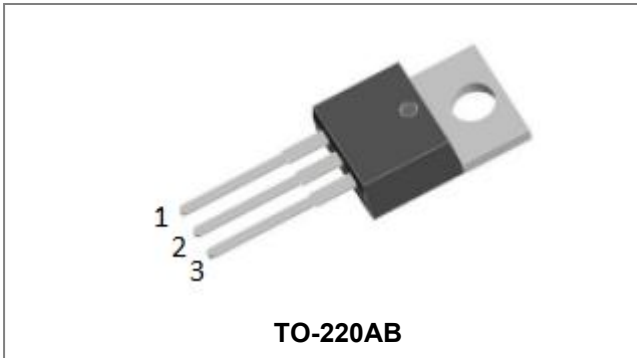


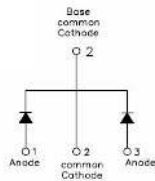
## MBR4080/90/100CT SCHOTTKY RECTIFIER



### 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>   | -  | 80                            | MBR4080CT  | V     |
| Working Peak Reverse Voltage                         | V <sub>RWM</sub>   |  | 90                            | MBR4090CT  |       |
| DC Blocking Voltage                                  | V <sub>R</sub>     |  | 100                           | MBR40100CT |       |
| Average Rectified Forward Current                    | I <sub>F(AV)</sub> | 50% duty cycle @T <sub>c</sub> =110°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, T <sub>C</sub> = 25 °C               | 250                           |            | A     |

### Electrical Characteristics:

| Characteristics                | Symbol          | Condition   | Typ. | Max.   | Units |
|--------------------------------|-----------------|---|------|--------|-------|
| Forward Voltage Drop(Per Leg)* | V <sub>F1</sub> | @ 20A, Pulse, T <sub>J</sub> = 25 °C                                    | 0.80 | 0.88   | V     |
|                                | V <sub>F2</sub> | @ 20A, Pulse, T <sub>J</sub> = 125 °C                                   | 0.70 | 0.74   | V     |
| Reverse Current(Per Leg)*      | I <sub>R1</sub> | @V <sub>R</sub> = rated V <sub>R</sub> , T <sub>J</sub> = 25 °C         | 0.01 | 1.0    | mA    |
|                                | I <sub>R2</sub> | @V <sub>R</sub> = rated V <sub>R</sub> , T <sub>J</sub> = 125 °C        | 8    | 20     | mA    |
| 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 | 400  | 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  |

\* Pulse width < 300 μs, duty cycle < 2%

**Thermal-Mechanical Specifications:**

| Characteristics                             | Symbol                | Condition    | Specification | Units                       |
|---|-----------------------|--------------|---------------|-----------------------------|
| Junction Temperature                        | $T_J$                 | -            | -55 to +150   | $^{\circ}\text{C}$          |
| Storage Temperature                         | $T_{\text{stg}}$      | -            | -55 to +150   | $^{\circ}\text{C}$          |
| Typical Thermal Resistance Junction to Case | $R_{\theta\text{JC}}$ | DC operation | 2.0           | $^{\circ}\text{C}/\text{W}$ |
| Approximate Weight                          | wt                    | -            | 2             | g                           |

**Ratings and Characteristics Curves**

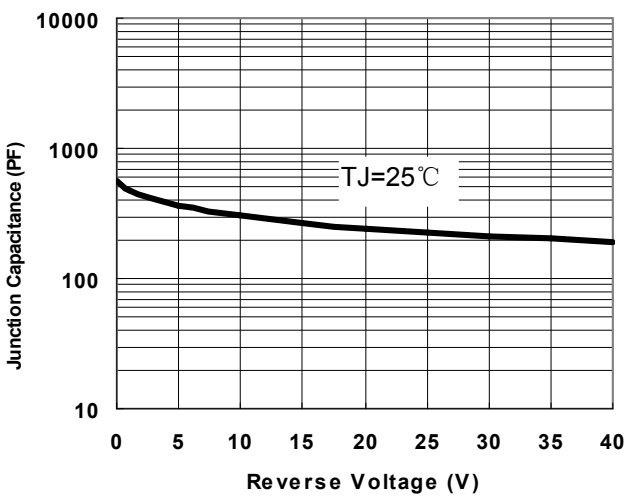


Fig.1-Typical Junction Capacitance

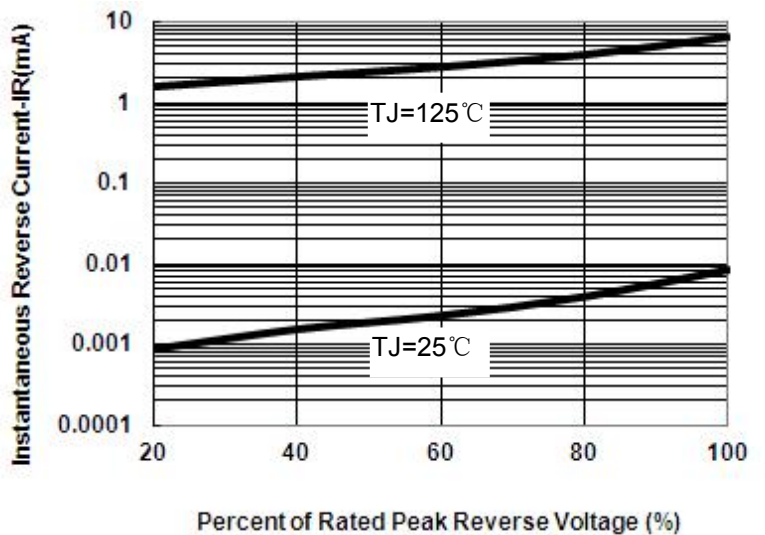


Fig.2-Typical Reverse Characteristics

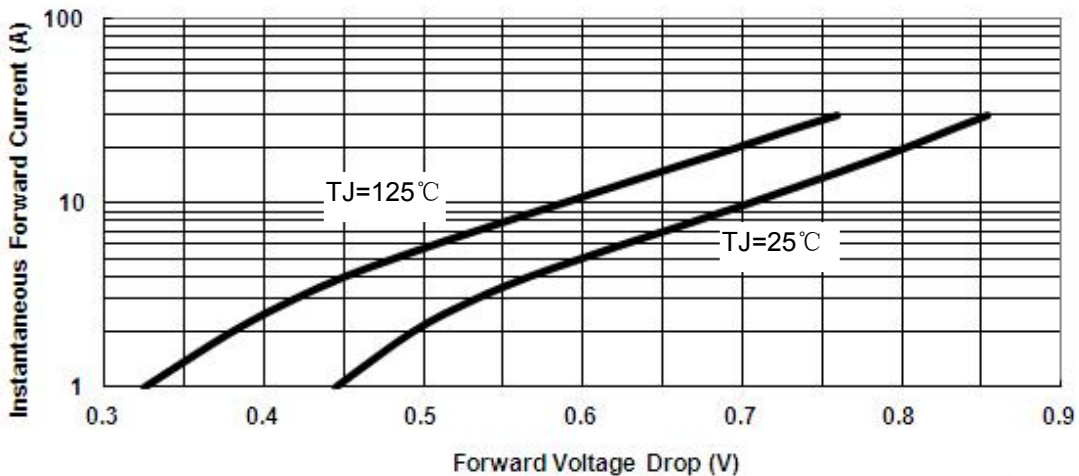
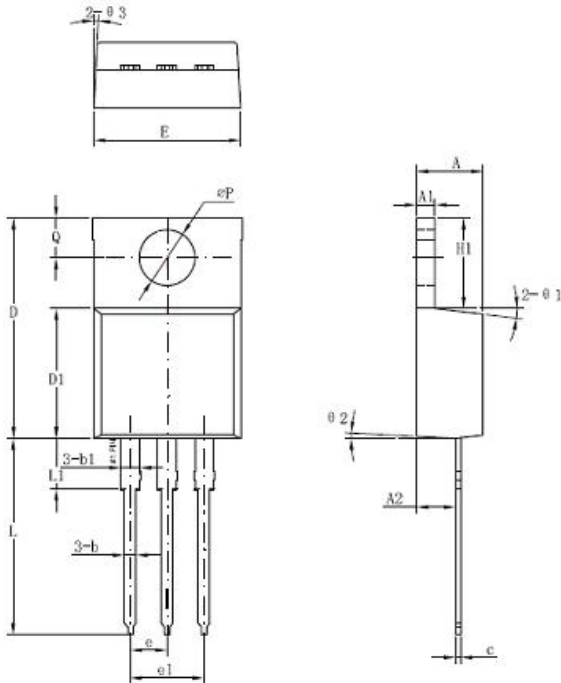
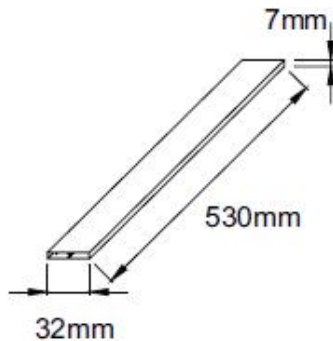
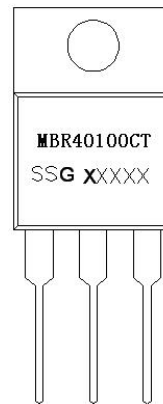


Fig.3-Typical Instantaneous Forward Voltage Characteristics

**Mechanical Dimensions TO-220AB**


| Symbol | Dimensions in millimeters |         |       |
|--------|---------------------------|---------|-------|
|        | Min                       | Typical | Max   |
| A      | 4.42                      | 4.57    | 4.72  |
| A1     | 1.17                      | 1.27    | 1.37  |
| A2     | 2.52                      | 2.69    | 2.89  |
| b      | 0.71                      | 0.81    | 0.96  |
| b1     | 1.17                      | 1.27    | 1.37  |
| c      | 0.31                      | 0.38    | 0.61  |
| D      | 14.94                     | 15.24   | 15.54 |
| D1     | 8.85                      | 9.00    | 9.15  |
| E      | 10.01                     | 10.16   | 10.31 |
| e      |                           | 2.54    |       |
| e1     | 4.98                      | 5.06    | 5.18  |
| H1     | 6.04                      | 6.24    | 6.44  |
| L      | 12.7                      | 13.56   | 13.80 |
| L1     | 3.56                      | 3.5     | 3.96  |
| ΦP     | 3.74                      | 3.84    | 4.04  |
| Q      | 2.54                      | 2.74    | 2.94  |
| Θ1     |                           | 7°      |       |
| Θ2     |                           | 3°      |       |
| Θ3     |                           | 4°      |       |

**Tube Specification**

**Marking Diagram**


Where XXXXX is YYWWL

MBR = Device Type  
 40 = Forward Current (40A)  
 100 = Reverse Voltage(100V)  
 CT = Configuration  
 SSG = SSG  
 YY = Year  
 WW = Week  
 L = Lot Number

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

**Ordering Information**

| Device     | Package            | Shipping     |
|------------|--------------------|--------------|
| MBR40100CT | TO-220AB (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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