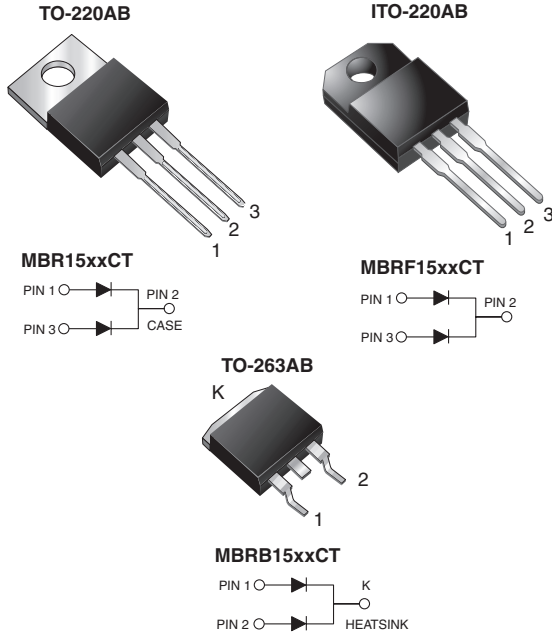




**KERSEMI**

# MBR(F,B)1535CT thru MBR(F,B)1560CT



## FEATURES

- Guardring for overvoltage protection
- Lower power losses, high efficiency
- Low forward voltage drop
- High forward surge capability
- High frequency operation
- Meets MSL level 1, per J-STD-020, LF maximum peak of 245 °C (for TO-263AB package)
- Solder dip 260 °C, 40 s (for TO-220AB and ITO-220AB package)
- 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:** TO-220AB, ITO-220AB, TO-263AB

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, HE3 suffix for high reliability grade (AEC Q101 qualified), meets JESD 201 class 2 whisker test

**Polarity:** As marked

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

## PRIMARY CHARACTERISTICS

|                    |                |
|--------------------|----------------|
| $I_{F(AV)}$        | 7.5 A x 2      |
| $V_{RRM}$          | 35 V to 60 V   |
| $I_{FSM}$          | 150 A          |
| $V_F$              | 0.57 V, 0.65 V |
| $T_J \text{ max.}$ | 150 °C         |

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

| PARAMETER  | SYMBOL      | MBR1535CT     | MBR1545CT | MBR1550CT | MBR1560CT | UNIT             |
|--|-------------|---------------|-----------|-----------|-----------|------------------|
| Maximum repetitive peak reverse voltage  | $V_{RRM}$   | 35            | 45        | 50        | 60        | V                |
| Working peak reverse voltage   | $V_{RWM}$   | 35            | 45        | 50        | 60        | V                |
| Maximum DC blocking voltage  | $V_{DC}$    | 35            | 45        | 50        | 60        | V                |
| Maximum average forward rectified current at $T_C = 105 \text{ °C}$                          | $I_{F(AV)}$ | 15<br>7.5     |           |           |           | A                |
| Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load per diode | $I_{FSM}$   | 150           |           |           |           | A                |
| Peak repetitive reverse surge current per diode at $t_p = 2.0 \text{ }\mu\text{s}$ , 1 kHz   | $I_{RRM}$   | 1.0           |           | 0.5       |           | A                |
| Voltage rate of change (rated $V_R$ )  | dV/dt       | 10 000        |           |           |           | V/ $\mu\text{s}$ |
| Operating junction temperature range   | $T_J$       | - 65 to + 150 |           |           |           | °C               |

# MBR(F,B)1535CT thru MBR(F,B)1560CT



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| MAXIMUM RATINGS ( $T_C = 25\text{ }^\circ\text{C}$ unless otherwise noted)         |           |               |           |           |           |                  |
|--|-----------|---------------|-----------|-----------|-----------|------------------|
| PARAMETER  | SYMBOL    | MBR1535CT     | MBR1545CT | MBR1550CT | MBR1560CT | UNIT             |
| Storage temperature range  | $T_{STG}$ | - 65 to + 175 |           |           |           | $^\circ\text{C}$ |
| Isolation voltage (ITO-220AB only)<br>from terminal to heatsink $t = 1\text{ min}$ | $V_{AC}$  | 1500          |           |           |           | V                |

| ELECTRICAL CHARACTERISTICS ( $T_C = 25\text{ }^\circ\text{C}$ unless otherwise noted)       |                      |                                   |        |                                   |           |           |           |      |
|---|----------------------|-----------------------------------|--------|-----------------------------------|-----------|-----------|-----------|------|
| PARAMETER   | TEST CONDITIONS      |                                   | SYMBOL | MBR1535CT                         | MBR1545CT | MBR1550CT | MBR1560CT | UNIT |
| Maximum instantaneous forward voltage per diode <sup>(1)</sup>                              | $I_F = 7.5\text{ A}$ | $T_C = 25\text{ }^\circ\text{C}$  | $V_F$  | -                                 | -         | 0.75      | -         | V    |
|   | $I_F = 7.5\text{ A}$ | $T_C = 125\text{ }^\circ\text{C}$ |        | 0.57                              | -         | 0.65      | -         |      |
|   | $I_F = 15\text{ A}$  | $T_C = 25\text{ }^\circ\text{C}$  |        | 0.84                              | -         | -         | -         |      |
|   | $I_F = 15\text{ A}$  | $T_C = 125\text{ }^\circ\text{C}$ |        | 0.72                              | -         | -         | -         |      |
| Maximum instantaneous reverse current at rated DC blocking voltage per diode <sup>(1)</sup> |                      |                                   | $I_R$  | 0.1                               | -         | 1.0       | -         | mA   |
|   |                      |                                   |        | $T_C = 125\text{ }^\circ\text{C}$ | 15        | -         | 50        |      |

**Note:**

(1) Pulse test: 300  $\mu\text{s}$  pulse width, 1 % duty cycle

| THERMAL CHARACTERISTICS ( $T_C = 25\text{ }^\circ\text{C}$ unless otherwise noted) |                 |     |      |      |                    |
|--|-----------------|-----|------|------|--------------------|
| PARAMETER  | SYMBOL          | MBR | MBRF | MBRB | UNIT               |
| Maximum thermal resistance per diode   | $R_{\theta JA}$ | 60  | -    | 60   | $^\circ\text{C/W}$ |
|  | $R_{\theta JC}$ | 3.0 | 5.0  | 3.0  |                    |

| ORDERING INFORMATION (Example) |                                 |                 |              |               |               |
|--------------------------------|---------------------------------|-----------------|--------------|---------------|---------------|
| PACKAGE                        | PREFERRED P/N                   | UNIT WEIGHT (g) | PACKAGE CODE | BASE QUANTITY | DELIVERY MODE |
| TO-220AB                       | MBR1545CT-E3/45                 | 1.85            | 45           | 50/tube       | Tube          |
| ITO-220AB                      | MBRF1545CT-E3/45                | 1.99            | 45           | 50/tube       | Tube          |
| TO-263AB                       | MBRB1545CT-E3/45                | 1.35            | 45           | 50/tube       | Tube          |
| TO-263AB                       | MBRB1545CT-E3/81                | 1.35            | 81           | 800/reel      | Tape reel     |
| TO-220AB                       | MBR1545CTHE3/45 <sup>(1)</sup>  | 1.85            | 45           | 50/tube       | Tube          |
| ITO-220AB                      | MBRF1545CTHE3/45 <sup>(1)</sup> | 1.99            | 45           | 50/tube       | Tube          |
| TO-263AB                       | MBRB1545CTHE3/45 <sup>(1)</sup> | 1.35            | 45           | 50/tube       | Tube          |
| TO-263AB                       | MBRB1545CTHE3/81 <sup>(1)</sup> | 1.35            | 81           | 800/reel      | Tape reel     |

**Note:**

(1) Automotive grade AEC Q101 qualified



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# MBR(F,B)1535CT thru MBR(F,B)1560CT

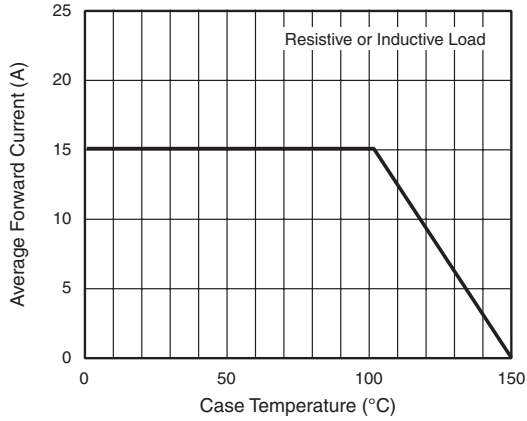


Figure 1. Forward Current Derating Curve

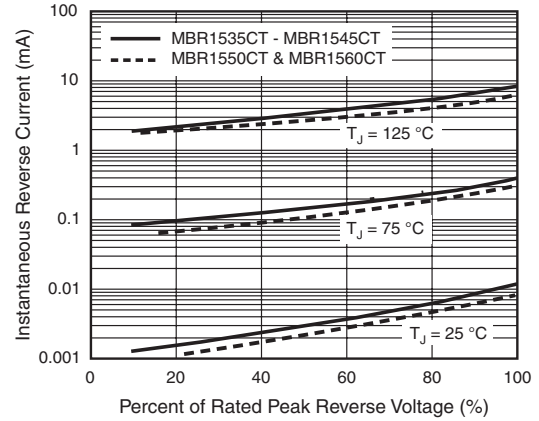


Figure 4. Typical Reverse Characteristics Per Diode

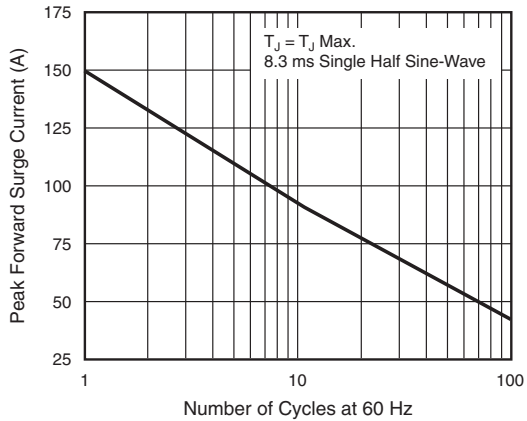


Figure 2. Maximum Non-Repetitive Peak Forward Surge Current Per Diode

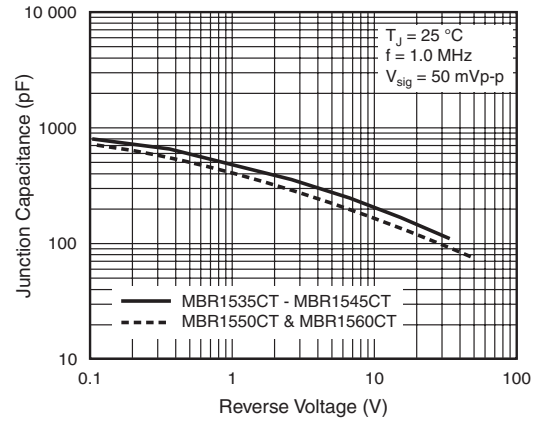


Figure 5. Typical Junction Capacitance Per Diode

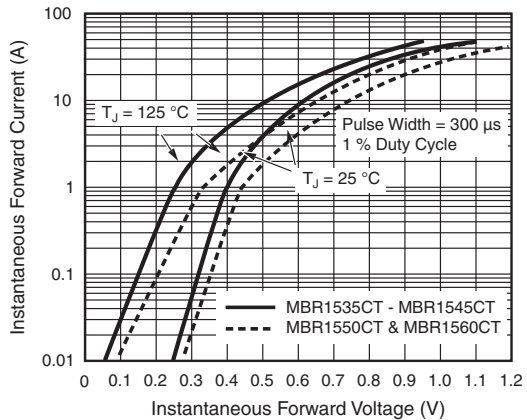


Figure 3. Typical Instantaneous Forward Characteristics Per Diode

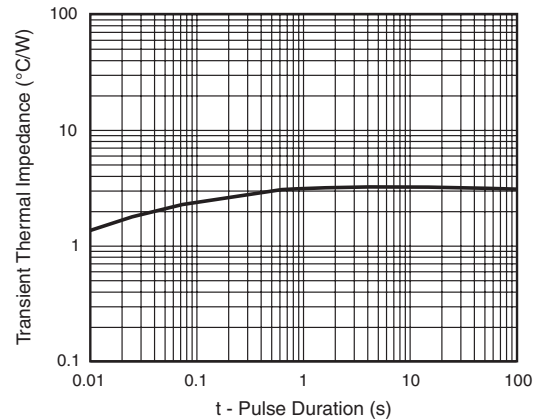


Figure 6. Typical Transient Thermal Impedance Per Diode

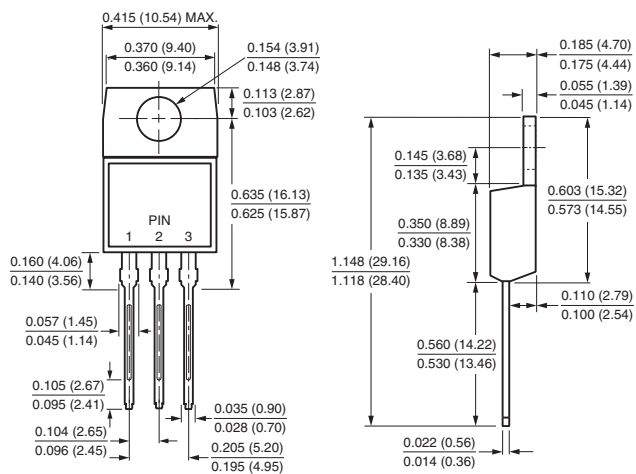
# MBR(F,B)1535CT thru MBR(F,B)1560CT



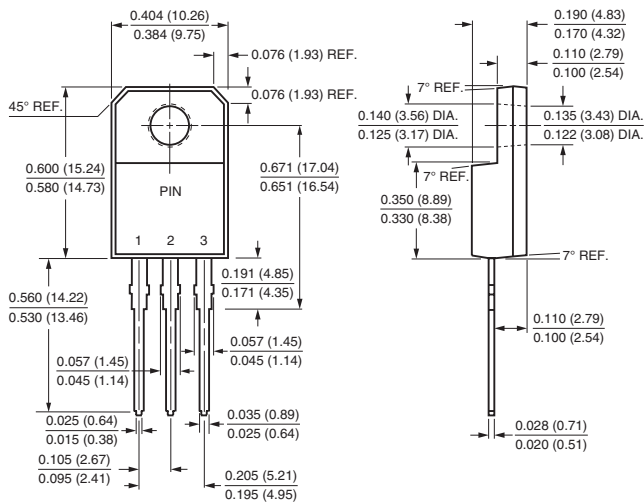
**KERSEMI**

## PACKAGE OUTLINE DIMENSIONS

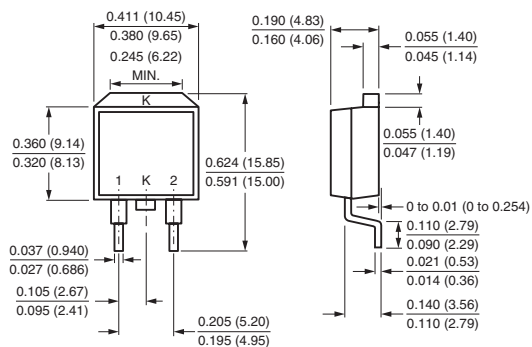
**TO-220AB**



**ITO-220AB**



**TO-263AB**



**Mounting Pad Layout**

