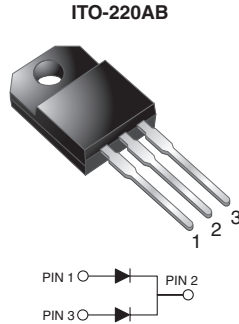




KERSEMI

MBRF1090CT & MBRF10100CT



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⁾ | $I_F = 5.0 \text{ A}$ | $T_C = 125 \text{ °C}$ | V_F | 0.75 | | V |
| | $I_F = 5.0 \text{ A}$ | $T_C = 25 \text{ °C}$ | | 0.85 | | |
| Maximum reverse current per diode at working peak reverse voltage ⁽¹⁾ | | $T_J = 25 \text{ °C}$ | I_R | 100 | | μA |
| | | $T_J = 100 \text{ °C}$ | | 6.0 | | |

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)

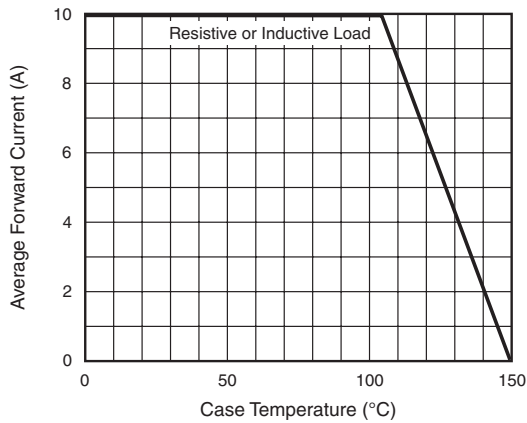


Figure 1. Forward Current Derating Curve

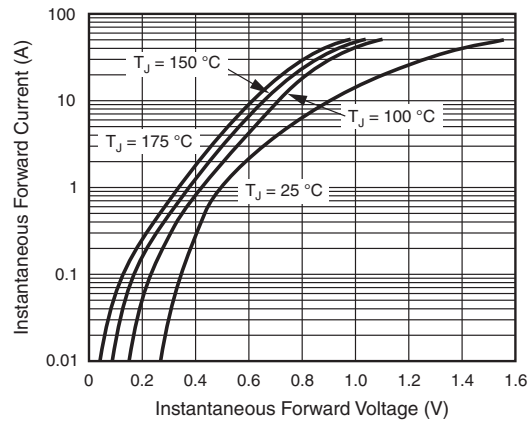


Figure 3. Typical Instantaneous Forward Characteristics Per Diode

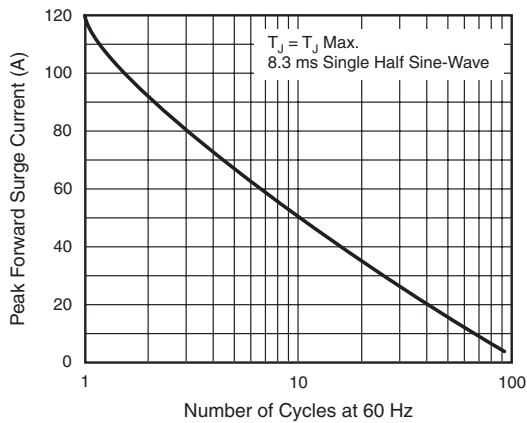


Figure 2. Maximum Non-Repetitive Peak Forward Surge Current Per Diode

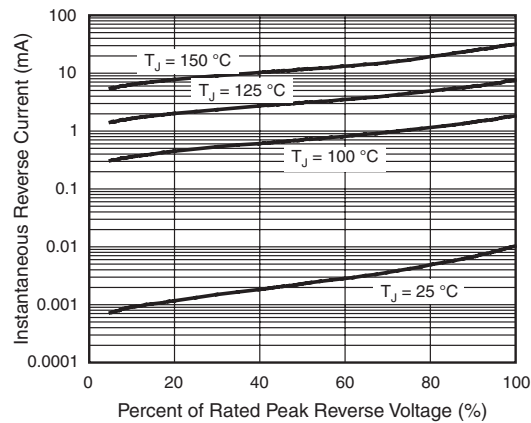


Figure 4. Typical Reverse Characteristics Per Diode



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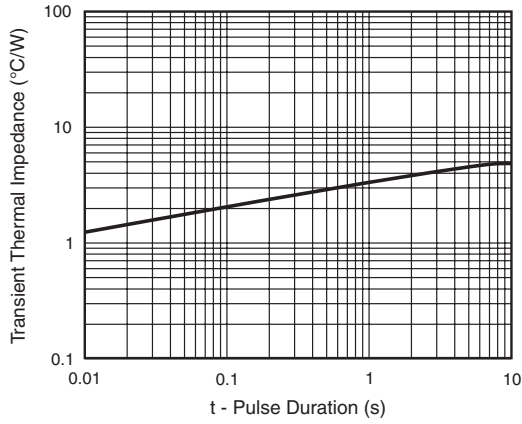


Figure 5. Typical Transient Thermal Impedance Per Diode

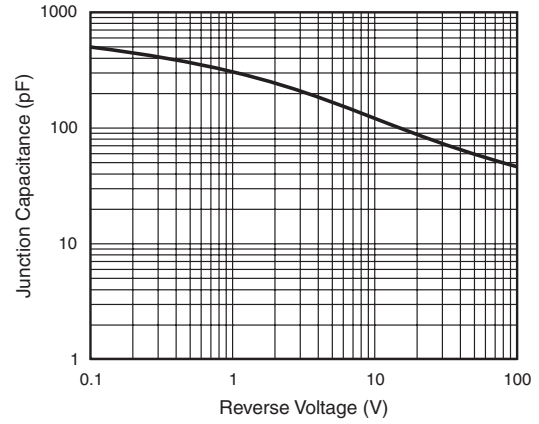


Figure 6. Typical Junction Capacitance Per Diode

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

