

# MBRF30200CT

## 主要参数 MAIN CHARACTERISTICS

|            |                               |
|------------|-------------------------------|
| $I_F(AV)$  | 30 (2×15) A                   |
| $V_{RRM}$  | 200 V                         |
| $T_j$      | 175 °C                        |
| $V_F(max)$ | 0.68V (@ $T_j=125^{\circ}C$ ) |

### 用途

- 高频开关电源
- 低压续流电路和保护电路

### APPLICATIONS

- High frequency switch power supply
- Free wheeling diodes, polarity protection applications

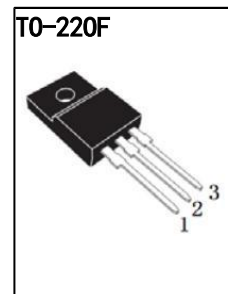
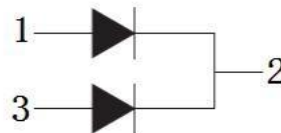
### 产品特性

- 共阴结构
- 低功耗，高效率
- 良好的高温特性
- 有过压保护环，高可靠性
- 环保（RoHS）产品

### FEATURES

- Common cathode structure
- Low power loss, high efficiency
- High Operating Junction Temperature
- Guard ring for overvoltage protection, High reliability
- RoHS product

### 封装 Package



## 产品中有害有毒物质或元素的名称及含量

| 部件名称   | 有害物质或元素                                                                                                                              |           |           |                 |               |                 |
|--------|--------------------------------------------------------------------------------------------------------------------------------------|-----------|-----------|-----------------|---------------|-----------------|
|        | 铅<br>(Pb)                                                                                                                            | 汞<br>(Hg) | 镉<br>(Cd) | 六价铬<br>(Cr(VI)) | 多溴联苯<br>(PBB) | 多溴二苯醚<br>(PBDE) |
| (含量要求) | ≤0.1%                                                                                                                                | ≤0.1%     | ≤0.01%    | ≤0.1%           | ≤0.1%         | ≤0.1%           |
| 引线框    | ○                                                                                                                                    | ○         | ○         | ○               | ○             | ○               |
| 塑封树脂   | ○                                                                                                                                    | ○         | ○         | ○               | ○             | ○               |
| 管芯     | ○                                                                                                                                    | ○         | ○         | ○               | ○             | ○               |
| 内引线    | ○                                                                                                                                    | ○         | ○         | ○               | ○             | ○               |
| 焊料     | ×                                                                                                                                    | ○         | ○         | ○               | ○             | ○               |
| 说明     | <p>○：表示该元素的含量在 SJ/T11363-2006 标准的限量要求以下。</p> <p>×：表示该元素的含量超出 SJ/T11363-2006 标准的限量要求。</p> <p>目前产品的焊料中含有铅（Pb）成分，但属于欧盟 RoHS 指令豁免范围。</p> |           |           |                 |               |                 |

绝对最大额定值 **ABSOLUTE RATINGS** ( $T_c=25^{\circ}\text{C}$ )

| 项 目<br>Parameter                                                                                                                |                                                    |                    | 符 号<br>Symbol | 数 值<br>Value | 单 位<br>Unit        |
|---------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------|--------------------|---------------|--------------|--------------------|
| 最大反向重复峰值电压<br>Repetitive peak reverse voltage                                                                                   |                                                    |                    | $V_{RRM}$     | 200          | V                  |
| 最大直流阻断电压<br>Maximum DC blocking voltage                                                                                         |                                                    |                    | $V_{DC}$      | 200          | V                  |
| 正向平均整流电流<br>Average forward current                                                                                             | $T_c=150^{\circ}\text{C}$<br>(TO-220<br>TO-3PB )   | 整个器件<br>per device | $I_{F(AV)}$   | 30           | A                  |
|                                                                                                                                 | $T_c=125^{\circ}\text{C}$<br>(TO-220F<br>TO-220HF) | 单 侧<br>per diode   |               | 15           |                    |
| 正向峰值浪涌电流<br>Surge non repetitive forward current<br>(额定负载 8.3ms 半正弦波—按 JEDEC 方法)<br>8.3 ms single half-sine-wave (JEDEC Method) |                                                    |                    | $I_{FSM}$     | 275          | A                  |
| 最高结温<br>Maximum junction temperature                                                                                            |                                                    |                    | $T_j$         | 175          | $^{\circ}\text{C}$ |
| 储存温度<br>Storage temperature range                                                                                               |                                                    |                    | $T_{STG}$     | -40~+175     | $^{\circ}\text{C}$ |

电特性 **ELECTRICAL CHARACTERISTICS**

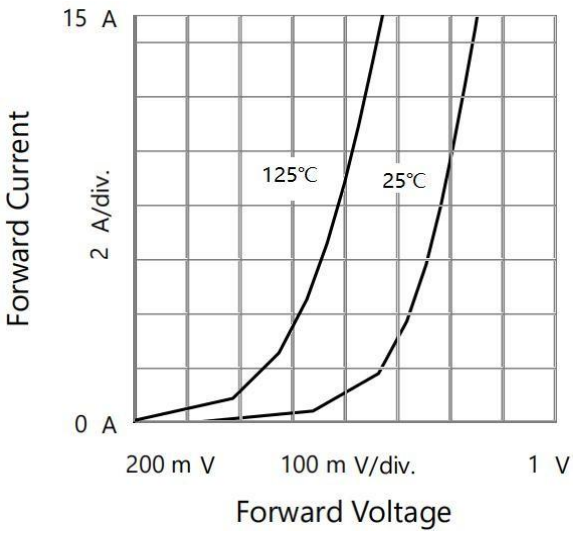
| 项 目<br>Parameter | 测试条件<br>Tests conditions  |                  | 最小值<br>Value(min) | 典型值<br>Value(typ) | 最大值<br>Value(max) | 单位<br>Unit    |
|------------------|---------------------------|------------------|-------------------|-------------------|-------------------|---------------|
| $I_R$            | $T_j=25^{\circ}\text{C}$  | $V_R=V_{RRM}$    |                   |                   | 30                | $\mu\text{A}$ |
|                  | $T_j=125^{\circ}\text{C}$ |                  |                   |                   | 30                | mA            |
| $V_F$            | $T_j=25^{\circ}\text{C}$  | $I_F=15\text{A}$ |                   | 0.86              | 0.93              | V             |
|                  | $T_j=125^{\circ}\text{C}$ |                  |                   | 0.68              | 0.72              | V             |

热特性 **THERMAL CHARACTERISTICS**

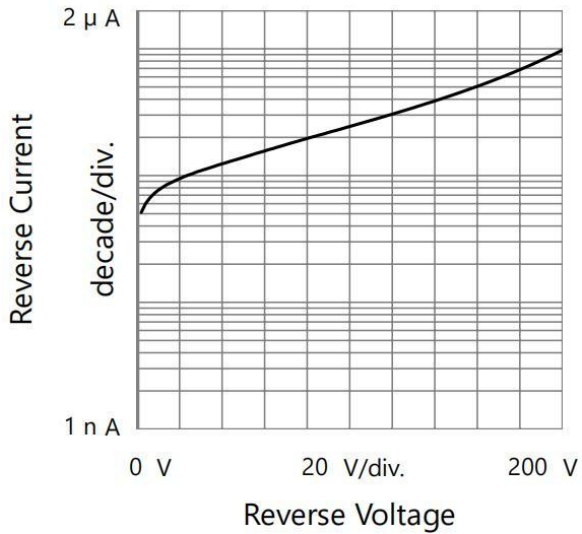
| 项 目<br>Parameter                                       |         | 符 号<br>Symbol | 最小值<br>Value(min) | 最大值<br>Value(max) | 单 位<br>Unit          |
|--------------------------------------------------------|---------|---------------|-------------------|-------------------|----------------------|
| 结到管壳的热阻<br>Thermal resistance from<br>junction to case | TO-220F | $R_{th(j-c)}$ |                   | 2.5               | $^{\circ}\text{C/W}$ |

特征曲线 (T<sub>c</sub>=25℃) ELECTRICAL CHARACTERISTICS (curves)

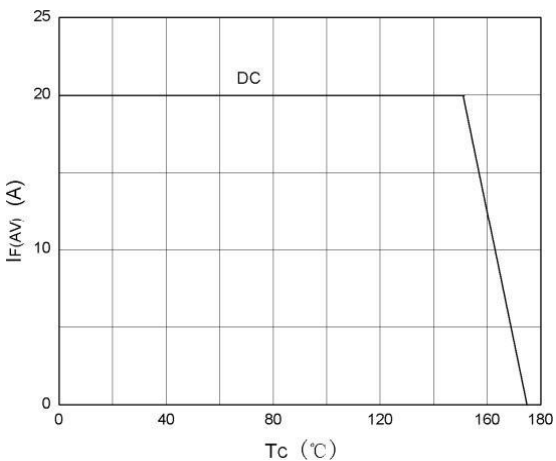
I<sub>F</sub> vs V<sub>F</sub>



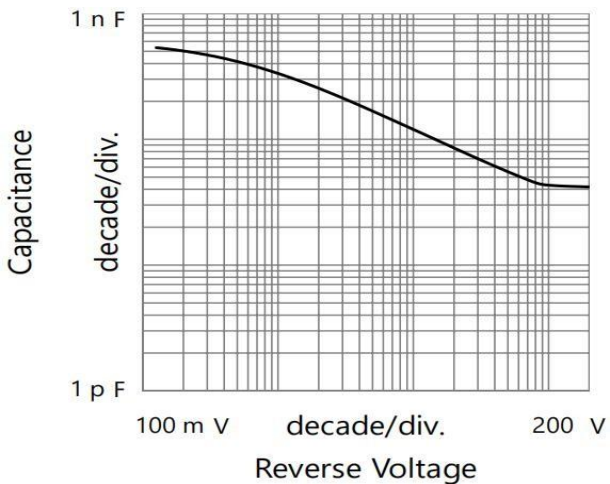
I<sub>R</sub> vs V<sub>R</sub>



I<sub>F(AV)</sub> vs T<sub>C</sub>

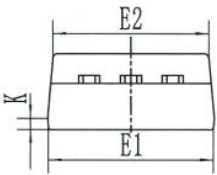
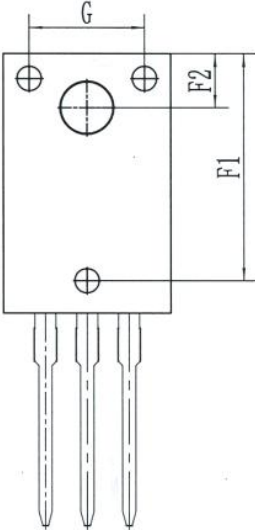
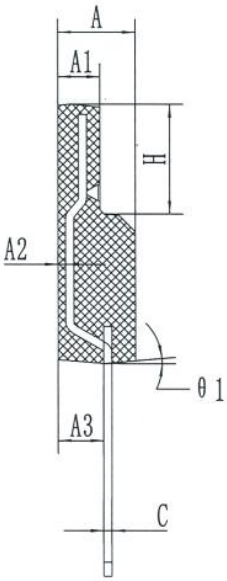
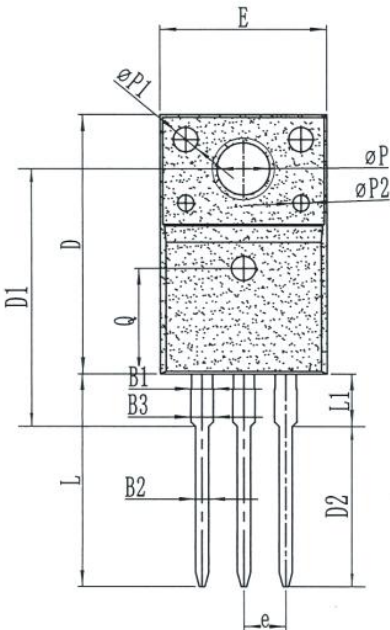


C<sub>T</sub> vs V<sub>R</sub>



MBRF30200CT

外形尺寸 PACKAGE MECHANICAL DATA  
TO-220F



COMMON DIMENSIONS

| SYMBOL | MM      |       |       |
|--------|---------|-------|-------|
|        | MIN     | NOM   | MAX   |
| A      | 4.50    | 4.70  | 4.90  |
| A1     | 2.34    | 2.54  | 2.74  |
| A2     | 0.38    | 0.43  | 0.48  |
| A3     | 2.66    | 2.76  | 2.86  |
| B1     | 1.24    | 1.29  | 1.34  |
| B2     | 0.75    | 0.80  | 0.85  |
| B3     | 1.28    | 1.36  | 1.43  |
| C      | 0.45    | 0.50  | 0.60  |
| D      | 15.67   | 15.87 | 16.07 |
| D1     | 15.55   | 15.75 | 15.95 |
| D2     | 9.60    | 9.80  | 10.00 |
| e      | 2.54BSC |       |       |
| H      | 6.48    | 6.68  | 6.88  |
| E      | 9.96    | 10.16 | 10.36 |
| E1     | 9.92    | 10.02 | 10.12 |
| E2     | 9.36    | 9.46  | 9.56  |
| F1     | 13.80   | 13.90 | 14.00 |
| F2     | 3.20    | 3.30  | 3.40  |
| G      | 6.90    | 7.00  | 7.10  |
| K      | 0.65    | 0.70  | 0.75  |
| L      | 12.76   | 12.96 | 13.16 |
| L1     | —       | —     | 3.33  |
| Q      | 6.47REF |       |       |
| φP     | 3.00    | 3.18  | 3.38  |
| φP1    | 1.40    | 1.50  | 1.60  |
| φP2    | 0.95    | 1.00  | 1.05  |
| θ 1    | 3°      | 5°    | 7°    |