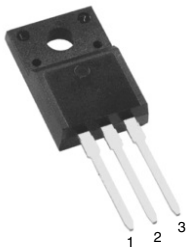
# Dual Common-Cathode High-Voltage Schottky Rectifier

TO-220AB




MBR20H150CT

ITO-220AB




MBRF20H150CT

TO-262AA




SB20H150CT-1




## FEATURES

- Guardring for overvoltage protection
- Low power loss, high efficiency
- Low forward voltage drop
- 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 inverters, freewheeling and polarity protection applications.

## MECHANICAL DATA

**Case:** TO-220AB, ITO-220AB, TO-262AA

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

**Mounting Torque:** 10 in-lbs maximum

**Polarity:** As marked

| PRIMARY CHARACTERISTICS | |
|---|---|
| $I_{F(AV)}$ | 2 x 10 A |
| $V_{RRM}$ | 150 V |
| $I_{FSM}$ | 200 A |
| $V_F$ | 0.75 V |
| $T_J$ | 175 °C |

| MAXIMUM RATINGS ($T_C$ = 25 °C unless otherwise noted) | | | | |
|---|---|---|---|---|
| **PARAMETER** | | **SYMBOL** | **MBR20H150CT** | **UNIT** |
| Maximum repetitive peak reverse voltage | | $V_{RRM}$ | 150 | V |
| Working peak reverse voltage | | $V_{RWM}$ | 150 | V |
| Maximum DC blocking voltage | | $V_{DC}$ | 150 | V |
| Maximum average forward rectified current | total device<br>per diode | $I_{F(AV)}$ | 20<br>10 | A |
| Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load per diode | | $I_{FSM}$ | 200 | A |
| Peak repetitive reverse current per diode at $t_p$ = 2 µs, 1 kHz | | $I_{RRM}$ | 1.0 | A |
| Peak non-repetitive reverse surge energy per diode (8/20 µs waveform) | | $E_{RSM}$ | 10 | mJ |
| Non-repetitive avalanche energy per diode at 25 °C, $I_{AS}$ = 1.5 A, L = 10 mH | | $E_{AS}$ | 11.25 | mJ |
| 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 + 175 | °C |
| Isolation voltage (ITO-220AB only) from terminals to heatsink t = 1 min | | $V_{AC}$ | 1500 | V |

| ELECTRICAL CHARACTERISTICS ($T_C$ = 25 °C unless otherwise noted) | | | | | |
|---|---|---|---|---|---|
| **PARAMETER** | **TEST CONDITIONS** | | **SYMBOL** | **VALUE** | **UNIT** |
| Maximum instantaneous forward voltage per diode (1) | $I_F$ = 10 A<br>$I_F$ = 10 A<br>$I_F$ = 20 A<br>$I_F$ = 20 A | $T_C$ = 25 °C<br>$T_C$ = 125 °C<br>$T_C$ = 25 °C<br>$T_C$ = 125 °C | $V_F$ | 0.90<br>0.75<br>0.99<br>0.86 | V |
| Maximum reverse current per diode at working peak reverse voltage (1) | | $T_J$ = 25 °C<br>$T_J$ = 125 °C | $I_R$ | 5.0<br>1.0 | µA<br>mA |

**Note:**

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

| THERMAL CHARACTERISTICS ($T_C$ = 25 °C unless otherwise noted) | | | | | |
|---|---|---|---|---|---|
| **PARAMETER** | **SYMBOL** | **MBR** | **MBRF** | **MBRB** | **UNIT** |
| Typical thermal resistance per diode | $R_{\theta JC}$ | 2.2 | 4.2 | 2.2 | °C/W |

| ORDERING INFORMATION (Example) | | | | | |
|---|---|---|---|---|---|
| **PACKAGE** | **PREFERRED P/N** | **UNIT WEIGHT (g)** | **PACKAGE CODE** | **BASE QUANTITY** | **DELIVERY MODE** |
| TO-220AB | MBR20H150CT-E3/45 | 2.06 | 45 | 50/tube | Tube |
| ITO-220AB | MBRF20H150CT-E3/45 | 2.20 | 45 | 50/tube | Tube |
| TO-262AA | SB20H150CT-1E3/45 | 1.58 | 45 | 50/tube | Tube |

## RATINGS AND CHARACTERISTICS CURVES

($T_A$ = 25 °C unless otherwise noted)

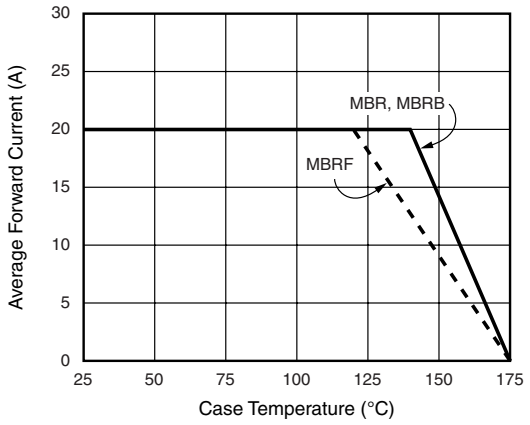



Figure 1. Forward Derating Curve (Total)

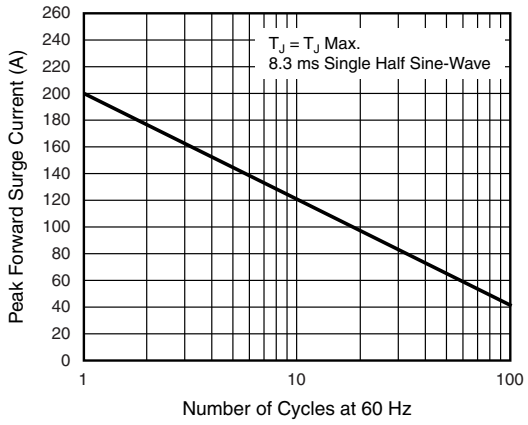



Figure 2. Maximum Non-Repetitive Peak Forward Surge Current Per Diode

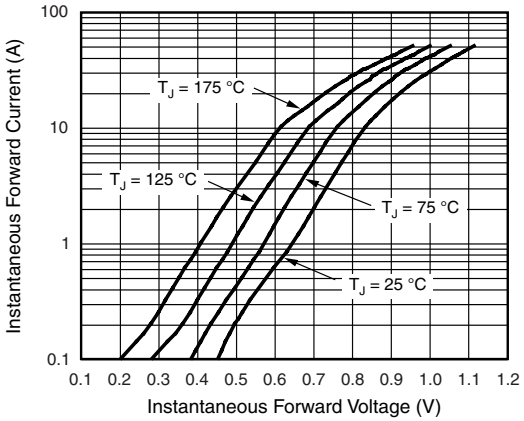



Figure 3. Typical Instantaneous Forward Characteristics Per Diode

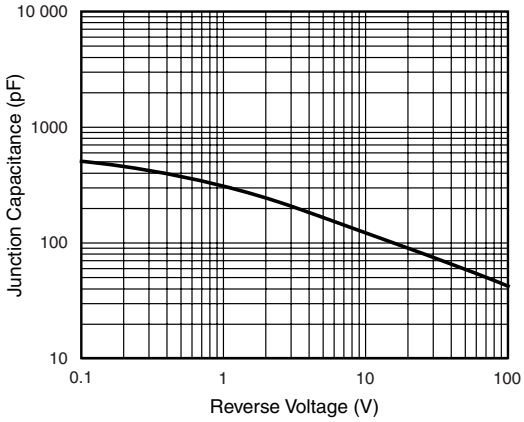



Figure 5. Typical Junction Capacitance Per Diode

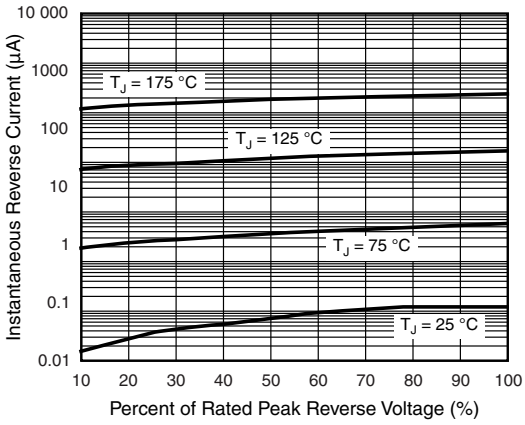



Figure 4. Typical Reverse Characteristics Per Diode

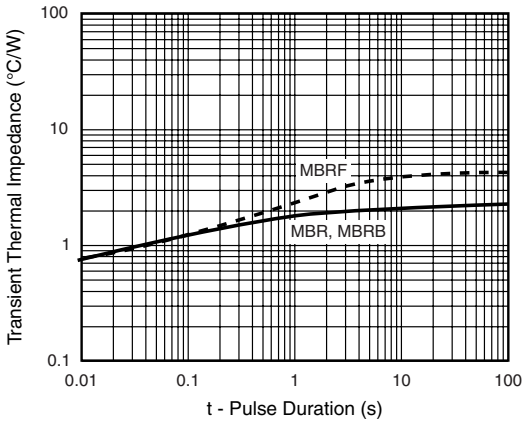
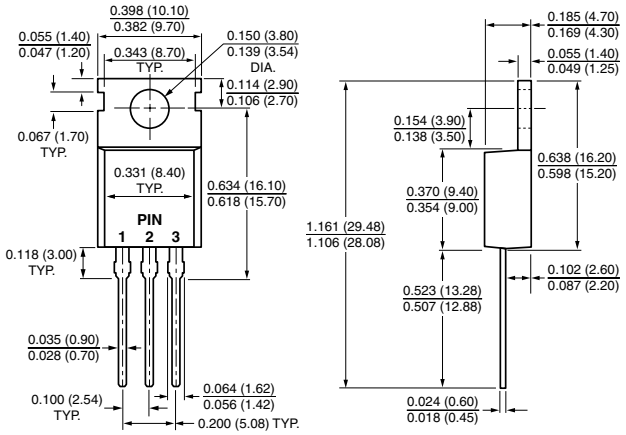


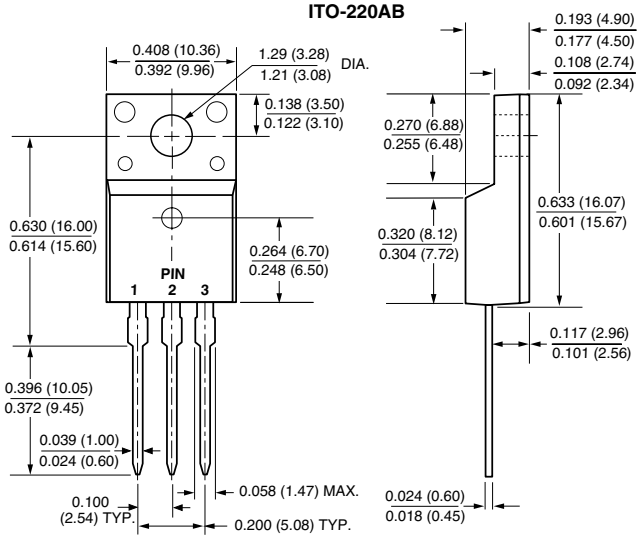

Figure 6. Typical Transient Thermal Impedance Per Diode

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

**TO-220AB**




**ITO-220AB**




**TO-262AA**

