

# MBR2030CTLG

## Switch-mode Dual Schottky Power Rectifier

### Features and Benefits

- Highly Stable Oxide Passivated Junction
- Very Low Forward Voltage Drop (0.4 Max @ 10 A,  $T_C = 150^\circ\text{C}$ )
- High Junction Temperature
- High dv/dt Capability
- Excellent Ability to Withstand Reverse Avalanche Energy Transients
- Low Power Loss/High Efficiency
- High Surge Capacity
- 175°C Operating Junction Temperature
- 20 A Total (10 A Per Diode Leg)
- This Device is Pb-Free and is RoHS Compliant\*

### Applications

- Power Supply – Output Rectification
- Power Management – ORING
- Instrumentation

### Mechanical Characteristics

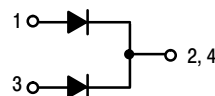
- Case: Epoxy, Molded
- Epoxy Meets UL 94 V-0 @ 0.125 in
- Weight: 1.9 Grams (Approximately)
- Finish: All External Surfaces Corrosion Resistant and Terminal Leads are Readily Solderable
- Lead Temperature for Soldering Purposes: 260°C Max. for 10 Sec
- ESD Rating: Human Body Model 3B  
Machine Model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



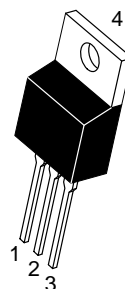
ON Semiconductor®

[www.onsemi.com](http://www.onsemi.com)

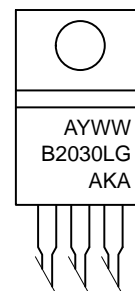
## SCHOTTKY BARRIER RECTIFIER 20 AMPERES, 30 VOLTS



### MARKING DIAGRAM



TO-220  
CASE 221A  
STYLE 6



A = Assembly Location  
Y = Year  
WW = Work Week  
B2030L = Device Code  
G = Pb-Free Package  
AKA = Diode Polarity

### ORDERING INFORMATION

Device	Package	Shipping
MBR2030CTLG	TO-220 (Pb-Free)	50 Units/Rail

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

# MBR2030CTLG

## MAXIMUM RATINGS (Per Leg)

Rating	Symbol	Value	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	$V_{RRM}$ $V_{RWM}$ $V_R$	30	V
Average Rectified Forward Current ( $T_C = 167^\circ\text{C}$ ) Per Diode Per Device	$I_{F(AV)}$	10 20	A
Non-repetitive Peak Surge Current (Surge applied at rated load conditions halfwave, single phase, 60 Hz)	$I_{FSM}$	150	A
Peak Repetitive Forward Current (Square Wave, 20 kHz, $T_C = 166^\circ\text{C}$ )	$I_{FRM}$	10	A
Peak Repetitive Reverse Surge Current (2.0 $\mu\text{s}$ , 1.0 kHz)	$I_{RRM}$	1.0	A
Operating Junction Temperature (Note 1)	$T_J$	-65 to +175	$^\circ\text{C}$
Storage Temperature	$T_{stg}$	-65 to +175	$^\circ\text{C}$
Voltage Rate of Change (Rated $V_R$ )	$dv/dt$	1000	V/ $\mu\text{s}$

Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

1. The heat generated must be less than the thermal conductivity from Junction-to-Ambient:  $dP_D/dT_J < 1/R_{\theta JA}$ .

## THERMAL CHARACTERISTICS (Per Leg)

Characteristic	Symbol	Value	Unit
Maximum Thermal Resistance, Junction-to-Case (Min. Pad)	$R_{\theta JC}$	2.0	$^\circ\text{C}/\text{W}$
Maximum Thermal Resistance, Junction-to-Ambient (Min. Pad)	$R_{\theta JA}$	60	$^\circ\text{C}/\text{W}$

## ELECTRICAL CHARACTERISTICS (Per Leg)

Characteristic	Symbol	Min	Typ	Max	Unit
Maximum Instantaneous Forward Voltage (Note 2) ( $i_F = 10$ Amps, $T_J = 25^\circ\text{C}$ ) ( $i_F = 10$ Amps, $T_J = 150^\circ\text{C}$ ) ( $i_F = 20$ Amps, $T_J = 25^\circ\text{C}$ ) ( $i_F = 20$ Amps, $T_J = 150^\circ\text{C}$ )	$V_F$	-	0.45 0.32 0.51 0.41	0.52 0.40 0.58 0.48	V
Maximum Instantaneous Reverse Current (Note 2) (Rated dc Voltage, $T_J = 25^\circ\text{C}$ ) (Rated dc Voltage, $T_J = 100^\circ\text{C}$ ) (Rated dc Voltage, $T_J = 125^\circ\text{C}$ )	$i_R$	-	0.11 10 -	5.0 40 75	mA

Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

2. Pulse Test: Pulse Width = 5.0 ms, Duty Cycle  $\leq 10\%$ .

# MBR2030CTLG

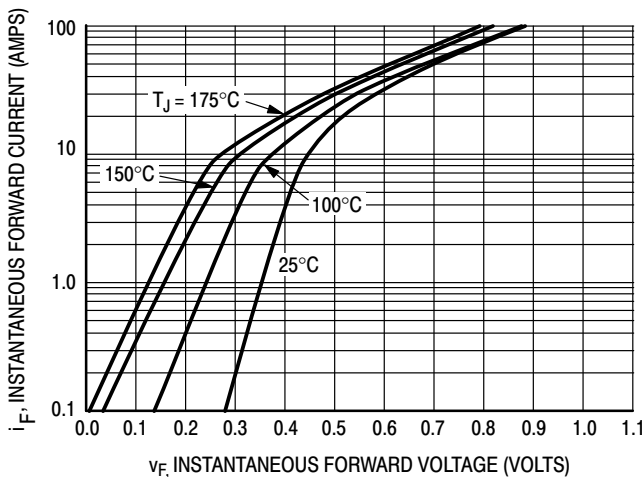


Figure 1. Typical Forward Voltage

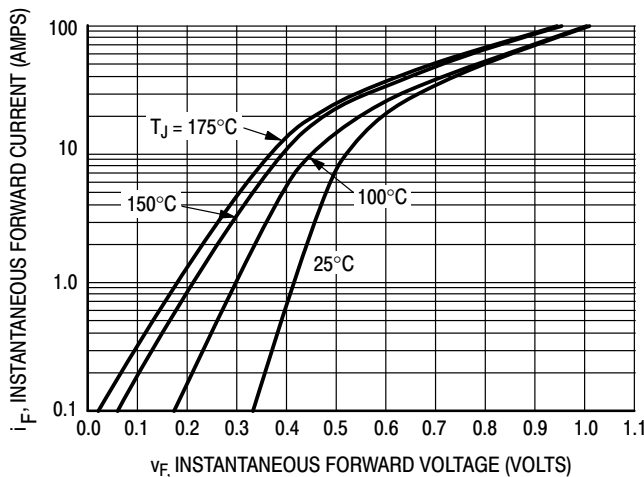


Figure 2. Maximum Forward Voltage

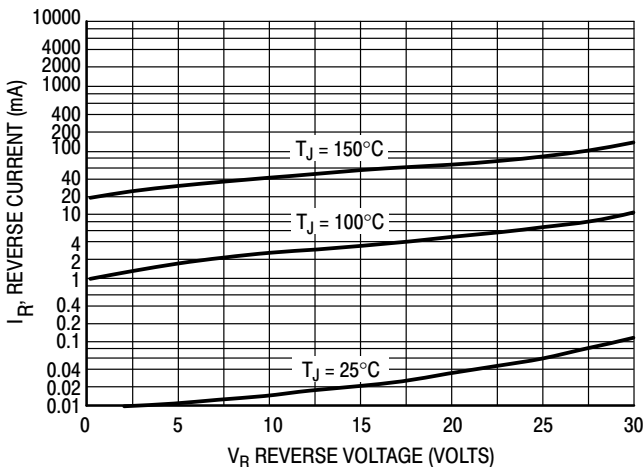


Figure 3. Typical Reverse Current

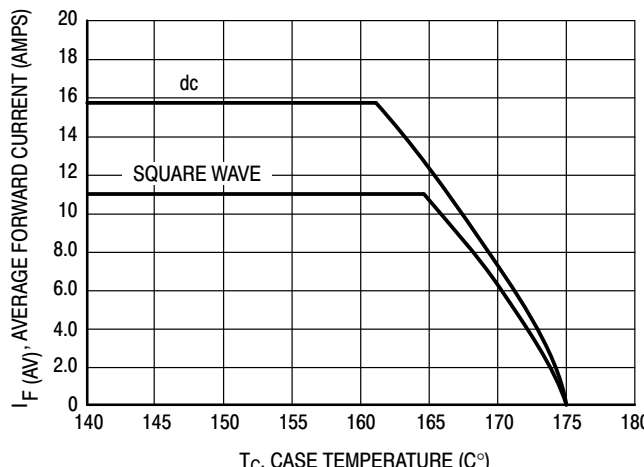


Figure 4. Current Derating, Case Per Leg

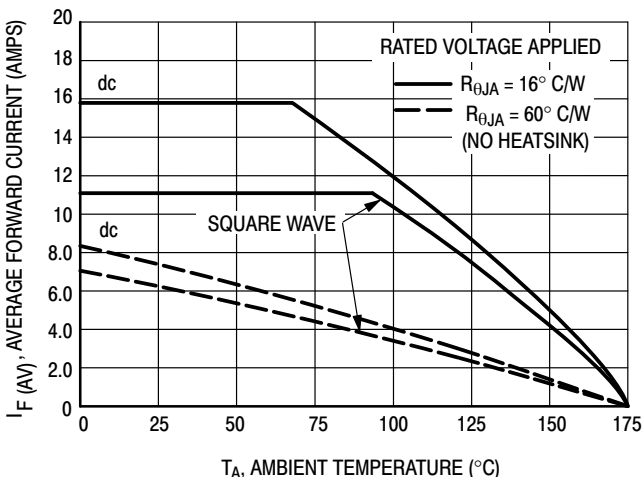


Figure 5. Current Derating, Ambient Per Leg

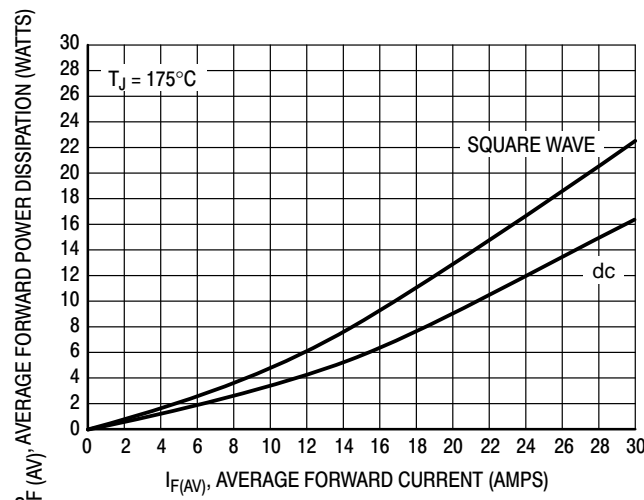
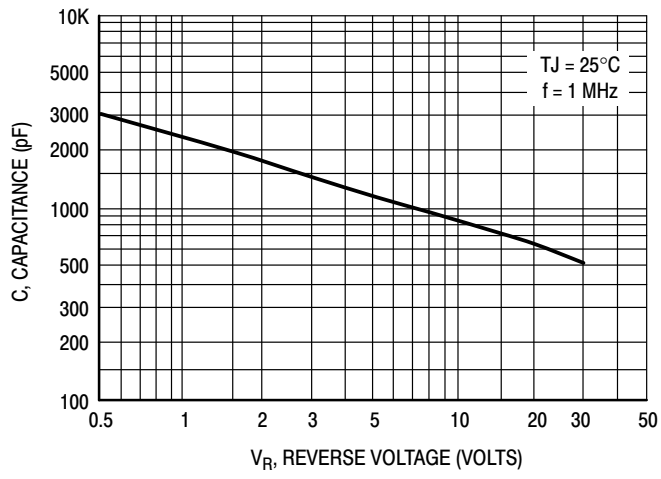


Figure 6. Forward Power Dissipation

# MBR2030CTLG



**Figure 7. Typical Capacitance**

**onsemi**, **Onsemi**, and other names, marks, and brands are registered and/or common law trademarks of Semiconductor Components Industries, LLC dba "**onsemi**" or its affiliates and/or subsidiaries in the United States and/or other countries. **onsemi** owns the rights to a number of patents, trademarks, copyrights, trade secrets, and other intellectual property. A listing of **onsemi**'s product/patent coverage may be accessed at [www.onsemi.com/site/pdf/Patent-Marking.pdf](http://www.onsemi.com/site/pdf/Patent-Marking.pdf). **onsemi** reserves the right to make changes at any time to any products or information herein, without notice. The information herein is provided "as-is" and **onsemi** makes no warranty, representation or guarantee regarding the accuracy of the information, product features, availability, functionality, or suitability of its products for any particular purpose, nor does **onsemi** assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation special, consequential or incidental damages. Buyer is responsible for its products and applications using **onsemi** products, including compliance with all laws, regulations and safety requirements or standards, regardless of any support or applications information provided by **onsemi**. "Typical" parameters which may be provided in **onsemi** data sheets and/or specifications can and do vary in different applications and actual performance may vary over time. All operating parameters, including "Typicals" must be validated for each customer application by customer's technical experts. **onsemi** does not convey any license under any of its intellectual property rights nor the rights of others. **onsemi** products are not designed, intended, or authorized for use as a critical component in life support systems or any FDA Class 3 medical devices or medical devices with a same or similar classification in a foreign jurisdiction or any devices intended for implantation in the human body. Should Buyer purchase or use **onsemi** products for any such unintended or unauthorized application, Buyer shall indemnify and hold **onsemi** and its officers, employees, subsidiaries, affiliates, and distributors harmless against all claims, costs, damages, and expenses, and reasonable attorney fees arising out of, directly or indirectly, any claim of personal injury or death associated with such unintended or unauthorized use, even if such claim alleges that **onsemi** was negligent regarding the design or manufacture of the part. **onsemi** is an Equal Opportunity/Affirmative Action Employer. This literature is subject to all applicable copyright laws and is not for resale in any manner.

## PUBLICATION ORDERING INFORMATION

### LITERATURE FULFILLMENT:

Email Requests to: [orderlit@onsemi.com](mailto:orderlit@onsemi.com)

**onsemi Website:** [www.onsemi.com](http://www.onsemi.com)

### TECHNICAL SUPPORT

**North American Technical Support:**

Voice Mail: 1 800-282-9855 Toll Free USA/Canada

Phone: 011 421 33 790 2910

**Europe, Middle East and Africa Technical Support:**

Phone: 00421 33 790 2910

For additional information, please contact your local Sales Representative