



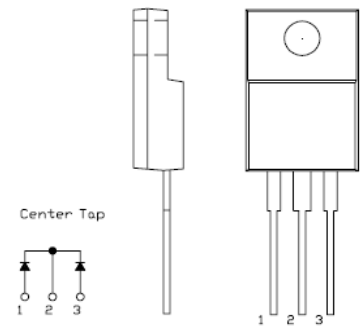
**MBRF1060CTL SCHOTTKY RECTIFIER**

**Applications:**

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

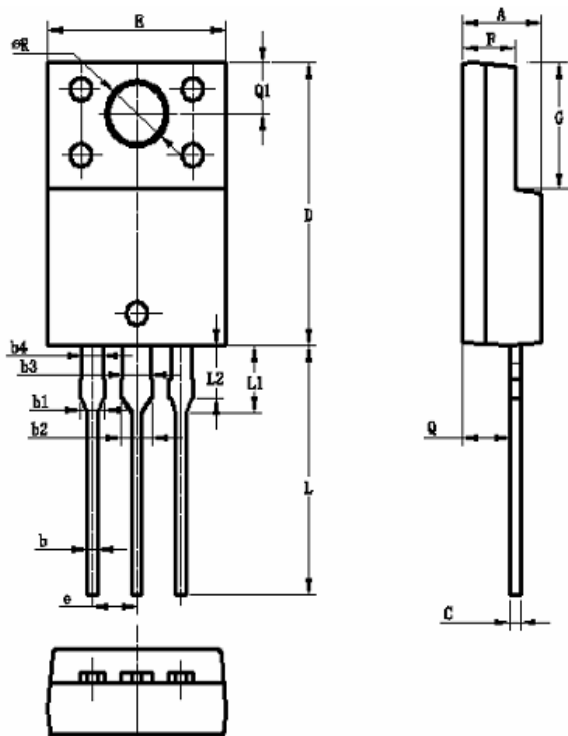
**Features:**

- 125 °C T<sub>J</sub> 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

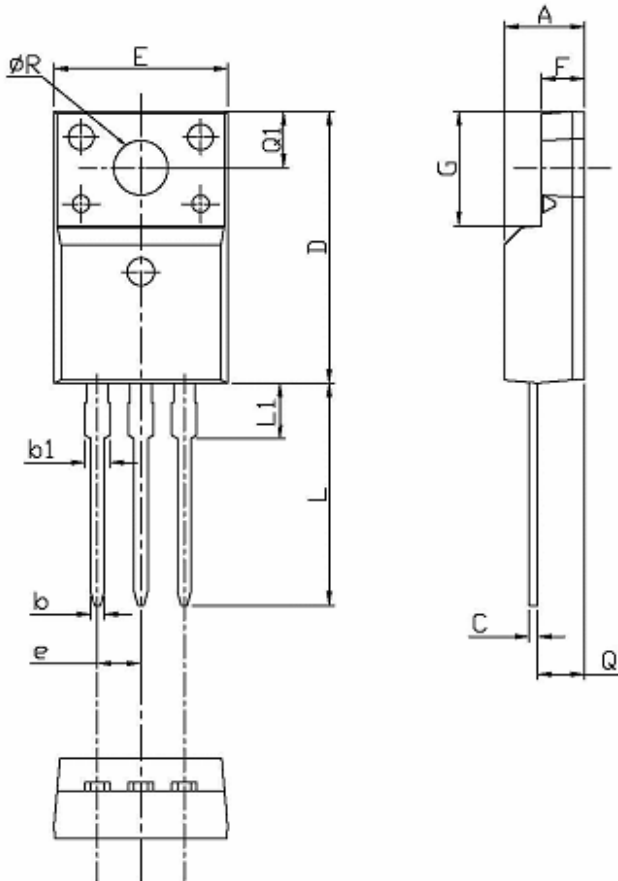


**OUTLINE DRAWING**

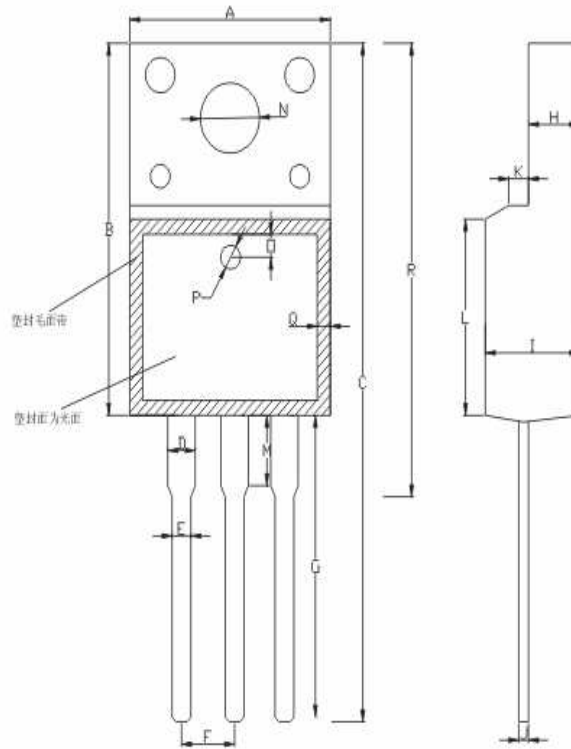
**Mechanical Dimensions: In mm**



| Dim | OPTION 1(CJ) |       | OPTION 2(HD) |       |
|-----|--------------|-------|--------------|-------|
|     | Min          | Max   | Min          | Max   |
| A   | 4.4          | 4.6   | 4.30         | 4.70  |
| b   | 0.6TYP       |       | 0.50         | 0.75  |
| b1  | 1.3TYP       |       | 1.30         | 1.40  |
| b2  | 1.7TYP       |       | 1.70         | 1.80  |
| b3  | 1.6TYP       |       | 1.50         | 1.75  |
| b4  | 1.2TYP       |       | 1.10         | 1.35  |
| C   | 0.60TYP      |       | 0.50         | 0.75  |
| D   | 14.8         | 15.1  | 14.80        | 15.20 |
| E   | 10.06        | 10.26 | 9.96         | 10.36 |
| e   | 2.55TYP      |       | 2.54TYP      |       |
| F   | 2.9          | 3.1   | 2.80         | 3.20  |
| G   | 6.5          | 6.9   | 6.50         | 6.90  |
| L   | 12.7         | 13.7  | 12.8         | 13.2  |
| L1  | 3.4          | 3.8   | 3.60         | 4.00  |
| L2  | 2.6          | 3.0   | -            | -     |
| Q   | 2.5          | 2.9   | 2.50         | 2.90  |
| Q1  | 2.5          | 2.9   | 2.70REF      |       |
| ØR  | 3.5REF       |       | 3.50REF      |       |



| 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  |
| $\phi R$ | 2.98     | 3.38  | 3.08     | 3.28  |



|                |                |                |               |
|----------------|----------------|----------------|---------------|
| A:10.20 ± 0.50 | B:15.90 ± 0.50 | C:29.00 ± 1.00 | D:1.24 ± 0.10 |
| E:0.80 ± 0.10  | F:2.54 ± 0.10  | G:13.10 ± 1,0  | H:2.55 ± 0.05 |
| I:4.70 ± 0.05  | J:0.50 ± 0.05  | K:1.20 ± 0.20  | L:8.00 ± 0.50 |
| M:3.00 ± 0.50  | N:3.20 ± 0.20  | O:1,25 ± 0.05  | P:1.5 ± 0.05  |
| Q:1.0 ± 0.20   | R:19.2 ± 1.0   |                |               |

**OPTION 5(SR)**

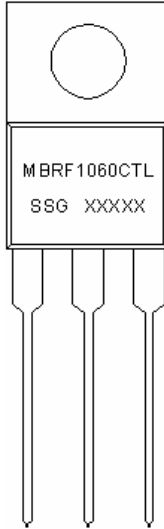
**ITO-220AB**



Technical Data  
Data Sheet N0147 Rev. A

*Green Products*

**Marking Diagram:**



Where XXXXX is YYWWL

- MBR = Device Type
- F = Package Type
- 10 = Forward Current (10A)
- 60 = Reverse Voltage (60V)
- CTL = Configuration
- SSG = SSG
- YY = Year
- WW = Week
- L = Lot Number

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

**Ordering Information:**

| Device      | Package                | Shipping     |
|-------------|------------------------|--------------|
| MBRF1060CTL | ITO-220AB<br>(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                                       | $V_{RWM}$   | -  | 60   | V     |
| Max. Average Forward Current                               | $I_{F(AV)}$ | 50% duty cycle @ $T_C = 75^\circ\text{C}$ ,<br>rectangular wave form | 10   | A     |
| Max. Peak One Cycle Non-Repetitive Surge Current (per leg) | $I_{FSM}$   | 8.3 ms, half Sine pulse  | 125  | A     |



**Electrical Characteristics:**

| Characteristics                       | Symbol          | Condition   | Max.   | Units |
|---------------------------------------|-----------------|---|--------|-------|
| Max. Forward Voltage Drop (per leg) * | V <sub>F1</sub> | @ 5A, Pulse, T <sub>J</sub> = 25°C                                      | 0.60   | V     |
|                                       | V <sub>F2</sub> | @ 5 A, Pulse, T <sub>J</sub> = 100°C                                    | 0.55   | V     |
| Max. Reverse Current (per leg) *      | I <sub>R1</sub> | @ V <sub>R</sub> = rated VR<br>T <sub>J</sub> = 25°C                    | 1.0    | mA    |
|                                       | I <sub>R2</sub> | @ V <sub>R</sub> = rated VR<br>T <sub>J</sub> = 100°C                   | 15     | mA    |
| Max. Junction Capacitance (per leg)   | C <sub>T</sub>  | @ V <sub>R</sub> = 5V, T <sub>C</sub> = 25°C<br>f <sub>sig</sub> = 1MHz | 220    | pF    |
| Typical Series Inductance (per leg)   | L <sub>S</sub>  | Measured lead to lead 5 mm from package body                            | 8.0    | nH    |
| Max. Voltage Rate of Change           | dv/dt           | -   | 10,000 | V/μs  |

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

**Thermal-Mechanical Specifications:**

| Characteristics                              | Symbol           | Condition    | Specification | Units |
|--|------------------|--------------|---------------|-------|
| Junction Temperature Range                   | T <sub>J</sub>   | -            | -55 to +125   | °C    |
| Storage Temperature Range                    | T <sub>stg</sub> | -            | -55 to +125   | °C    |
| Maximum Thermal Resistance Junction to Case  | R <sub>θJC</sub> | DC operation | 3.5           | °C/W  |
| Maximum Thermal Resistance Case to Heat Sink | R <sub>θJS</sub> | DC operation | 60            | °C/W  |
| Approximate Weight                           | wt               | -            | 2             | g     |
| Case Style                                   | ITO-220AB        |              |               |       |

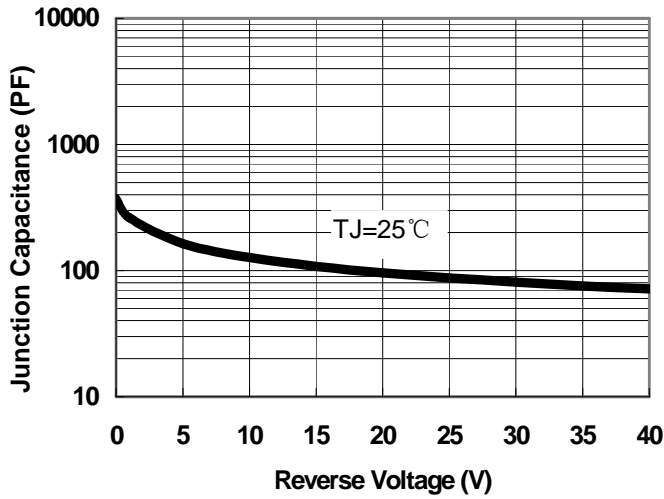


Fig.1-Typical Junction Capacitance

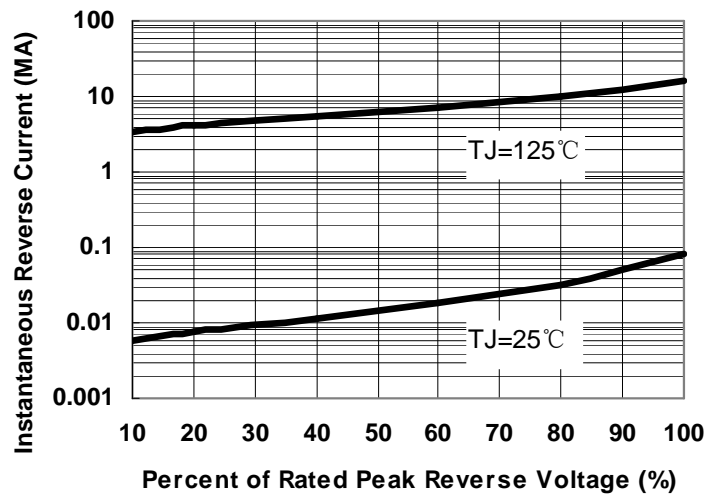


Fig.2-Typical Reverse Characteristics

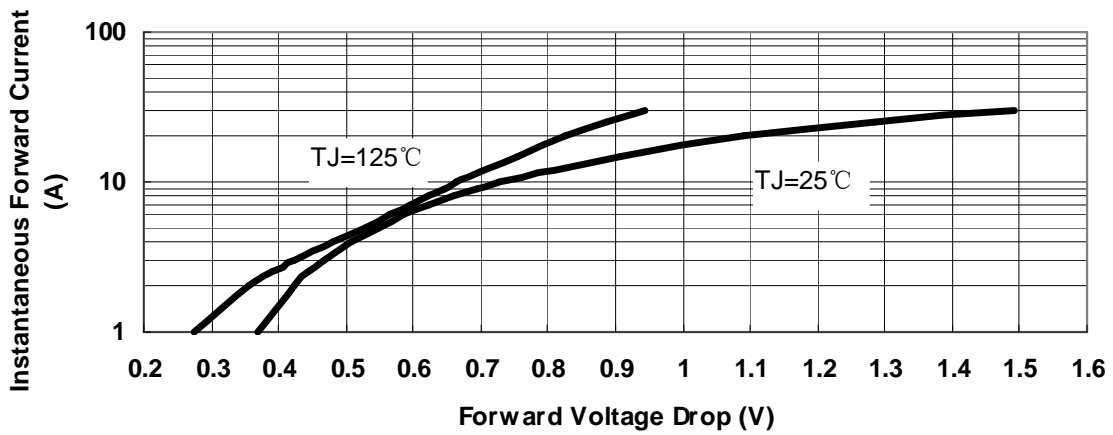


Fig.3-Typical Instantaneous Forward Voltage Characteristics

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