

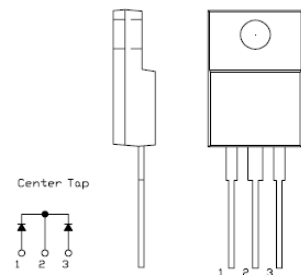
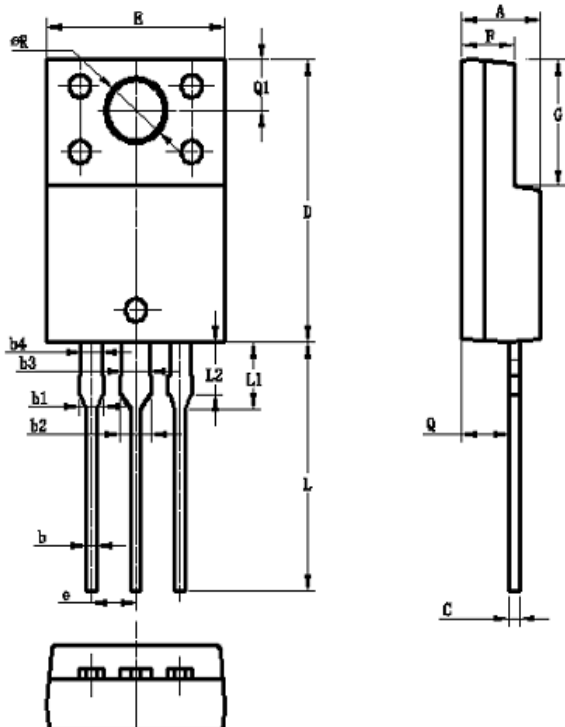
MBRF2050/2060CT SCHOTTKY RECTIFIER

Applications:

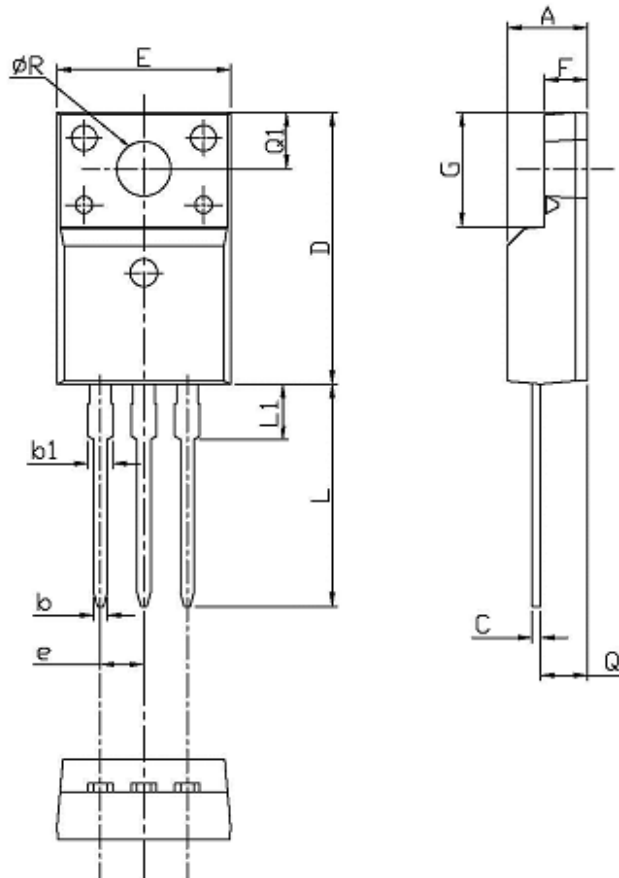
- Switching power supply
- Converters
- Free-Wheeling diodes
- Reverse battery protection

Features:

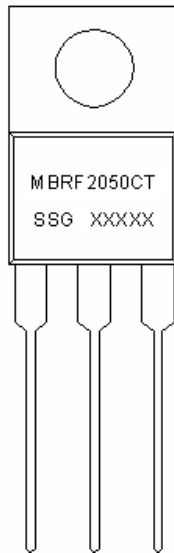
- 150°C T_J operation
- Center tap configuration
- Low forward voltage drop
- High purity, high temperature epoxy encapsulation for enhanced mechanical strength and moisture resistance
- High frequency operation
- Guard ring for enhanced ruggedness and long term reliability
- Terminals: pure tin plated, solderable per MIL-STD-750, Method 2026
- This is a Pb – Free Device
- All SMC parts are traceable to the wafer lot
- Additional testing can be offered upon request


OUTLINE DRAWING
Mechanical Dimensions (In mm)


| Dim | OPTION 1(CJ) | | OPTION 2(HD) | |
|-----|--------------|-------|--------------|-------|
| | Min | Max | Min | Max |
| A | 4.35 | 4.65 | 4.30 | 4.70 |
| b | 0.50 | 0.75 | 0.50 | 0.75 |
| b1 | 1.15 | 1.402 | 1.20 | 1.45 |
| b2 | 1.55 | 1.802 | 1.60 | 1.85 |
| b3 | 1.55 | 1.65 | 1.50 | 1.75 |
| b4 | 1.10 | 1.35 | 1.10 | 1.35 |
| C | 0.50 | 0.75 | 0.55 | 0.75 |
| D | 14.8 | 15.2 | 14.80 | 15.20 |
| E | 10.06 | 10.26 | 9.96 | 10.36 |
| e | 2.46 | 2.62 | 2.55TYP | |
| F | 2.85 | 3.15 | 2.80 | 3.20 |
| G | 6.50 | 6.90 | 6.50 | 6.90 |
| L | 12.70 | 13.70 | 12.70 | 13.70 |
| L1 | 3.40 | 3.80 | 3.40 | 4.00 |
| L2 | 2.60 | 3.00 | - | - |
| Q | 2.60 | 2.80 | 2.50 | 2.90 |
| Q1 | 2.50 | 2.90 | 2.50 | 2.90 |
| ØR | 3.40 | 3.60 | 3.30 | 3.70 |



| Dim | OPTION 3 | | OPTION 4 | |
|-----|----------|-------|----------|-------|
| | Min | Max | Min | Max |
| A | 4.53 | 4.93 | 4.50 | 4.90 |
| b | 0.71 | 0.91 | 0.70 | 0.90 |
| b1 | 1.15 | 1.39 | 1.33 | 1.47 |
| C | 0.36 | 0.53 | 0.45 | 0.60 |
| D | 15.67 | 16.07 | 15.67 | 16.07 |
| E | 9.96 | 10.36 | 9.96 | 10.36 |
| e | 2.54TYP | | 2.54 BSC | |
| F | 2.34 | 2.76 | 2.34 | 2.74 |
| G | 6.50 | 6.90 | 6.48 | 6.88 |
| L | 12.37 | 12.77 | 12.78 | 13.18 |
| L1 | 2.23 | 2.63 | 3.03 | 3.43 |
| Q | 2.56 | 2.96 | 2.56 | 2.96 |
| Q1 | 3.10 | 3.50 | 3.10 | 3.50 |
| ØR | 2.98 | 3.38 | 3.08 | 3.28 |

Marking Diagram:


Where XXXXX is YYWWL

| | |
|-------|----------------------------|
| MBR | = Device Type |
| F | = Package type |
| 20 | = Forward Current (20A) |
| 50/60 | = Reverse Voltage (50/60V) |
| CT | = Configuration |
| SSG | = SSG |
| YY | = Year |
| WW | = Week |
| L | = Lot Number |

Cautions: Molding resin
 Epoxy resin UL:94V-0

Ordering Information:

| Device | Package | Shipping |
|--------------------------|------------------------|--------------|
| MBRF2050CT MBRF2060CT | ITO-220AB (Pb-Free) | 50pcs / tube |

For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specification.

Maximum Ratings:

| Characteristics | Symbol | Condition | Max. | Units |
|---|-------------|--|------|-------|
| Peak Repetitive Reverse Voltage | V_{RRM} | - | 50 | V |
| Working Peak Reverse Voltage | V_{RWM} | | 60 | |
| DC Blocking Voltage | V_R | | | |
| Average Rectified Forward Current (per device) | $I_{F(AV)}$ | 50% duty cycle @ T_C =80°C, rectangular wave form | 20 | A |
| Peak One Cycle Non-Repetitive Surge Current (per leg) | I_{FSM} | 8.3 ms, half Sine pulse | 150 | A |

Electrical Characteristics:

| Characteristics | Symbol | Condition | Typ. | Max. | Units |
|----------------------------------|----------|---|-------|--------|------------------|
| Forward Voltage Drop (per leg) * | V_{F1} | @ 10A, Pulse, $T_J = 25\text{ }^\circ\text{C}$ | 0.67 | 0.80 | V |
| Reverse Current (per leg) * | I_{R1} | @ $V_R = \text{rated } V_R$ Pulse $T_J = 25\text{ }^\circ\text{C}$ | 0.009 | 1.0 | mA |
| Junction Capacitance (per leg) | C_T | @ $V_R = 5\text{V}$, $T_C = 25\text{ }^\circ\text{C}$ $f_{SIG} = 1\text{MHz}$ | 250 | 400 | pF |
| Voltage Rate of Change | dv/dt | - | - | 10,000 | V/ μs |

* Pulse Width < 300 μs , Duty Cycle <2%

Thermal-Mechanical Specifications:

| Characteristics | Symbol | Condition | Specification | Units |
|--|-----------------|---|---------------|--------------------|
| Junction Temperature Range | T_J | - | -55 to +150 | $^\circ\text{C}$ |
| Storage Temperature Range | T_{stg} | - | -55 to +150 | $^\circ\text{C}$ |
| Typical Thermal Resistance Junction to Case | $R_{\theta JC}$ | DC operation | 2.3 | $^\circ\text{C/W}$ |
| Typical Thermal Resistance Case to Heat Sink | $R_{\theta CS}$ | Mounting surface, smooth and greased (only for ITO-220) | 0.50 | $^\circ\text{C/W}$ |
| Approximate Weight | wt | - | 2 | g |
| Case Style | ITO-220AB | | | |

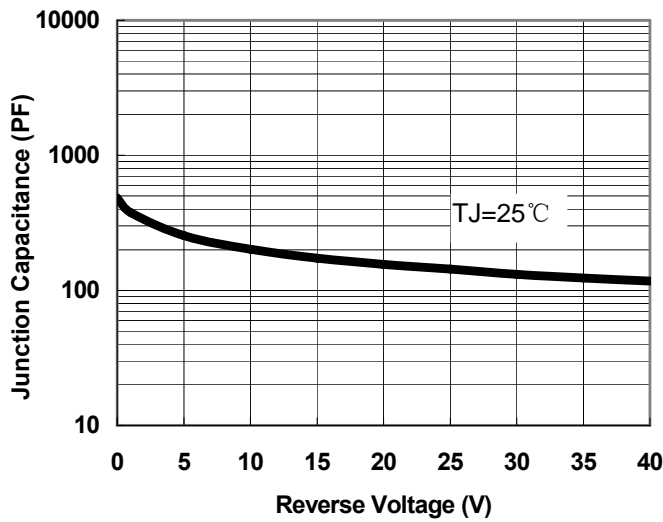


Fig.1-Typical Junction Capacitance

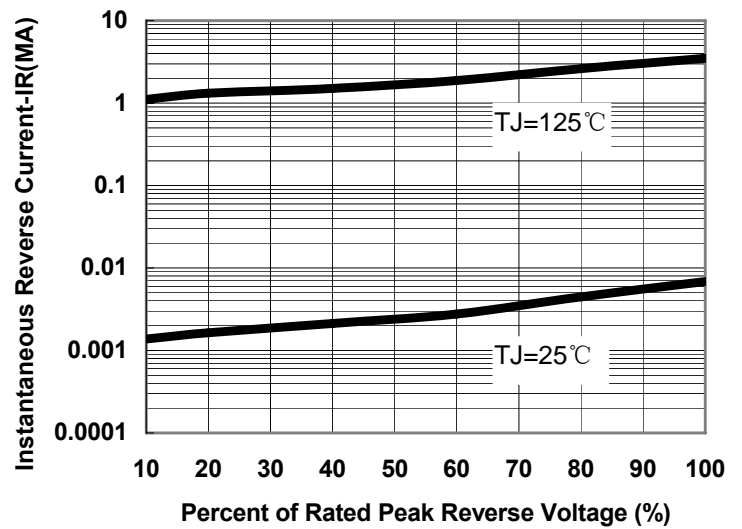


Fig.2-Typical Reverse Characteristics

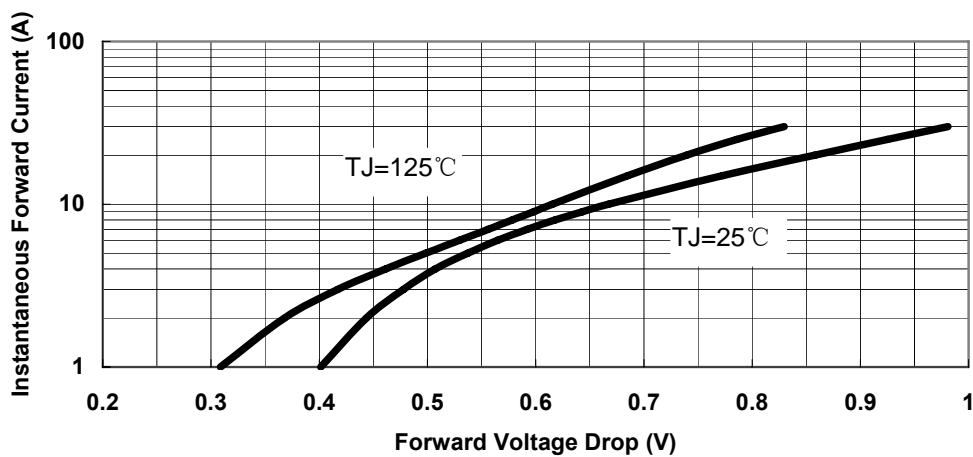


Fig.3-Typical Instantaneous Forward Voltage Characteristics



DISCLAIMER:

- 1- The information given herein, including the specifications and dimensions, is subject to change without prior notice to improve product characteristics. Before ordering, purchasers are advised to contact the SMC - Sangdest Microelectronics (Nanjing) Co., Ltd sales department for the latest version of the datasheet(s).
- 2- In cases where extremely high reliability is required (such as use in nuclear power control, aerospace and aviation, traffic equipment, medical equipment, and safety equipment), safety should be ensured by using semiconductor devices that feature assured safety or by means of users' fail-safe precautions or other arrangement.
- 3- In no event shall SMC - Sangdest Microelectronics (Nanjing) Co., Ltd be liable for any damages that may result from an accident or any other cause during operation of the user's units according to the datasheet(s). SMC - Sangdest Microelectronics (Nanjing) Co., Ltd assumes no responsibility for any intellectual property claims or any other problems that may result from applications of information, products or circuits described in the datasheets.
- 4- In no event shall SMC - Sangdest Microelectronics (Nanjing) Co., Ltd be liable for any failure in a semiconductor device or any secondary damage resulting from use at a value exceeding the absolute maximum rating.
- 5- No license is granted by the datasheet(s) under any patents or other rights of any third party or SMC - Sangdest Microelectronics (Nanjing) Co., Ltd.
- 6- The datasheet(s) may not be reproduced or duplicated, in any form, in whole or part, without the expressed written permission of SMC - Sangdest Microelectronics (Nanjing) Co., Ltd.
- 7- The products (technologies) described in the datasheet(s) are not to be provided to any party whose purpose in their application will hinder maintenance of international peace and safety nor are they to be applied to that purpose by their direct purchasers or any third party. When exporting these products (technologies), the necessary procedures are to be taken in accordance with related laws and regulations..