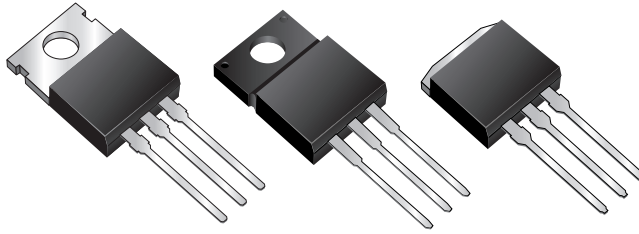


# MBR20H200CT, MBRF20H200CT & MBRB20H200CT-1 Series



**Reverse Voltage** 200V  
**Forward Current** 20A  
**Max. Junction Temperature** 175°C

## Features

- Plastic package has Underwriters Laboratory Flammability Classification 94V-0
- Dual rectifier construction, positive center tap
- Metal silicon junction, majority carrier conduction
- Low leakage current, Low power loss, High efficiency
- Guardring for overvoltage protection
- For use in high frequency switching power supplies and converters with up to 48V output, free wheeling, and polarity protection applications
- Rated for reverse surge and ESD

## Mechanical Data

**Case:** JEDEC TO-220AB, ITO-220AB, TO-262AA  
 molded plastic body

**Terminals:** Plated leads, solderable per MIL-STD-750, Method 2026

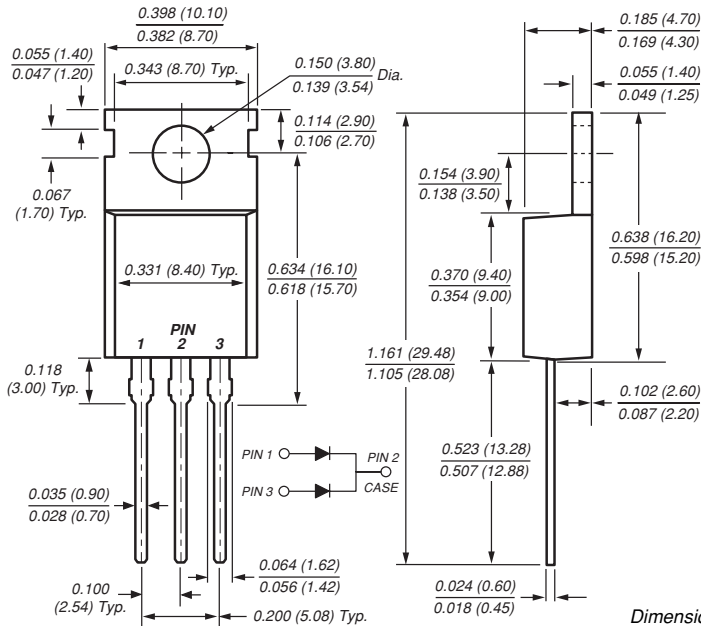
High temperature soldering guaranteed:  
 250°C/10 seconds, 0.25" (6.35mm) from case (TO-220AB, ITO-220AB) at terminals (TO-236AB)

**Polarity:** As marked **Mounting Position:** Any

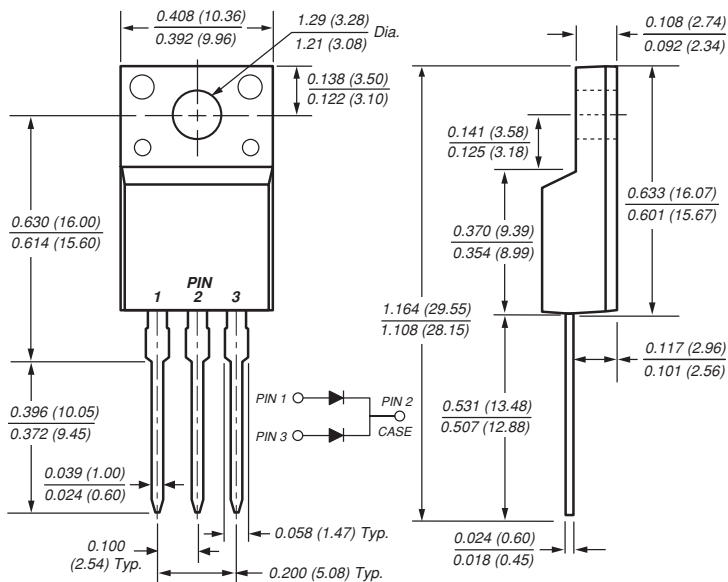
**Mounting Torque:** 10 in-lbs maximum

**Weight:** 0.08 oz., 2.24 g

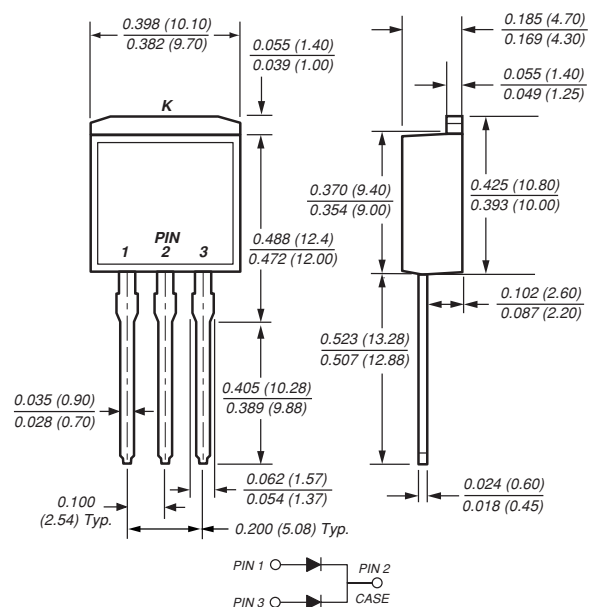
### TO-220AB (MBR20H200CT)



### ITO-220AB (MBRF20H200CT)



### TO-262AA (MBRB20H200CT-1)



# MBR20H200CT, MBRF20H200CT & MBRB20H200CT-1 Series



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## Maximum Ratings (T<sub>C</sub> = 25°C unless otherwise noted)

| Parameter                                                                                                      | Symbol                            | MBR20H200CT | MBRF20H200CT                                                      | MBRB20H200CT-1 | Unit |
|----------------------------------------------------------------------------------------------------------------|-----------------------------------|-------------|-------------------------------------------------------------------|----------------|------|
| Maximum repetitive peak reverse voltage                                                                        | V <sub>RRM</sub>                  |             | 200                                                               |                | V    |
| Working peak reverse voltage                                                                                   | V <sub>RWM</sub>                  |             | 200                                                               |                | V    |
| Maximum DC blocking voltage                                                                                    | V <sub>DC</sub>                   |             | 200                                                               |                | V    |
| Maximum average forward rectified current <i>Total device</i><br>(Fig. 1) <i>Per leg</i>                       | I <sub>F(AV)</sub>                |             | 20<br>10                                                          |                | A    |
| Peak forward surge current<br>8.3ms single half sine-wave superimposed<br>on rated load (JEDEC Method) per leg | I <sub>FSM</sub>                  |             | 290                                                               |                | A    |
| Peak repetitive reverse current per leg at t <sub>p</sub> = 2μs, 1KHz                                          | I <sub>RRM</sub>                  |             | 1.0                                                               |                | A    |
| Peak non-repetitive reverse surge energy<br>(8/20μs waveform)                                                  | E <sub>RSM</sub>                  |             | 20                                                                |                | mJ   |
| Non-repetitive avalanche energy per leg<br>at 25°C, E <sub>AS</sub> = 2.0A, L=10mH                             | E <sub>AS</sub>                   |             | 20                                                                |                | mJ   |
| Electrostatic discharge capacitor voltage<br>Human body model: C = 100pF, R = 1.5KΩ                            | V <sub>C</sub>                    |             | 25                                                                |                | KV   |
| 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 +175                                                       |                | °C   |
| RMS Isolation voltage (MBRF type only) from terminals<br>to heatsink with t = 1 second, RH ≤ 30%               | V <sub>ISOL</sub>                 |             | 4500 <sup>(1)</sup><br>3500 <sup>(2)</sup><br>1500 <sup>(3)</sup> |                | V    |

## Electrical Characteristics (T<sub>C</sub> = 25°C unless otherwise noted)

| Parameter                                                                                                                                                                                                                                       | Symbol         | Typical                      | Maximum                      | Unit     |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|------------------------------|------------------------------|----------|
| Maximum instantaneous forward voltage per leg at:<br>I <sub>F</sub> = 10A, T <sub>J</sub> = 25°C<br>I <sub>F</sub> = 10A, T <sub>J</sub> = 125°C<br>I <sub>F</sub> = 20A, T <sub>J</sub> = 25°C<br>I <sub>F</sub> = 20A, T <sub>J</sub> = 125°C | V <sub>F</sub> | 0.81<br>0.65<br>0.87<br>0.74 | 0.88<br>0.75<br>0.97<br>0.85 | V        |
| Maximum reverse current per leg<br>at working peak reverse voltage <sup>(4)</sup><br>T <sub>J</sub> = 25°C<br>T <sub>J</sub> = 125°C                                                                                                            | I <sub>R</sub> | 5.0<br>1.0                   |                              | μA<br>mA |
| Typical junction capacitance at 4.0V, 1MHZ                                                                                                                                                                                                      | C <sub>J</sub> | 250                          |                              | pF       |

## Thermal Characteristics (T<sub>C</sub> = 25°C unless otherwise noted)

| Parameter                          | Symbol           | MBR | MBRF | MBRB | Unit |
|------------------------------------|------------------|-----|------|------|------|
| Typical thermal resistance per leg | R <sub>θJC</sub> | 2.0 | 4.0  | 2.0  | °C/W |

### Notes:

- (1) Clip mounting (on case), where lead does not overlap heatsink with 0.110" offset
- (2) Clip mounting (on case), where leads does overlap heatsink
- (3) Screw mounting with 4-40 screw, where washer diameter is ≤ 4.9 mm (0.97")
- (4) Pulse test: 300μs pulse width, 1% duty cycle

## Ordering Information

| Product        | Case     | Package Code | Package Option                       |
|----------------|----------|--------------|--------------------------------------|
| MBR20H200CT    | TO-220AB | 45           | Anti-Static tube, 50/tube, 1K/carton |
| MBRF20H200CT   | TO-200AB | 45           | Anti-Static tube, 50/tube, 1K/carton |
| MBRB20H200CT-1 | TO-262AA | 45           | Anti-Static tube, 50/tube, 1K/carton |

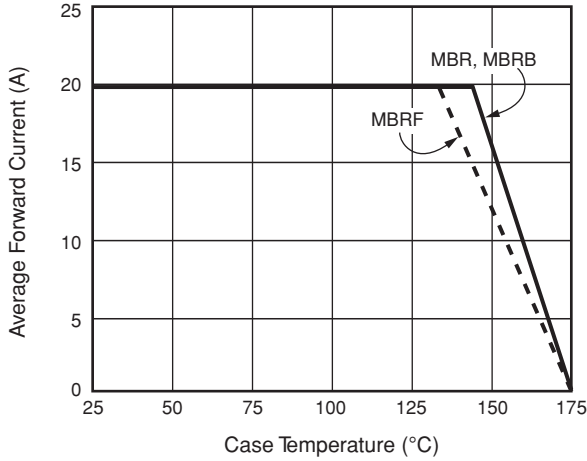


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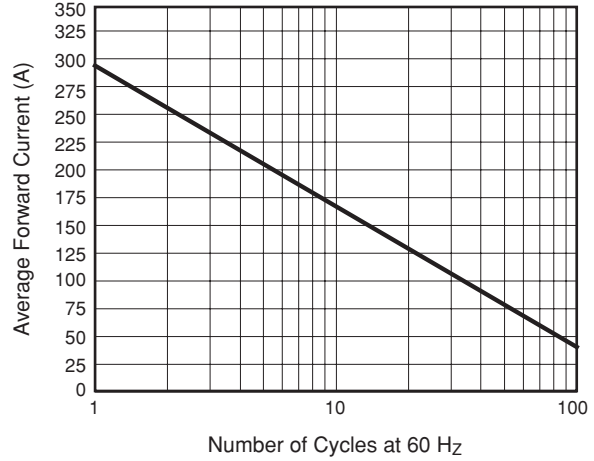
# MBR20H200CT, MBRF20H200CT & MBRB20H200CT-1 Series

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

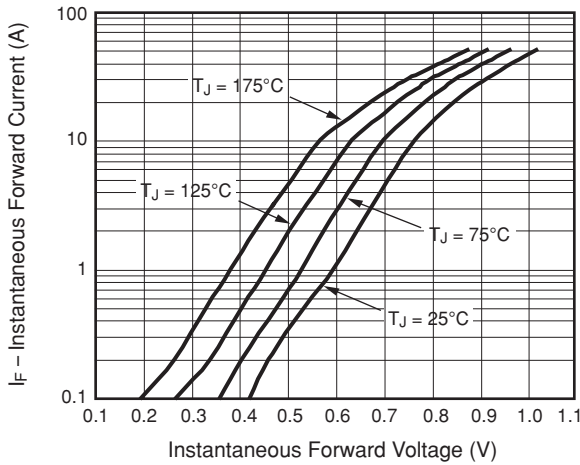
**Fig. 1 – Forward Derating Curve**



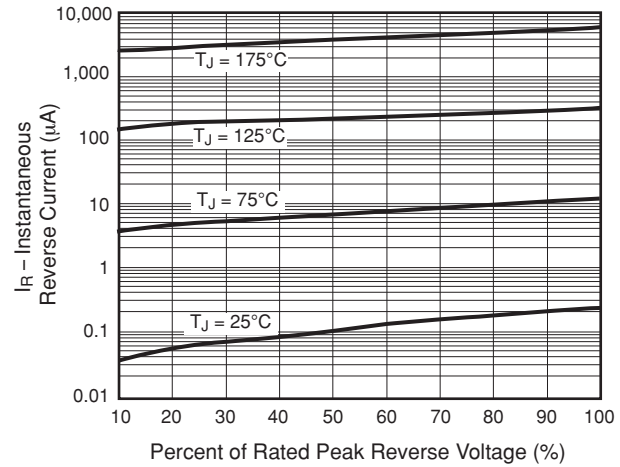
**Fig. 2 – Maximum Non-Repetitive Peak Forward Surge Current**



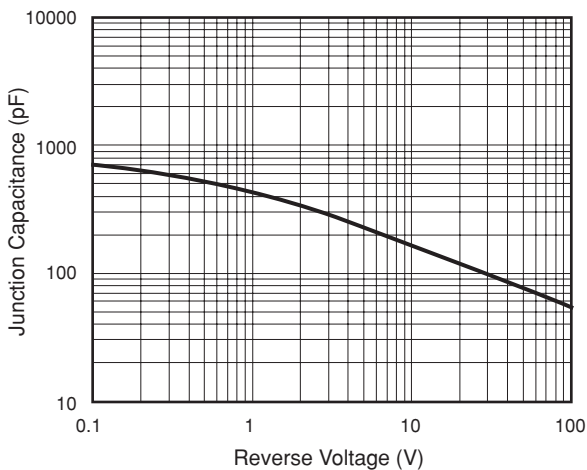
**Fig. 3 – Typical Instantaneous Forward Characteristics**



**Fig. 4 – Typical Reverse Characteristics**



**Fig. 5 – Typical Junction Capacitance**



**Fig. 6 – Typical Transient Thermal Impedance Per Leg**

