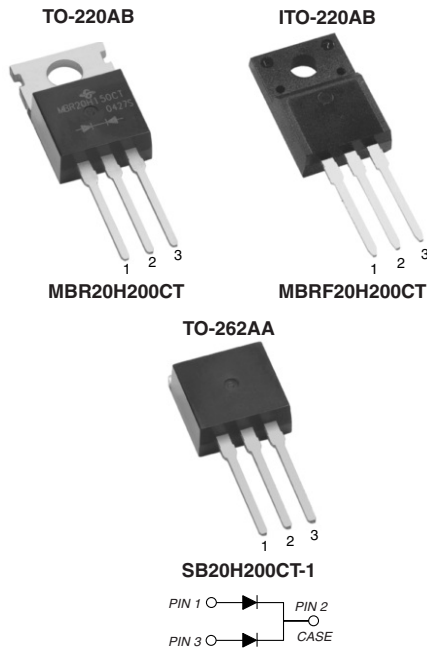




Dual Common-Cathode High-Voltage Schottky Rectifier

Low Leakage Current 5.0 μ A



FEATURES

- Guarding for overvoltage protection
- Low power loss, high efficiency
- Low forward voltage drop
- High frequency operation
- Solder dip 260 °C, 40 seconds
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC

TYPICAL APPLICATIONS

For use in high frequency inverters, free-wheeling 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-002B and JESD22-B102D

E3 suffix for commercial grade

Mounting Torque: 10 in-lbs maximum

Polarity: As marked

PRIMARY CHARACTERISTICS

| | |
|-------------|----------|
| $I_{F(AV)}$ | 2 x 10 A |
| V_{RRM} | 200 V |
| I_{FSM} | 290 A |
| V_F | 0.75 V |
| T_j | 175 °C |

MAXIMUM RATINGS ($T_C = 25$ °C unless otherwise noted)

| PARAMETER | SYMBOL | MBR20H200CT | UNIT |
|---|----------------|---------------|------------|
| Maximum repetitive peak reverse voltage | V_{RRM} | 200 | V |
| Working peak reverse voltage | V_{RWM} | 200 | V |
| Maximum DC blocking voltage | V_{DC} | 200 | V |
| Maximum average forward rectified current | $I_{F(AV)}$ | 20 10 | A |
| Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load per diode | I_{FSM} | 290 | A |
| Peak repetitive reverse current per diode at $t_p = 2$ μ s, 1 kHz | I_{RRM} | 1.0 | A |
| Peak non-repetitive reverse surge energy per diode (8/20 μ s waveform) | E_{RSM} | 20 | mJ |
| Non-repetitive avalanche energy per diode at 25 °C, $I_{AS} = 2.0$ A, L = 10 mH | E_{AS} | 20 | mJ |
| Electrostatic discharge capacitor voltage Human body model air discharge: C = 100 pF, R 0 1.5 k Ω | V_C | 25 | KV |
| Voltage rate of change (rated V_R) | dv/dt | 10000 | V/ μ s |
| 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 minute | V_{AC} | 1500 | V |

| ELECTRICAL CHARACTERISTICS ($T_C = 25\text{ }^\circ\text{C}$ unless otherwise noted) | | | | | |
|--|--|--------|------------------------------|------------------------------|---------------------|
| PARAMETER | TEST CONDITIONS | SYMBOL | TYP. | MAX. | UNIT |
| Maximum instantaneous forward voltage per diode ⁽¹⁾ | at $I_F = 10\text{ A}$, $T_C = 25\text{ }^\circ\text{C}$ at $I_F = 10\text{ A}$, $T_C = 125\text{ }^\circ\text{C}$ at $I_F = 20\text{ A}$, $T_C = 25\text{ }^\circ\text{C}$ at $I_F = 20\text{ A}$, $T_C = 125\text{ }^\circ\text{C}$ | V_F | 0.81 0.65 0.87 0.74 | 0.88 0.75 0.97 0.85 | V |
| Maximum reverse current per diode at working peak reverse voltage ⁽¹⁾ | $T_J = 25\text{ }^\circ\text{C}$ $T_J = 125\text{ }^\circ\text{C}$ | I_R | 5.0 1.0 | | μA mA |
| Typical junction capacitance | at 4.0 V, 1 MHz | C_J | 250 | | pF |

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 | MBR | MBRF | SB | UNIT |
| Typical thermal resistance per diode | $R_{\theta JC}$ | 2.0 | 4.0 | 2.0 | $^\circ\text{C/W}$ |

| ORDERING INFORMATION (Example) | | | | | |
|---------------------------------------|--------------------|-----------------|--------------|---------------|---------------|
| PACKAGE | PREFERRED P/N | UNIT WEIGHT (g) | PACKAGE CODE | BASE QUANTITY | DELIVERY MODE |
| TO-220AB | MBR20H200CT-E3/45 | 2.06 | 45 | 50/Tube | Tube |
| ITO-220AB | MBRF20H200CT-E3/45 | 2.20 | 45 | 50/Tube | Tube |
| TO-262AA | SB20H200CT-1E3/45 | 1.58 | 45 | 50/Tube | Tube |

RATINGS AND CHARACTERISTICS CURVES

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

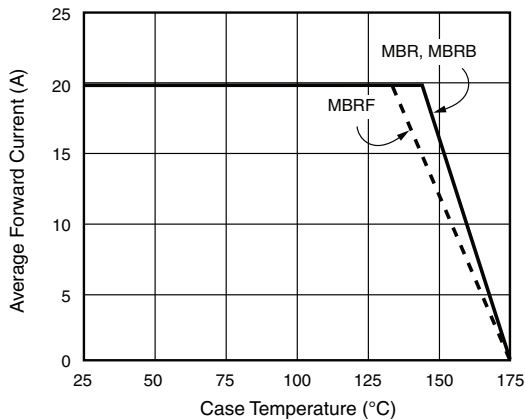


Figure 1. Forward Derating Curve (Total)

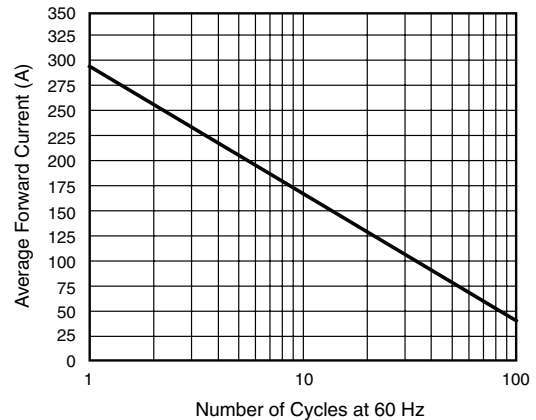


Figure 2. Maximum Non-Repetitive Peak Forward Surge Current Per Diode



MBR20H200CT, MBRF20H200CT & SB20H200CT-1

Vishay General Semiconductor

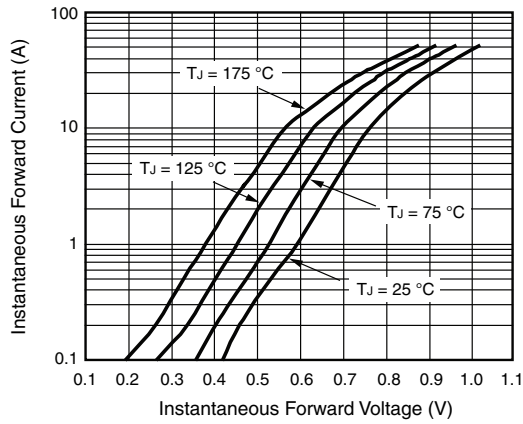


Figure 3. Typical Instantaneous Forward Characteristics Per Diode

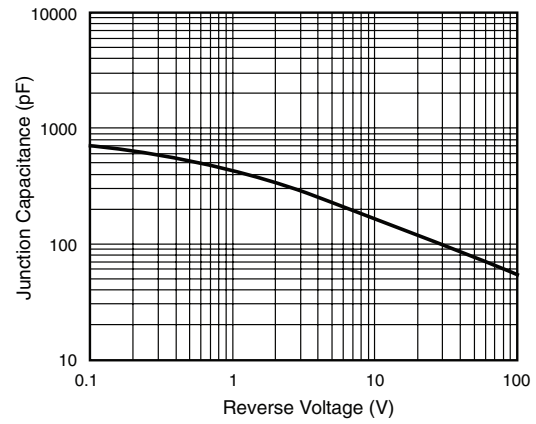


Figure 5. Typical Junction Capacitance Per Diode

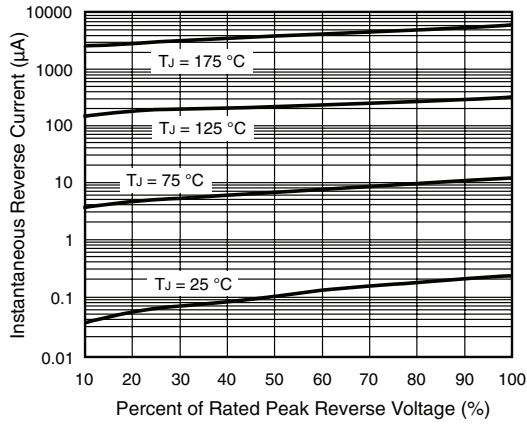


Figure 4. Typical Reverse Characteristics Per Diode

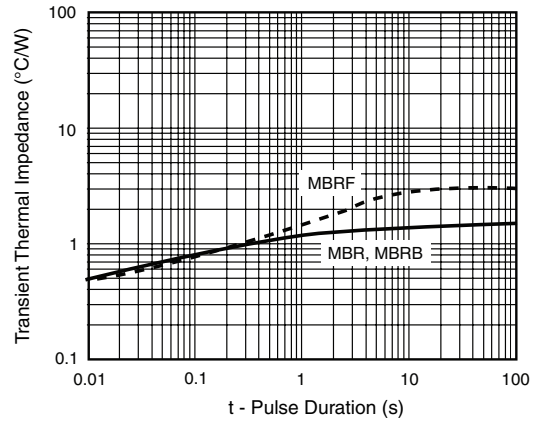
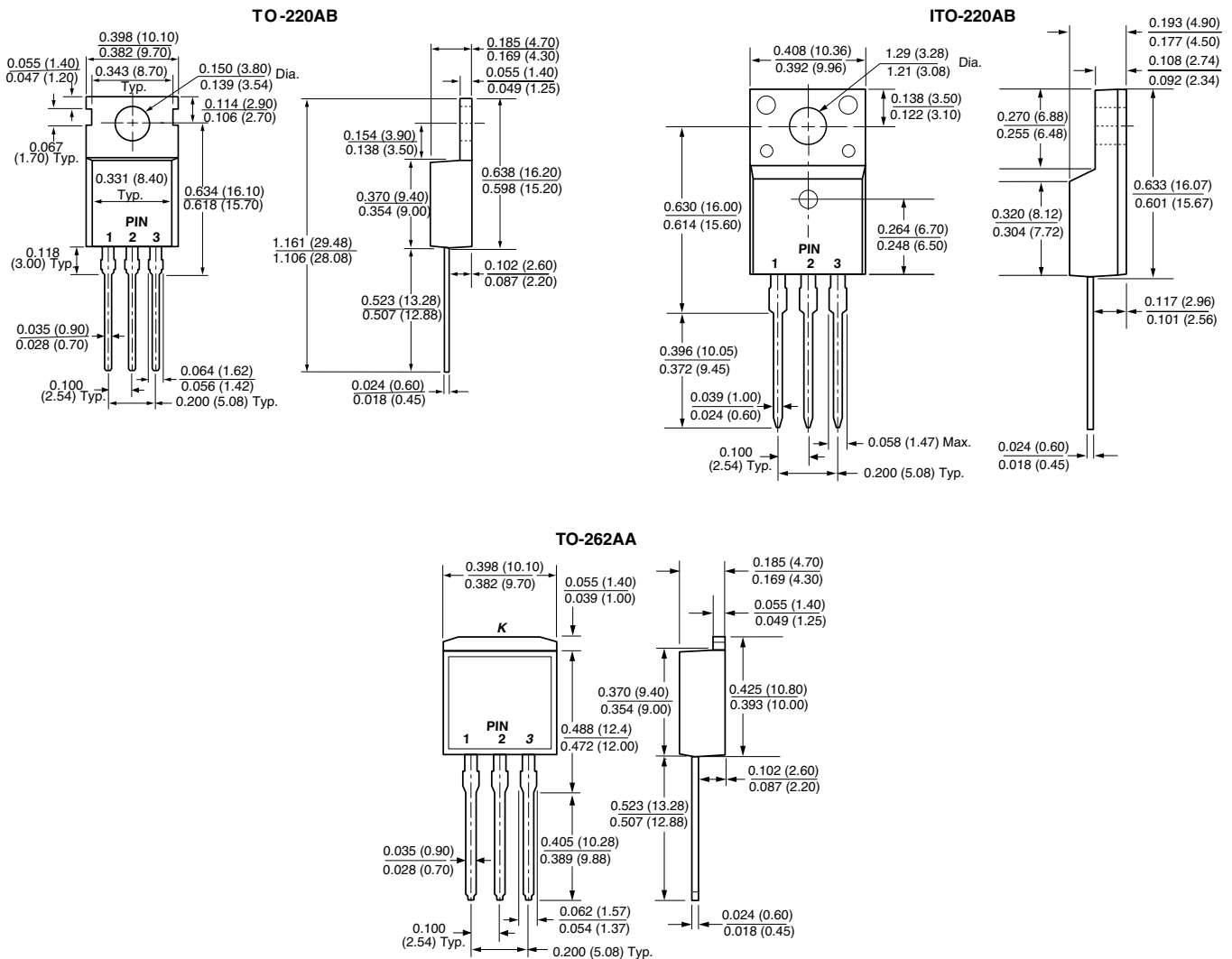


Figure 6. Typical Transient Thermal Impedance Per Diode

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)





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