

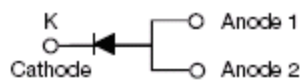
## MBR5100S SCHOTTKY RECTIFIER



### Features

- Designed as Bypass Diodes for Solar Panels
- High Forward Surge Capability
- Ultra Low Forward Voltage Drop
- Excellent High Temperature Stability
- Terminals finish: 100% Pure Tin
- This is a Halogen 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             | $V_{RRM}$   | -   | 100  | V     |
| Working Peak Reverse Voltage                | $V_{RWM}$   |   |      |       |
| DC Blocking Voltage                         | $V_R$       |   |      |       |
| Average Rectified Forward Current           | $I_{F(AV)}$ | 50% duty cycle @ $T_c=105^\circ\text{C}$ ,<br>rectangular wave form | 5    | A     |
| Peak One Cycle Non-Repetitive Surge Current | $I_{FSM}$   | 8.3ms, Half Sine pulse, $T_c=25^\circ\text{C}$                      | 120  | A     |

### Electrical Characteristics:

| Characteristics       | Symbol   | Condition  | Typ. | Max. | Units |
|-----------------------|----------|--|------|------|-------|
| Forward Voltage Drop* | $V_{F1}$ | @ 5A, Pulse, $T_J = 25^\circ\text{C}$                                      | 0.81 | 0.85 | V     |
|                       | $V_{F2}$ | @ 5A, Pulse, $T_J = 125^\circ\text{C}$                                     | 0.68 | 0.70 | V     |
| Reverse Current*      | $I_{R1}$ | @ $V_R = \text{rated } V_R$<br>$T_J = 25^\circ\text{C}$                    | 0.01 | 1.0  | mA    |
|                       | $I_{R2}$ | @ $V_R = \text{rated } V_R$<br>$T_J = 125^\circ\text{C}$                   | 0.1  | 10   | mA    |
| Junction Capacitance  | $C_J$    | @ $V_R = 5.0\text{ V}$ , $T_c=25^\circ\text{C}$<br>$f_{SIG} = 1\text{MHz}$ | 70   | 200  | pF    |

\* Pulse width < 300  $\mu\text{s}$ , 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    | $R_{\theta JC}$  | -         | 3.5           | $^{\circ}\text{C/W}$ |
| Typical Thermal Resistance Junction to Ambient | $R_{\theta JA}$  | -         | 70            | $^{\circ}\text{C/W}$ |
| Approximate Weight                             | wt               | -         | 0.08          | g                    |

**Ratings and Characteristics Curves**

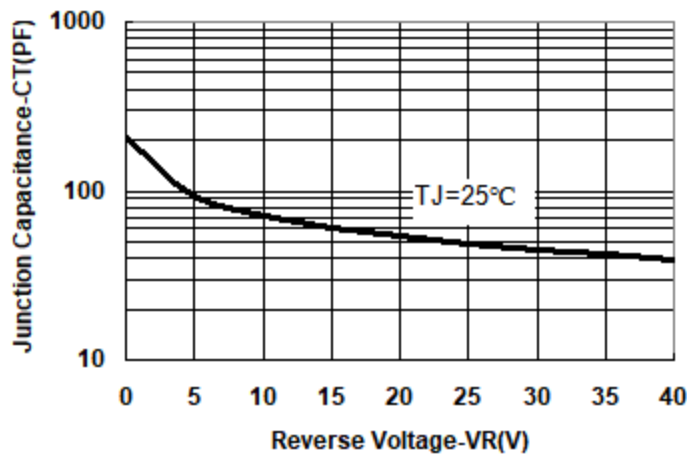


Fig.1-Typical Junction Capacitance

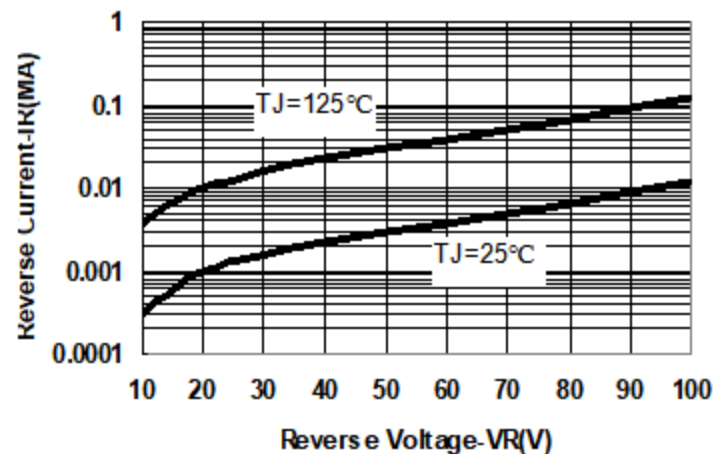


Fig.2-Typical Values Of Reverse Current

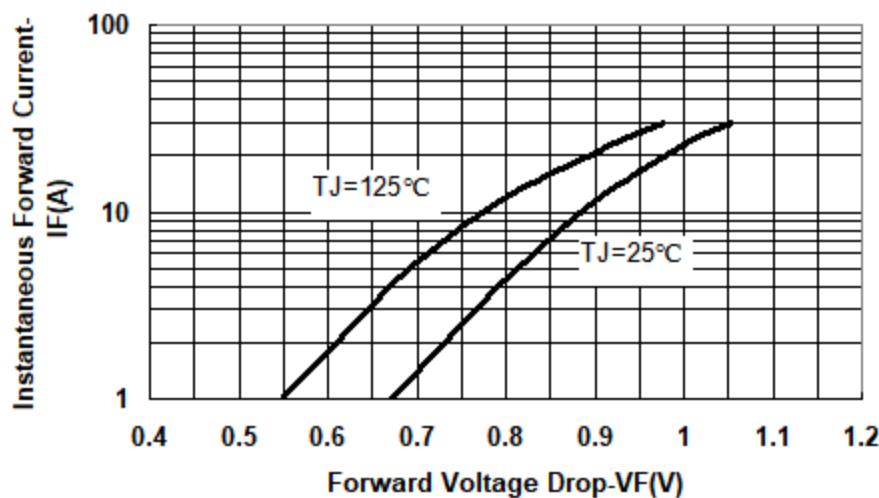
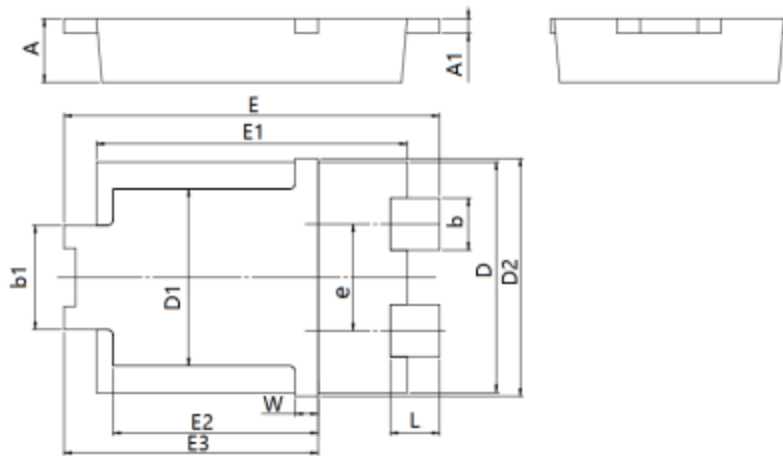


Fig.3-Typical Forward Voltage Drop Characteristics

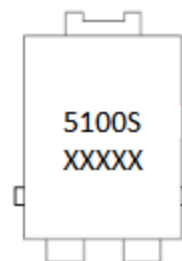
**Mechanical Dimensions TO-277B**


| SYMBOL | Millimeters |      | Inches |       |
|--------|-------------|------|--------|-------|
|        | Min.        | Max. | Min.   | Max.  |
| A      | 0.95        | 1.25 | 0.037  | 0.049 |
| A1     | 0.20        | 0.30 | 0.008  | 0.012 |
| b      | 0.85        | 0.95 | 0.033  | 0.037 |
| b1     | 1.70        | 1.90 | 0.067  | 0.075 |
| D      | 3.88        | 4.08 | 0.153  | 0.161 |
| D1     | 2.90        | 3.20 | 0.114  | 0.126 |
| D2     | 4.25        | -    | 0.167  | -     |
| e      | 1.74        | 1.94 | 0.069  | 0.076 |
| E      | 6.30        | 6.70 | 0.248  | 0.264 |
| E1     | 5.28        | 5.48 | 0.208  | 0.216 |
| E2     | 3.40        | 3.70 | 0.134  | 0.146 |
| E3     | 4.20        | 4.60 | 0.165  | 0.181 |
| L      | 0.65        | 1.05 | 0.025  | 0.041 |
| W      | 0.25        | 0.55 | 0.010  | 0.022 |

**Ordering Information**

| Device     | Package          | Shipping      |
|------------|------------------|---------------|
| MBR5100S   | TO-277B(Pb-Free) | 5000pcs/ reel |
| MBR5100STR | TO-277B(Pb-Free) | 5000pcs/ reel |

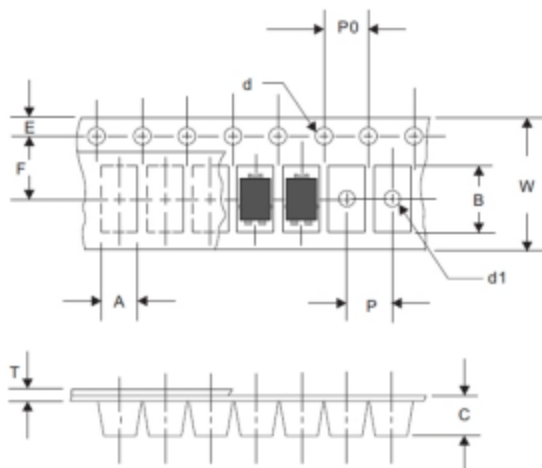
For information on tape and reel specifications, including part orientation and tape sizes, please refer to our tape and reel packaging specification.

**Marking Diagram**


Where XXXXX is YYWWL

5 = Forward Current (5A)  
 100 = Reverse Voltage (100V)  
 S = Package type  
 YY = Year  
 WW = Week  
 L = Lot Number

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

**Carrier Tape Specification TO-277B**


| SYMBOL | Millimeters |       |
|--------|-------------|-------|
|        | Min.        | Max.  |
| A      | 4.28        | 4.48  |
| B      | 6.80        | 7.10  |
| C      | 1.30        | 1.50  |
| d      | 1.40        | 1.60  |
| d1     | -           | 1.50  |
| E      | 1.65        | 1.85  |
| F      | 5.40        | 5.60  |
| P      | 7.90        | 8.10  |
| P0     | 3.90        | 4.10  |
| T      | 0.24        | 0.44  |
| W      | 11.70       | 12.30 |

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