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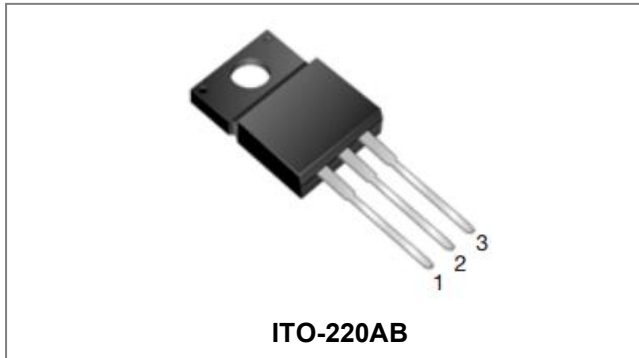
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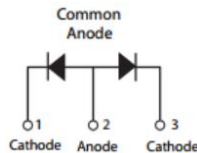
## MBRF40100CTR SCHOTTKY RECTIFIER



### 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>   | -  | 100                           | 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> =135°C, rectangular wave form | 20(Per Leg)<br>40(Per Device) | A     |
| Peak One Cycle Non-Repetitive Surge Current(Per Leg) | I <sub>FSM</sub>   | 8.3ms, Half Sine pulse                                       | 280                           | A     |

### Electrical Characteristics:

| Characteristics   | Symbol           | Condition   | Typ.  | Max.   | Units |
|---|------------------|---|-------|--------|-------|
| Forward Voltage Drop(Per Leg)*  | V <sub>F1</sub>  | @ 10A, Pulse, T <sub>J</sub> = 25 °C  | 0.70  | 0.80   | V     |
|   |                  | @ 20A, Pulse, T <sub>J</sub> = 25 °C  | 0.80  | 0.88   |       |
|   | V <sub>F2</sub>  | @ 10A, Pulse, T <sub>J</sub> = 125 °C   | 0.59  | 0.70   | V     |
|   |                  | @ 20A, Pulse, T <sub>J</sub> = 125 °C   | 0.70  | 0.74   |       |
| 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   | 0.009 | 1.0    | mA    |
|   | I <sub>R2</sub>  | @V <sub>R</sub> = rated V <sub>R</sub> , T <sub>J</sub> = 125 °C  | 6.4   | 20     | 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                                   | 363   | 800    | 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<br>(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   |       |



**Technical Data**  
**Data Sheet N0856, Rev. C**



|  |  |  |   |      |  |
|--|--|--|---|------|--|
|  |  | Screw mounting, the epoxy body is inside the heatsink. | - | 1500 |  |
|--|--|--|---|------|--|

\* Pulse width < 300  $\mu$ s, duty cycle < 2%

**Thermal-Mechanical Specifications:**

| Characteristics                                      | Symbol          | Condition    | Specification | Units          |
|--|-----------------|--------------|---------------|----------------|
| Junction Temperature                                 | $T_J$           | -            | -55 to +150   | $^{\circ}$ C   |
| Storage Temperature                                  | $T_{stg}$       | -            | -55 to +150   | $^{\circ}$ C   |
| Typical Thermal Resistance Junction to Case(Per Leg) | $R_{\theta JC}$ | DC operation | 3.5           | $^{\circ}$ C/W |
| Approximate Weight                                   | wt              | -            | 2             | g              |

**Ratings and Characteristics Curves**

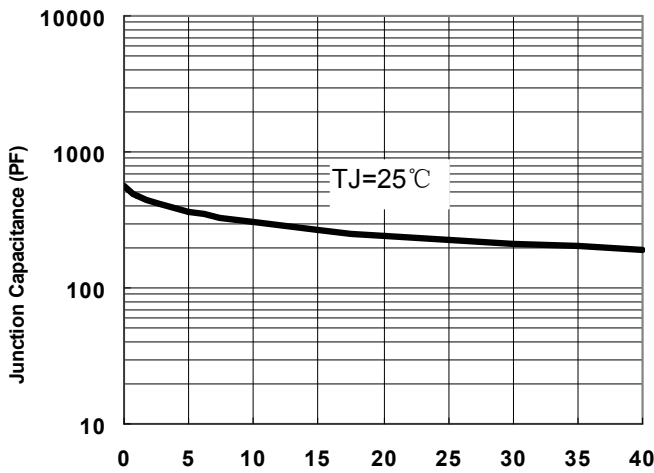


Fig.1-Typical Junction Capacitance

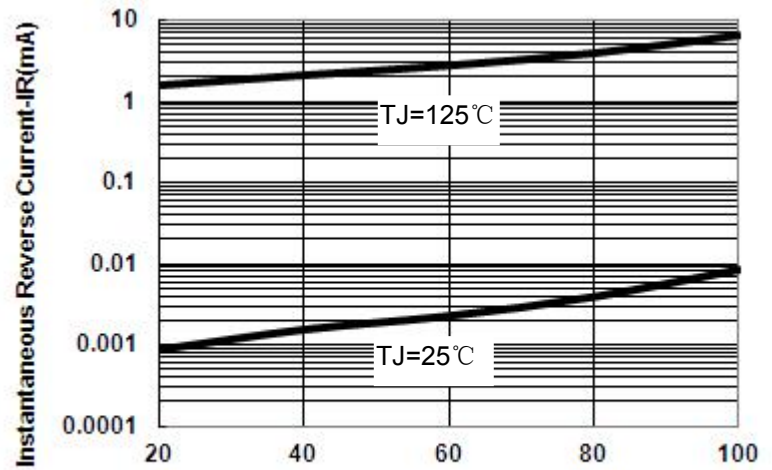


Fig.2-Typical Reverse Characteristics

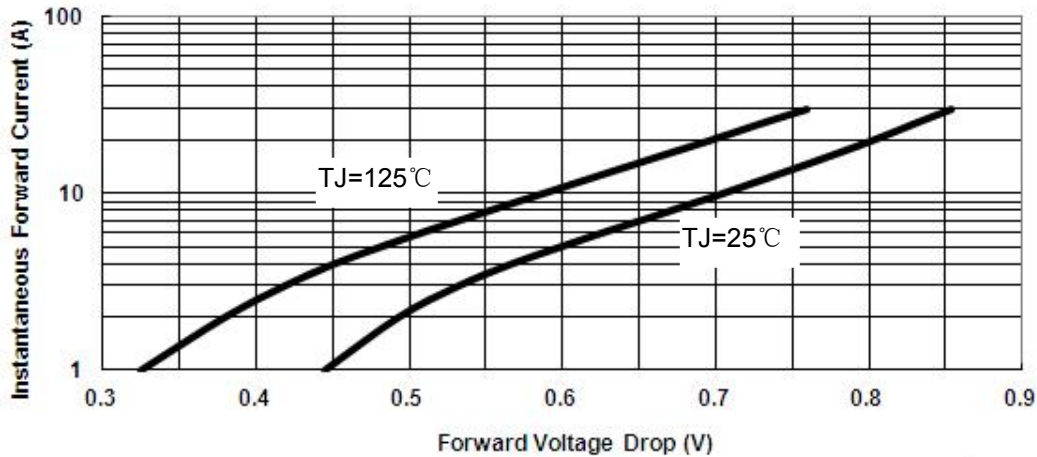
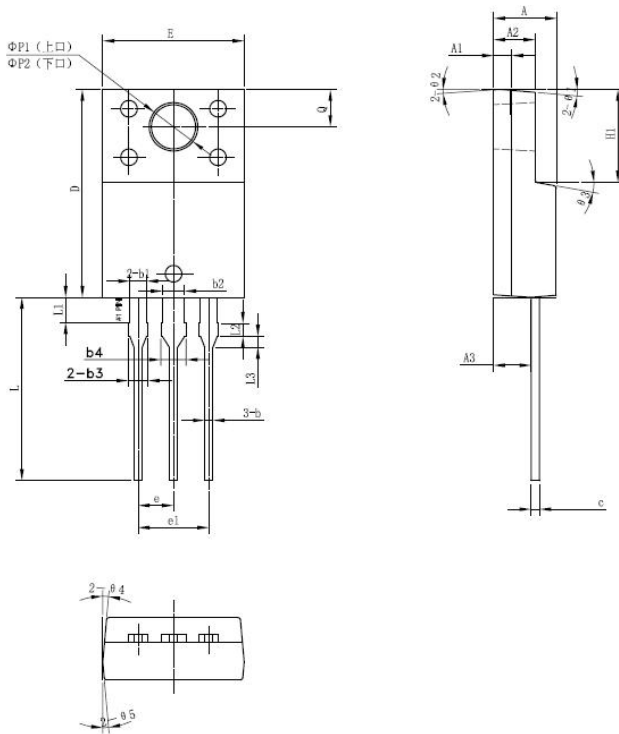
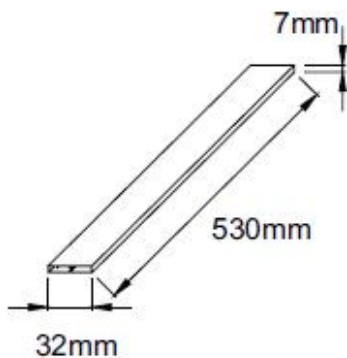
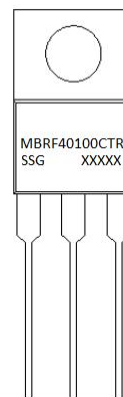


Fig.3-Typical Instantaneous Forward Voltage Characteristics

**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  
 40 = Forward Current (40A)  
 100 = Reverse Voltage (100V)  
 CTR = Configuration  
 SSG = SSG  
 YY = Year  
 WW = Week  
 L = Lot Number

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

**Ordering Information**

| Device       | Package                | Shipping     |
|--------------|------------------------|--------------|
| MBRF40100CTR | 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.

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