**Technical Data** *Green Products*

**Data Sheet N1534, Rev. -**

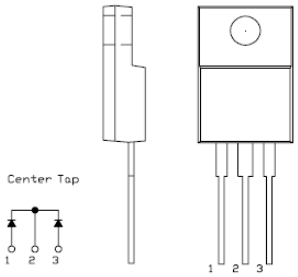
# MBRF2040CT SCHOTTKY RECTIFIER

## Applications:

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

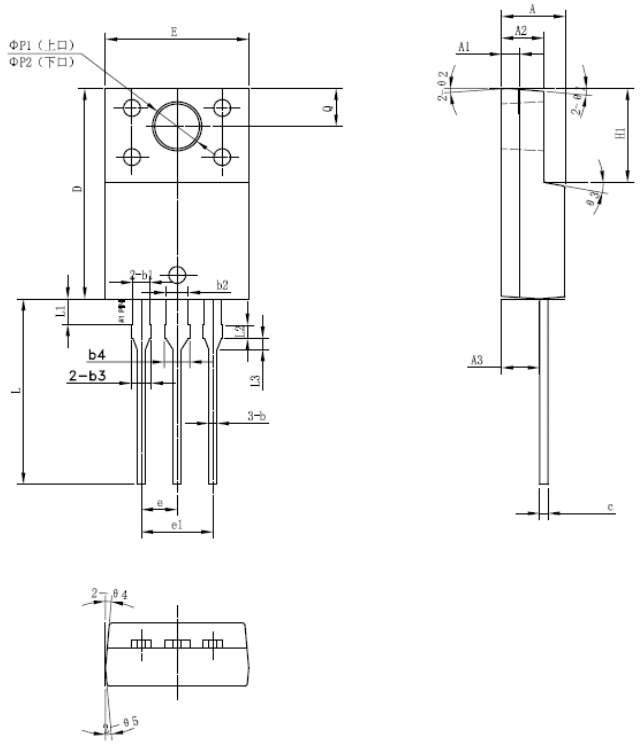
## Features:

- **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**
- **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):




| SYMBOL | MIN. | TYP. | MAX. |
|---|---|---|---|
| A | 4.30 | 4.50 | 4.70 |
| A1 | 1.10 | 1.30 | 1.50 |
| A2 | 2.80 | 3.00 | 3.20 |
| A3 | 2.50 | 2.70 | 2.90 |
| b | 0.50 | 0.60 | 0.75 |
| b1 | 1.10 | 1.20 | 1.35 |
| b2 | 1.50 | 1.60 | 1.75 |
| b3 | 1.20 | 1.30 | 1.45 |
| b4 | 1.60 | 1.70 | 1.85 |
| c | 0.55 | 0.60 | 0.75 |
| D | 14.80 | 15.00 | 15.20 |
| E | 9.96 | 10.16 | 10.36 |
| e | | 2.55 | |
| e1 | | 5.10 | |
| H1 | 6.50 | 6.70 | 6.90 |
| L | 12.70 | 13.20 | 13.70 |
| L1 | 1.60 | 1.80 | 2.00 |
| L2 | 0.80 | 1.00 | 1.20 |
| L3 | 0.60 | 0.80 | 1.00 |
| ΦP1(上口) | 3.30 | 3.50 | 3.70 |
| ΦP2(下口) | 2.99 | 3.19 | 3.39 |
| Q | 2.50 | 2.70 | 2.90 |
| Θ1 | | 5° | |
| Θ2 | | 4° | |
| Θ3 | | 10° | |
| Θ4 | | 5° | |
| Θ5 | | 5° | |

**ITO-220AB(HD)**

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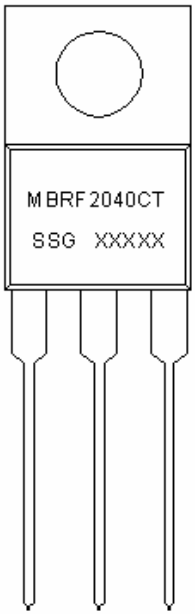
**Data Sheet N1534, Rev. -**

## Marking Diagram:




Where XXXXX is YYWWL

| | |
|---|---|
| MBR | = Device Type |
| F | = Package type |
| 20 | = Forward Current (20A) |
| 40 | = Reverse Voltage (40V) |
| CT | = Configuration |
| SSG | = SSG |
| YY | = Year |
| WW | = Week |
| L | = Lot Number |

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

## Ordering Information:

| Device | Package | Shipping |
|---|---|---|
| MBRF2040CT | 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 Inverse Voltage | $V_{RWM}$ | - | 40 | V |
| Average Forward Current | $I_{F(AV)}$ | 50% duty cycle @$T_C$ =105°C, rectangular wave form | 20 | A |
| Peak One Cycle Non-Repetitive Surge Current (per leg) | $I_{FSM}$ | 8.3 ms, half Sine pulse | 180 | A |

## Electrical Characteristics:

| Characteristics | Symbol | Condition | Max. | Units |
|---|---|---|---|---|
| Forward Voltage Drop * | $V_{F1}$ | @ 20A, Pulse, $T_J$ = 25 °C | 0.84 | V |
| | $V_{F2}$ | @ 20A, Pulse, $T_J$ = 125 °C | 0.72 | V |
| Reverse Current at DC condition (per leg) | $I_{R1}$ | @$V_R$ = rated $V_R$ $T_J$ = 25 °C | 1 | mA |
| Reverse Current (per leg) * | $I_{R2}$ | @$V_R$ = rated $V_R$ $T_J$ = 125 °C | 15.0 | mA |
| Junction Capacitance (per leg) | $C_T$ | @$V_R$ = 5V, $T_C$ = 25 °C $f_{SIG}$ = 1MHz | 400 | pF |
| Typical Series Inductance (per leg) | $L_S$ | Measured lead to lead 5 mm from package body | 8.0 | nH |
| RSM Isolation Voltage (t = 1.0 second, R. H. < =30%, $T_A$ = 25 °C) | $V_{ISO}$ | Clip mounting, the epoxy body away from the heatsink edge by more than 0.110" along the lead direction. | 4500 | V |
| | | Clip mounting, the epoxy body is inside the heatsink. | 3500 | |
| | | Screw mounting, the epoxy body is inside the heatsink. | 1500 | |

* Pulse Width < 300μs, Duty Cycle <2%

## Thermal-Mechanical Specifications:

| Characteristics | Symbol | Condition | Specification | Units |
|---|---|---|---|---|
| Junction Temperature Range | $T_J$ | - | -55 to +150 | °C |
| Storage Temperature Range | $T_{stg}$ | - | -55 to +150 | °C |
| Maximum Thermal Resistance Junction to Case(per leg) | $R_{\theta JC}$ | DC operation | 5.0 | °C/W |
| Approximate Weight | wt | - | 2 | g |

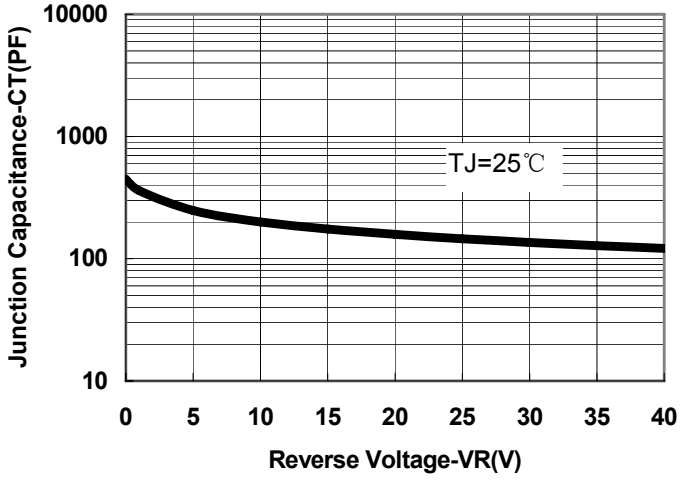



**Fig.1-Typical Junction Capacitance**

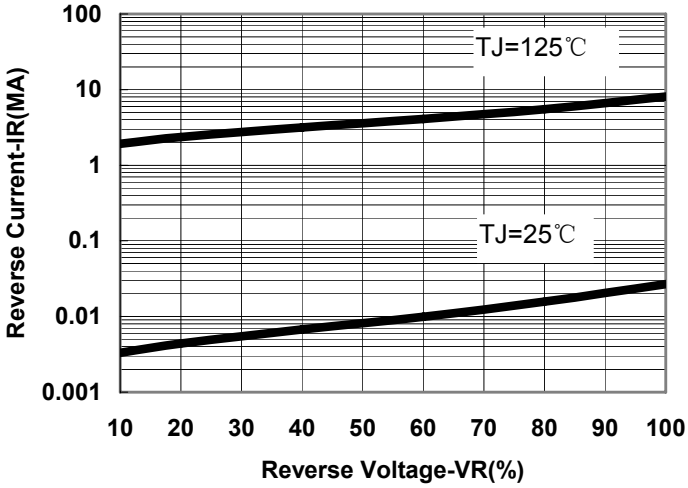



**Fig.2-Typical Reverse Characteristics**

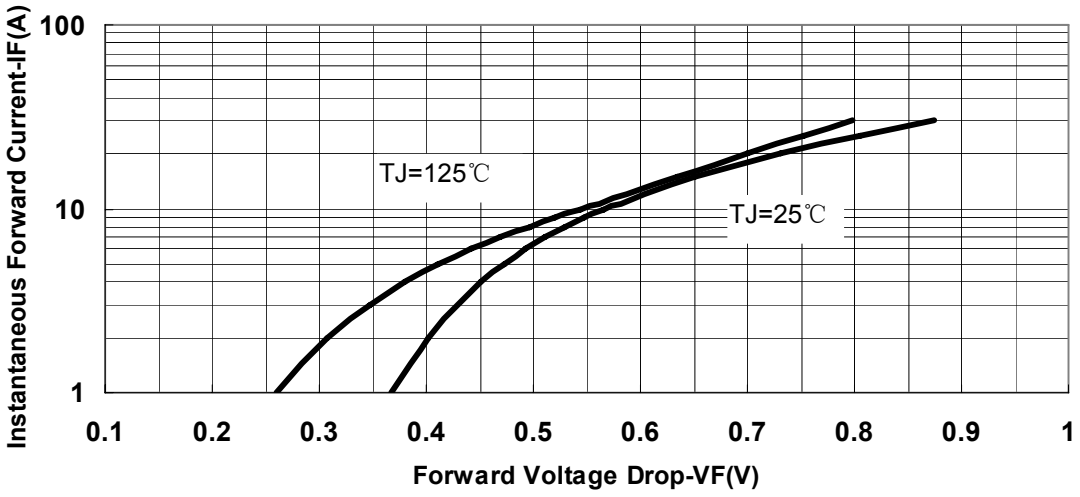



**Fig.3-Typical Instantaneous Forward Voltage Characteristics**

**Technical Data**
**Data Sheet N1534, Rev. -**

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