

# MBR2515L

## SWITCHMODE™ Power Rectifier

### Features and Benefits

- Low Forward Voltage
- Low Power Loss/High Efficiency
- High Surge Capacity
- 100°C Operating Junction Temperature
- 25 A Total
- Pb-Free Packages are Available\*

### Applications

- Power Supply – Output Rectification
- Power Management
- Instrumentation

### Mechanical Characteristics

- Case: Epoxy, Molded
- Epoxy Meets UL 94, V-0 @ 0.125 in
- Weight: 1.9 Grams (Approximately)
- Finish: All External Surfaces Corrosion Resistant and Terminal Leads are Readily Solderable
- Lead Temperatures for Soldering Purposes: 260°C Max. for 10 Seconds
- ESD Rating: Human Body Model 3B  
Machine Model C

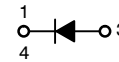
\*For additional information on our Pb-Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.



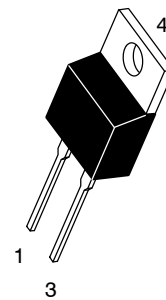
**ON Semiconductor®**

<http://onsemi.com>

## SCHOTTKY BARRIER RECTIFIER 25 AMPERES, 15 VOLTS



### MARKING DIAGRAM



TO-220AC  
CASE 221B  
STYLE 1



A = Assembly Location  
Y = Year  
WW = Work Week  
G = Pb-Free Package  
B2515L = Device Code  
KA = Diode Polarity

### ORDERING INFORMATION

| Device    | Package             | Shipping      |
|-----------|---------------------|---------------|
| MBR2515L  | TO-220              | 50 Units/Rail |
| MBR2515LG | TO-220<br>(Pb-Free) | 50 Units/Rail |

# MBR2515L

## MAXIMUM RATINGS

| Rating   | Symbol                          | Value       | Unit             |
|--|---------------------------------|-------------|------------------|
| Peak Repetitive Reverse Voltage<br>Working Peak Reverse Voltage<br>DC Blocking Voltage                       | $V_{RRM}$<br>$V_{RWM}$<br>$V_R$ | 15          | V                |
| Average Rectified Forward Current<br>( $T_C = 91^\circ\text{C}$ per Device)                                  | $I_{F(AV)}$                     | 25          | A                |
| Peak Repetitive Forward Current, per Leg (Square Wave, 20 kHz, $T_C = 95^\circ\text{C}$ )                    | $I_{FRM}$                       | 25          | A                |
| Non-Repetitive Peak Surge Current<br>(Surge Applied at Rated Load Conditions, Halfwave, Single Phase, 60 Hz) | $I_{FSM}$                       | 150         | A                |
| Peak Repetitive Reverse Surge Current (2.0 $\mu\text{s}$ , 1.0 kHz)  | $I_{RRM}$                       | 1.0         | A                |
| Storage Temperature Range  | $T_{stg}$                       | -65 to +125 | $^\circ\text{C}$ |
| Operating Junction Temperature   | $T_J$                           | -65 to +100 | $^\circ\text{C}$ |

Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

## THERMAL CHARACTERISTICS

| Characteristic                                  | Conditions | Symbol          | Max | Unit                      |
|---|------------|-----------------|-----|---------------------------|
| Maximum Thermal Resistance, Junction-to-Case    | Min. Pad   | $R_{\theta JC}$ | 1.0 | $^\circ\text{C}/\text{W}$ |
| Maximum Thermal Resistance, Junction-to-Ambient | Min. Pad   | $R_{\theta JA}$ | 70  |                           |

## ELECTRICAL CHARACTERISTICS

| Characteristic  | Symbol | Min | Typical              | Max                  | Unit |
|---|--------|-----|----------------------|----------------------|------|
| Instantaneous Forward Voltage (Note 1)<br>( $i_F = 25$ Amps, $T_J = 25^\circ\text{C}$ )<br>( $i_F = 25$ Amps, $T_J = 70^\circ\text{C}$ )<br>( $i_F = 19$ Amps, $T_J = 70^\circ\text{C}$ ) | $V_F$  | -   | 0.41<br>0.37<br>0.34 | 0.45<br>0.42<br>0.38 | V    |
| Instantaneous Reverse Current (Note 1)<br>(Rated dc Voltage, $T_J = 25^\circ\text{C}$ )<br>(Rated dc Voltage, $T_J = 70^\circ\text{C}$ )  | $i_R$  | -   | 1.0<br>24            | 15<br>200            | mA   |

1. Pulse Test: Pulse Width = 300  $\mu\text{s}$ , Duty Cycle  $\leq 2.0\%$ .

# MBR2515L

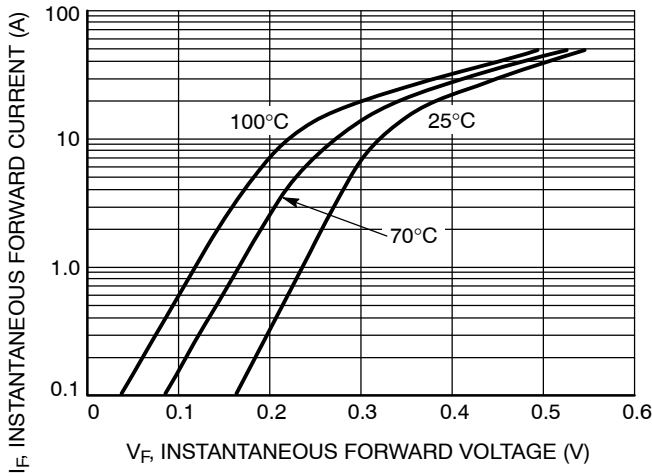


Figure 1. Typical Forward Voltage

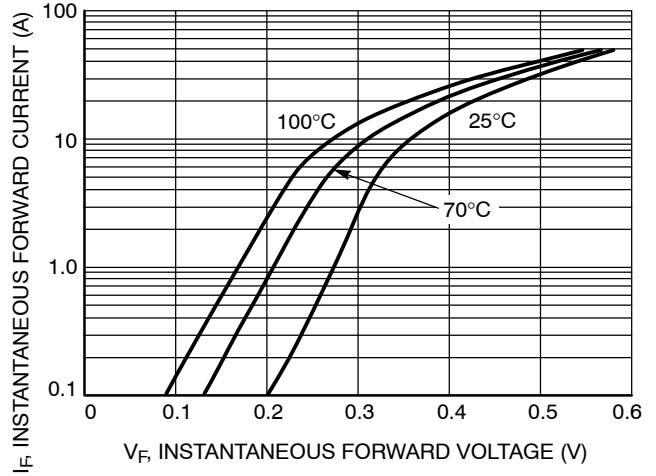


Figure 2. Maximum Forward Voltage

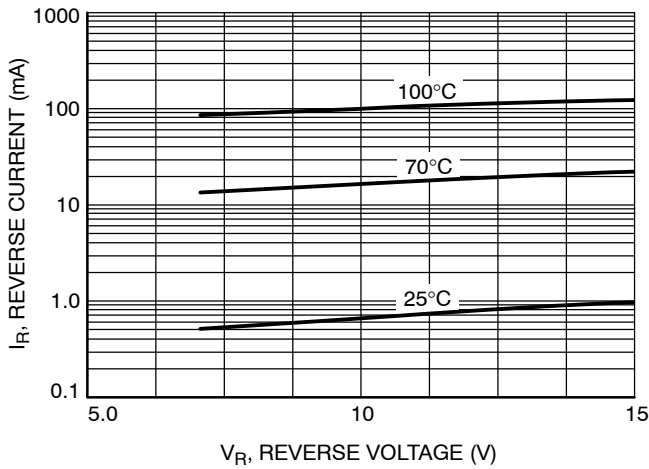


Figure 3. Typical Reverse Current

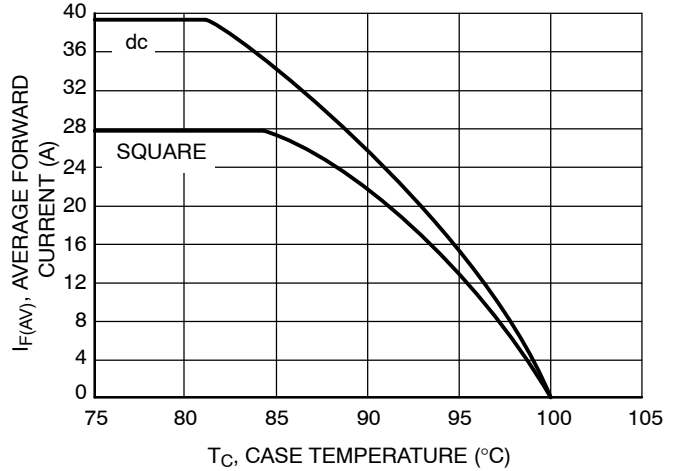


Figure 4. Current Derating, Case, Per Leg

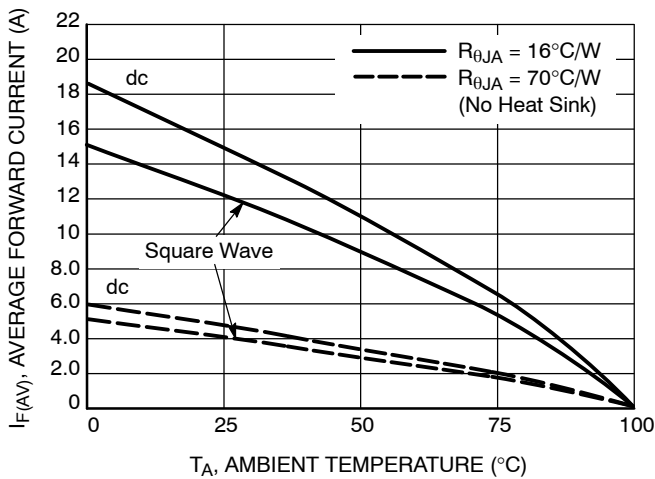


Figure 5. Current Derating, Ambient, Per Leg

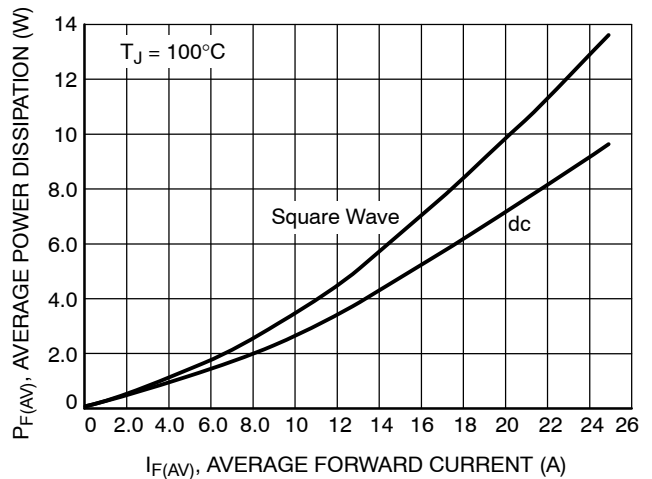
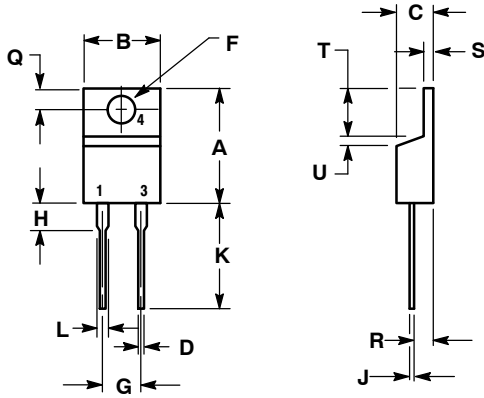


Figure 6. Forward Power Dissipation

# MBR2515L

## PACKAGE DIMENSIONS

TO-220  
CASE 221B-04  
ISSUE E




- NOTES:  
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.  
2. CONTROLLING DIMENSION: INCH.

| DIM | INCHES |       | MILLIMETERS |       |
|-----|--------|-------|-------------|-------|
|     | MIN    | MAX   | MIN         | MAX   |
| A   | 0.595  | 0.620 | 15.11       | 15.75 |
| B   | 0.380  | 0.405 | 9.65        | 10.29 |
| C   | 0.160  | 0.190 | 4.06        | 4.82  |
| D   | 0.025  | 0.035 | 0.64        | 0.89  |
| F   | 0.142  | 0.161 | 3.61        | 4.09  |
| G   | 0.190  | 0.210 | 4.83        | 5.33  |
| H   | 0.110  | 0.130 | 2.79        | 3.30  |
| J   | 0.014  | 0.025 | 0.36        | 0.64  |
| K   | 0.500  | 0.562 | 12.70       | 14.27 |
| L   | 0.045  | 0.060 | 1.14        | 1.52  |
| Q   | 0.100  | 0.120 | 2.54        | 3.04  |
| R   | 0.080  | 0.110 | 2.04        | 2.79  |
| S   | 0.045  | 0.055 | 1.14        | 1.39  |
| T   | 0.235  | 0.255 | 5.97        | 6.48  |
| U   | 0.000  | 0.050 | 0.00        | 1.27  |

- STYLE 1:  
PIN 1. CATHODE  
2. N/A  
3. ANODE  
4. CATHODE

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