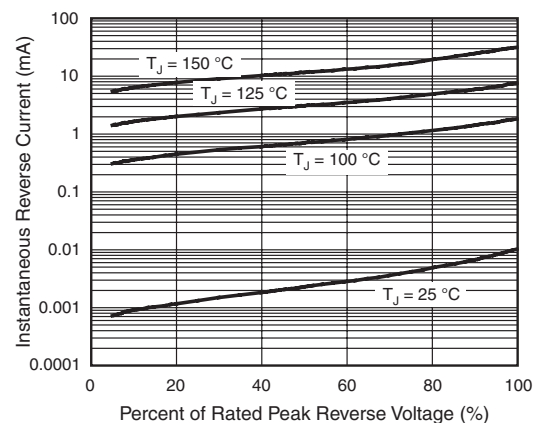


Figure 4. Typical Reverse Characteristics Per Diode



KERSEMI

MBRF1090CT & MBRF10100CT

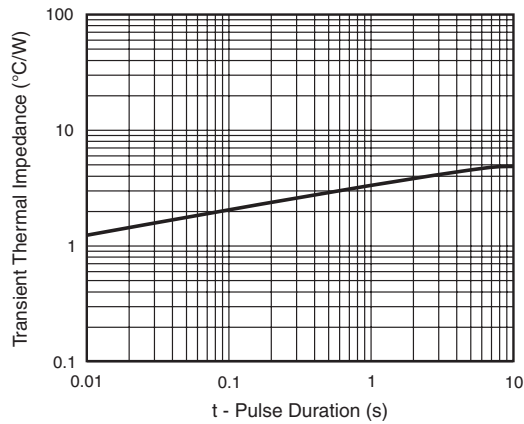


Figure 5. Typical Transient Thermal Impedance Per Diode

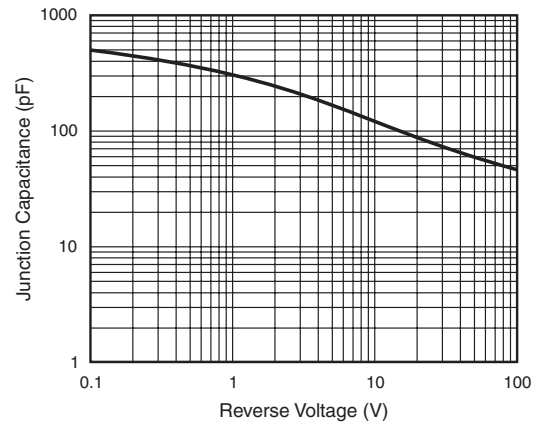


Figure 6. Typical Junction Capacitance Per Diode

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

