



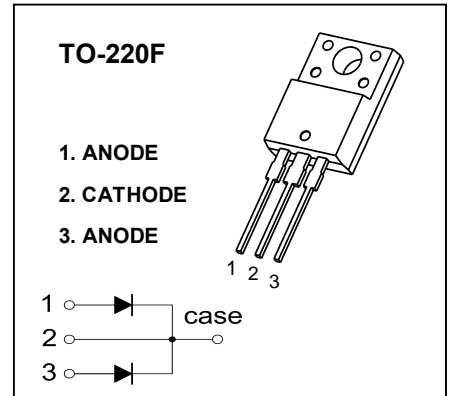
## TO-220F Plastic-Encapsulate Diodes

### MBR1060, 70, 80, 90, 100FCT

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 )

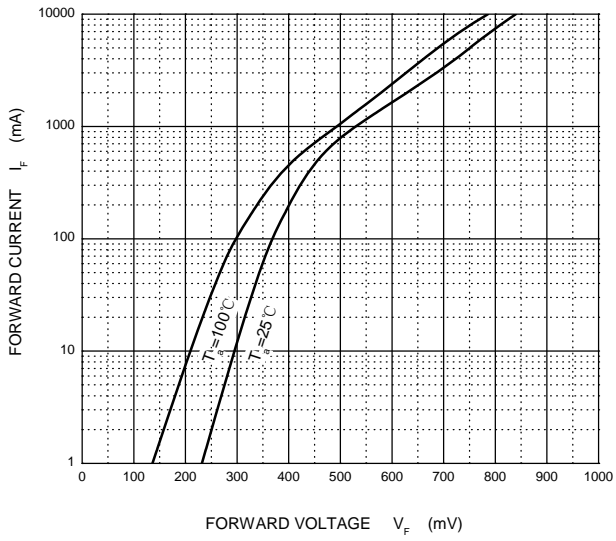
| Symbol          | Parameter   | Value          |                |                |                |                 | Unit               |
|-----------------|---|----------------|----------------|----------------|----------------|-----------------|--------------------|
|                 |   | MBR10<br>60FCT | MBR10<br>70FCT | MBR10<br>80FCT | MBR10<br>90FCT | MBR10<br>100FCT |                    |
| $V_{RRM}$       | Peak repetitive reverse voltage                                   | 60             | 70             | 80             | 90             | 100             | V                  |
| $V_{RWM}$       | Working peak reverse voltage                                      |                |                |                |                |                 |                    |
| $V_R$           | DC blocking voltage   |                |                |                |                |                 |                    |
| $V_{R(RMS)}$    | RMS reverse voltage   | 42             | 49             | 56             | 63             | 70              | V                  |
| $I_o$           | Average rectified output current                                  | 10             |                |                |                |                 | A                  |
| $I_{FSM}$       | Non-Repetitive peak forward surge current<br>8.3ms half sine wave | 120            |                |                |                |                 | A                  |
| $P_D$           | Power dissipation   | 2              |                |                |                |                 | W                  |
| $R_{\theta JA}$ | Thermal resistance from junction to ambient                       | 50             |                |                |                |                 | $^\circ\text{C/W}$ |
| $T_j$           | Junction temperature  | 125            |                |                |                |                 | $^\circ\text{C}$   |
| $T_{stg}$       | Storage temperature   | -55~+150       |                |                |                |                 | $^\circ\text{C}$   |

**ELECTRICAL CHARACTERISTICS (T<sub>a</sub>=25°C unless otherwise specified)**

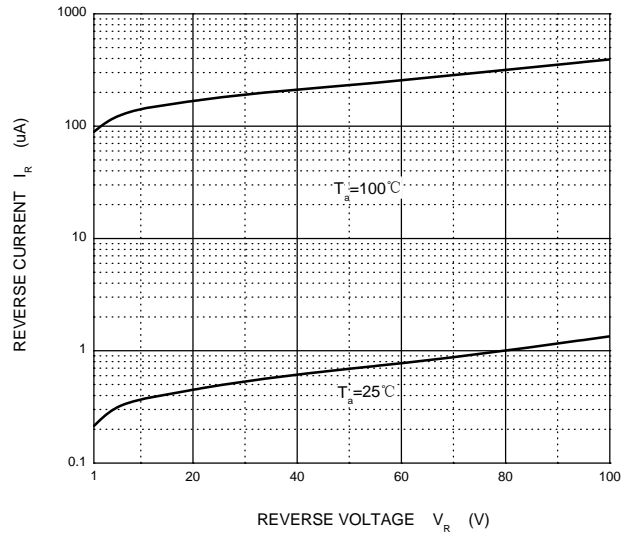
| Parameter                        | Symbol            | Device         | Test conditions           | Min | Typ | Max  | Unit |
|----------------------------------|-------------------|----------------|---------------------------|-----|-----|------|------|
| <b>Reverse voltage</b>           | V <sub>(BR)</sub> | MBR1060FCT     | I <sub>R</sub> =0.1mA     | 60  |     |      | V    |
|                                  |                   | MBR1070FCT     |                           | 70  |     |      |      |
|                                  |                   | MBR1080FCT     |                           | 80  |     |      |      |
|                                  |                   | MBR1090FCT     |                           | 90  |     |      |      |
|                                  |                   | MBR10100FCT    |                           | 100 |     |      |      |
| <b>Reverse current</b>           | I <sub>R</sub>    | MBR1060FCT     | V <sub>R</sub> =60V       |     |     | 0.1  | mA   |
|                                  |                   | MBR1070FCT     | V <sub>R</sub> =70V       |     |     |      |      |
|                                  |                   | MBR1080FCT     | V <sub>R</sub> =80V       |     |     |      |      |
|                                  |                   | MBR1090FCT     | V <sub>R</sub> =90V       |     |     |      |      |
|                                  |                   | MBR10100FCT    | V <sub>R</sub> =100V      |     |     |      |      |
| <b>Forward voltage</b>           | V <sub>F(1)</sub> | MBR1060FCT     | I <sub>F</sub> =5A        |     |     | 0.8  | V    |
|                                  |                   | MBR1070-100FCT |                           |     |     | 0.85 |      |
|                                  | V <sub>F(2)</sub> | MBR1060-100FCT | I <sub>F</sub> =10A       |     |     | 0.95 |      |
| <b>Typical total capacitance</b> | C <sub>tot</sub>  | MBR1060FCT     | V <sub>R</sub> =4V,f=1MHz |     | 150 |      | pF   |
|                                  |                   | MBR1070-100FCT |                           |     | 150 |      |      |

# Typical Characteristics

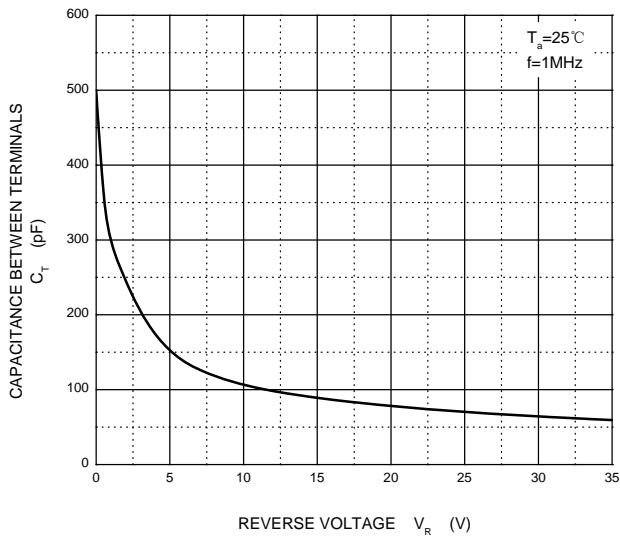
**Forward Characteristics**



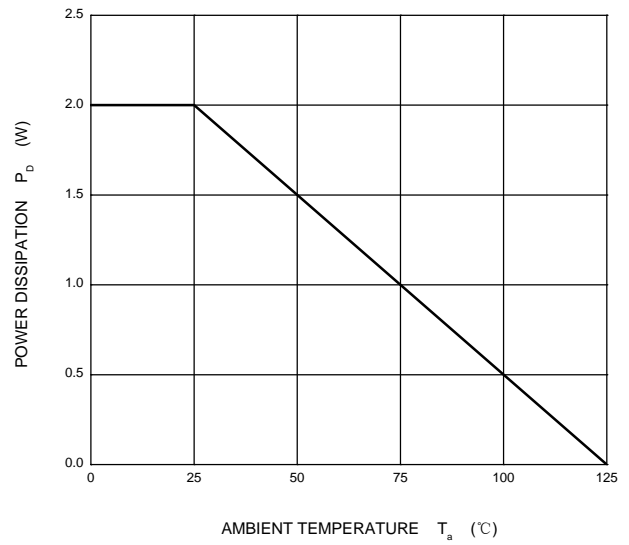
**Reverse Characteristics**



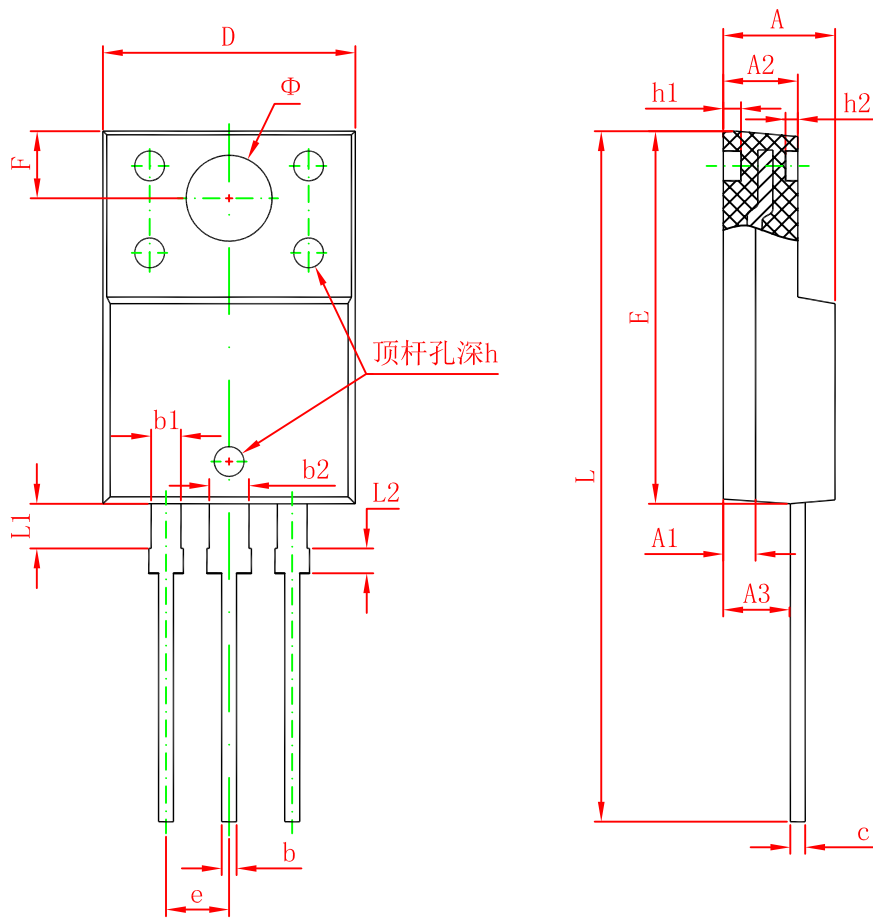
**Capacitance Characteristics**



**Power Derating Curve**



# TO-220F Package Outline Dimensions



| Symbol | Dimensions In Millimeters |        | Dimensions In Inches |       |
|--------|---------------------------|--------|----------------------|-------|
|        | Min.                      | Max.   | Min.                 | Max.  |
| A      | 4.300                     | 4.700  | 0.169                | 0.185 |
| A1     | 1.300 REF.                |        | 0.051 REF.           |       |
| A2     | 2.800                     | 3.200  | 0.110                | 0.126 |
| A3     | 2.500                     | 2.900  | 0.098                | 0.114 |
| b      | 0.500                     | 0.750  | 0.020                | 0.030 |
| b1     | 1.100                     | 1.350  | 0.043                | 0.053 |
| b2     | 1.500                     | 1.750  | 0.059                | 0.069 |
| c      | 0.500                     | 0.750  | 0.020                | 0.030 |
| D      | 9.960                     | 10.360 | 0.392                | 0.408 |
| E      | 14.800                    | 15.200 | 0.583                | 0.598 |
| e      | 2.540 TYP.                |        | 0.100 TYP.           |       |
| F      | 2.700 REF.                |        | 0.106 REF.           |       |
| Φ      | 3.500 REF.                |        | 0.138 REF.           |       |
| h      | 0.000                     | 0.300  | 0.000                | 0.012 |
| h1     | 0.800 REF.                |        | 0.031 REF.           |       |
| h2     | 0.500 REF.                |        | 0.020 REF.           |       |
| L      | 28.000                    | 28.400 | 1.102                | 1.118 |
| L1     | 1.700                     | 1.900  | 0.067                | 0.075 |
| L2     | 0.900                     | 1.100  | 0.035                | 0.043 |