



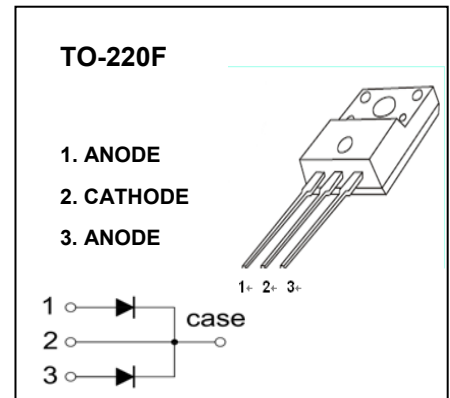
## TO-220F Plastic-Encapsulate Diodes

### MBR3030, 35, 40, 45, 50FCT

SCHOTTKY BARRIER RECTIFIER

#### FEATURES

- Schottky Barrier Chip
- Guard Ring Die Construction for Transient Protection
- Low Power Loss, High Efficiency
- High Surge Capability
- High Current Capability and Low Forward Voltage Drop
- For Use in Low Voltage, High Frequency Inverters, Free Wheeling, and Polarity Protection Applications



#### MAXIMUM RATINGS ( $T_a=25^\circ\text{C}$ unless otherwise noted )

| Symbol          | Parameter   | Value          |                |                |                |                | Unit                      |
|-----------------|---|----------------|----------------|----------------|----------------|----------------|---------------------------|
|                 |   | MBR30<br>30FCT | MBR30<br>35FCT | MBR30<br>40FCT | MBR30<br>45FCT | MBR30<br>50FCT |                           |
| $V_{RRM}$       | Peak repetitive reverse voltage                                   | 30             | 35             | 40             | 45             | 50             | V                         |
| $V_{RWM}$       | Working peak reverse voltage                                      |                |                |                |                |                |                           |
| $V_R$           | DC blocking voltage   |                |                |                |                |                |                           |
| $V_{R(RMS)}$    | RMS reverse voltage   | 21             | 24.5           | 28             | 31.5           | 35             | V                         |
| $I_O$           | Average rectified output current                                  | 30             |                |                |                |                | A                         |
| $I_{FSM}$       | Non-Repetitive peak forward surge current<br>8.3ms half sine wave | 200            |                |                |                |                | A                         |
| $P_D$           | Power dissipation   | 2              |                |                |                |                | W                         |
| $R_{\theta JA}$ | Thermal resistance from junction to ambient                       | 50             |                |                |                |                | $^\circ\text{C}/\text{W}$ |
| $T_j$           | Junction temperature  | 125            |                |                |                |                | $^\circ\text{C}$          |
| $T_{stg}$       | Storage temperature   | -55~+150       |                |                |                |                | $^\circ\text{C}$          |

**ELECTRICAL CHARACTERISTICS ( $T_a=25^{\circ}\text{C}$  unless otherwise specified)**

| Parameter                 | Symbol      | Device        | Test conditions                | Min | Typ | Max  | Unit |
|---------------------------|-------------|---------------|--------------------------------|-----|-----|------|------|
| Reverse voltage           | $V_{(BR)}$  | MBR3030FCT    | $I_R=1\text{mA}$               | 30  |     |      | V    |
|                           |             | MBR3035FCT    |                                | 35  |     |      |      |
|                           |             | MBR3040FCT    |                                | 40  |     |      |      |
|                           |             | MBR3045FCT    |                                | 45  |     |      |      |
|                           |             | MBR3050FCT    |                                | 50  |     |      |      |
| Reverse current           | $I_R$       | MBR3030FCT    | $V_R=30\text{V}$               |     |     | 0.2  | mA   |
|                           |             | MBR3035FCT    | $V_R=35\text{V}$               |     |     |      |      |
|                           |             | MBR3040FCT    | $V_R=40\text{V}$               |     |     |      |      |
|                           |             | MBR3045FCT    | $V_R=45\text{V}$               |     |     |      |      |
|                           |             | MBR3050FCT    | $V_R=50\text{V}$               |     |     |      |      |
| Forward voltage           | $V_{F1}$    | MBR3030-45FCT | $I_F=15\text{A}$               |     |     | 0.7  | V    |
|                           |             | MBR3050FCT    |                                |     |     | 0.8  |      |
|                           | $V_{F2}^*$  | MBR3030-45FCT | $I_F=30\text{A}$               |     |     | 0.84 | V    |
|                           |             | MBR3050FCT    |                                |     |     | 0.95 |      |
| Typical total capacitance | $C_{tot}^*$ | MBR3030-45FCT | $V_R=4\text{V}, f=1\text{MHz}$ |     | 450 |      | pF   |
|                           |             | MBR3050FCT    |                                |     | 400 |      |      |

\*Pulse test: pulse width  $\leq 300\mu\text{s}$ , duty cycle  $\leq 2.0\%$ .