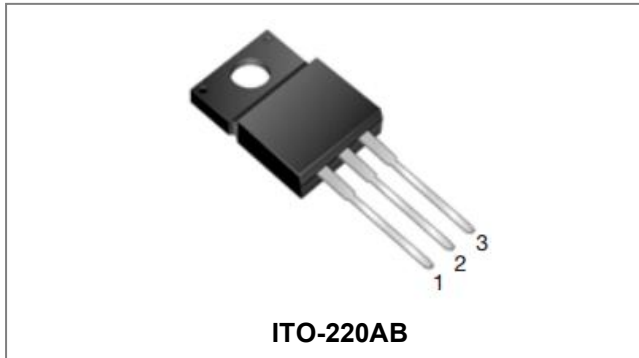


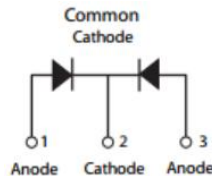
## MBRF1045CT SCHOTTKY RECTIFIER



### Features

- 150°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

### Circuit Diagram



### Applications

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

### Maximum Ratings:

| Characteristics                                      | Symbol             | Condition   | Max.                         | Units |
|--|--------------------|---|------------------------------|-------|
| Peak Repetitive Reverse Voltage                      | V <sub>RRM</sub>   | -   | 45                           | V     |
| Working Peak Reverse Voltage                         | V <sub>RWM</sub>   | -   |                              |       |
| DC Blocking Voltage                                  | V <sub>R</sub>     | -   |                              |       |
| Average Rectified Forward Current                    | I <sub>F(AV)</sub> | 50% duty cycle @T <sub>c</sub> =80°C, rectangular wave form | 5(Per Leg)<br>10(Per Device) | A     |
| Peak One Cycle Non-Repetitive Surge Current(Per Leg) | I <sub>FSM</sub>   | 8.3ms, Half Sine pulse                                      | 150                          | A     |

### Electrical Characteristics:

| Characteristics  | Symbol           | Condition   | Typ.  | Max.   | Units |
|--|------------------|---|-------|--------|-------|
| Forward Voltage Drop (Per Leg)*  | V <sub>F1</sub>  | @5A, Pulse, T <sub>J</sub> = 25 °C  | 0.55  | 0.70   | V     |
|  | V <sub>F2</sub>  | @5A, Pulse, T <sub>J</sub> = 125 °C   | 0.50  | 0.57   | V     |
| Reverse Current at DC condition (Per Leg)*                                   | I <sub>R1</sub>  | @V <sub>R</sub> = rated V <sub>R</sub> , T <sub>J</sub> = 25 °C   | 0.008 | 1.0    | mA    |
|  | I <sub>R2</sub>  | @V <sub>R</sub> = rated V <sub>R</sub> , T <sub>J</sub> = 125 °C  | 3     | 15     | mA    |
| Junction Capacitance(Per Leg)  | C <sub>T</sub>   | @V <sub>R</sub> = 5V, T <sub>C</sub> = 25 °C, f <sub>SIG</sub> = 1MHz                                   | 230   | 300    | pF    |
| Series Inductance(Per Leg)   | L <sub>S</sub>   | Measured lead to lead 5 mm from package body  | 8.0   | -      | nH    |
| Voltage Rate of Change   | dv/dt            | -   | -     | 10,000 | V/μs  |
| RSM Isolation Voltage (t = 1.0 second, R. H. < =30%, T <sub>A</sub> = 25 °C) | V <sub>ISO</sub> | 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 < 300 μs, duty cycle < 2%

**Thermal-Mechanical Specifications:**

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

**Ratings and Characteristics Curves**

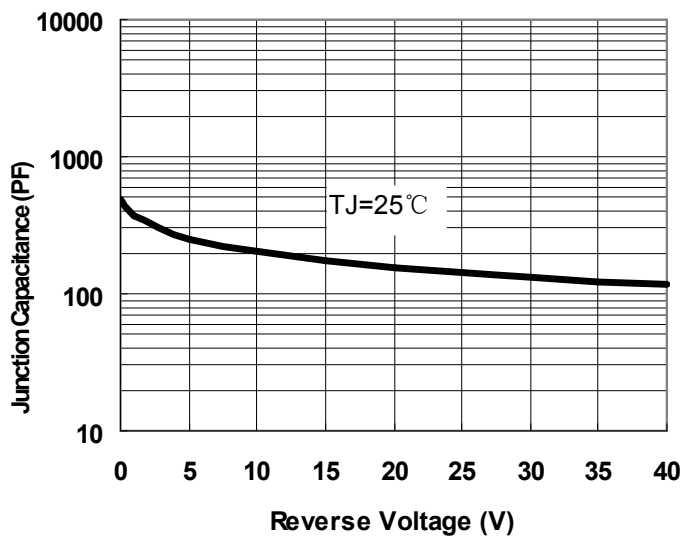


Fig.1-Typical Junction Capacitance

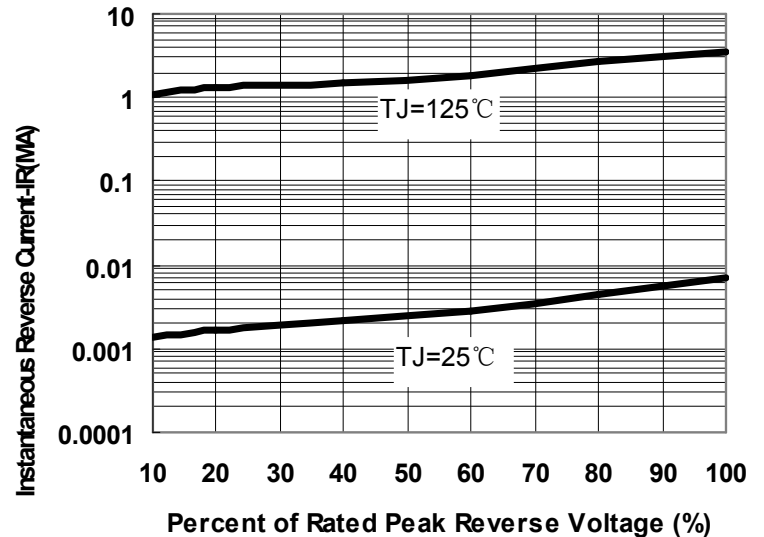


Fig.2-Typical Reverse Characteristics

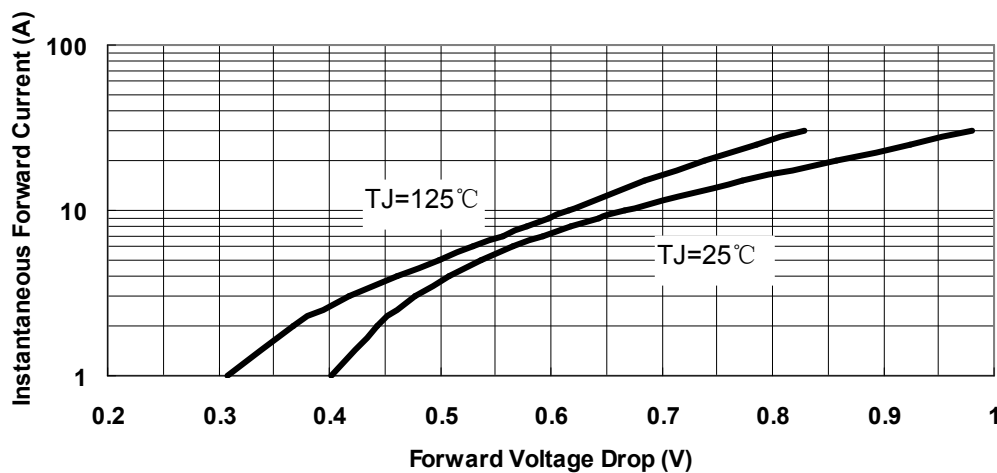
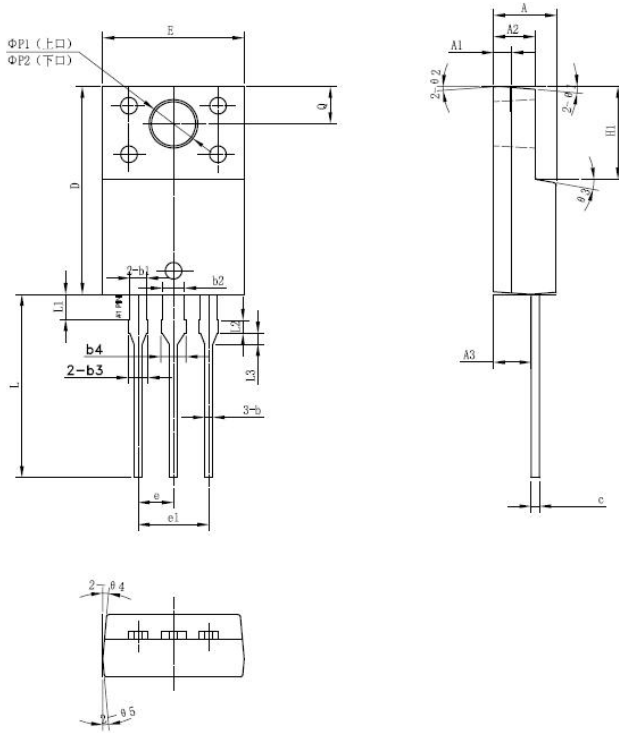


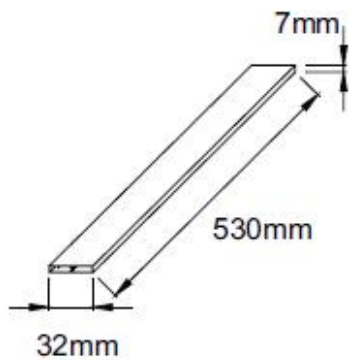
Fig.3-Typical Instantaneous Forward Voltage Characteristics

**Mechanical Dimensions ITO-220AB**

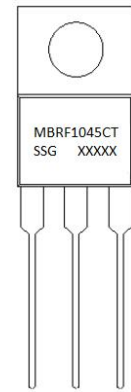


| SYMBOL  | Millimeters |       |       |
|---------|-------------|-------|-------|
|         | MIN.        | TYP.  | MAX.  |
| A       | 4.30        | 4.50  | 4.70  |
| A1      | 1.10        | 1.30  | 1.50  |
| A2      | 2.80        | 3.00  | 3.20  |
| A3      | 2.50        | 2.70  | 2.90  |
| b       | 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       | 0.50        | 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°    |       |

**Tube Specification**



**Marking Diagram**



Where XXXXX is YYWWL

- MBR = Device Type
- F = Package type
- 10 = Forward Current (10A)
- 45 = Reverse Voltage (45V)
- CT = Configuration
- SSG = SSG
- YY = Year
- WW = Week
- L = Lot Number

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

**Ordering Information**

| Device     | Package                | Shipping     |
|------------|------------------------|--------------|
| MBRF1045CT | ITO-220AB<br>(Pb-Free) | 50 pcs/ tube |

For information on tape and reel specifications, including part orientation and tape sizes, please refer to our tape and reel packaging specification.

- China - Germany - Korea - Singapore - United States •
- <http://www.smc-diodes.com> - [sales@smc-diodes.com](mailto:sales@smc-diodes.com) •

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