

# MBR4015CTL

## SWITCHMODE™ Power Rectifier

These state-of-the-art devices use the Schottky Barrier principle with a platinum barrier metal.

### Features

- Center-Tap Configuration
- Guardring for Stress Protection
- Low Forward Voltage
- 125°C Operating Junction Temperature
- ESD Rating: Class 3 per Human Body Model  
Class C per Machine Model
- Epoxy Meets UL 94, V-0 @ 0.125 in
- Pb-Free Package is Available\*

### Mechanical Characteristics:

- Case: Epoxy, Molded
- 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 Seconds

### MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Peak Repetitive Reverse Voltage	$V_{RRM}$	15	V
Working Peak Reverse Voltage	$V_{RWM}$		
DC Blocking Voltage	$V_R$		
Average Rectified Forward Current Per Diode	$I_{F(AV)}$	20	A
Per Device		40	
Peak Repetitive Forward Current (Rated $V_R$ , Square Wave, 20 kHz, $T_C = 105^\circ\text{C}$ )	$I_{FRM}$	40	A
Per Diode			
Non-Repetitive Peak Surge Current (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 +175	°C
Operating Junction Temperature	$T_J$	-65 to +125	°C
Voltage Rate of Change (Rated $V_R$ )	dv/dt	1000	V/ $\mu\text{s}$

Maximum ratings are those values beyond which device damage can occur. Maximum ratings applied to the device are individual stress limit values (not normal operating conditions) and are not valid simultaneously. If these limits are exceeded, device functional operation is not implied, damage may occur and reliability may be affected.

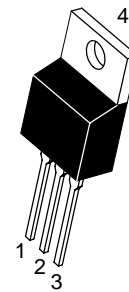
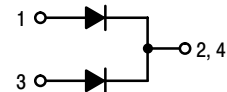
\*For additional information on our Pb-Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.



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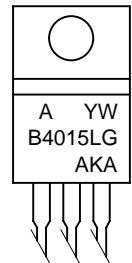
<http://onsemi.com>

## SCHOTTKY BARRIER RECTIFIER 40 AMPERES, 15 VOLTS



TO-220AB  
CASE 221A  
PLASTIC

### MARKING DIAGRAM



A = Assembly Location  
Y = Year  
W = Work Week  
B4015L = Device Code  
G = Pb-Free Package  
AKA = Diode Polarity

### ORDERING INFORMATION

Device	Package	Shipping
MBR4015CTL	TO-220	50 Units / Rail
MBR4015CTLG	TO-220 (Pb-Free)	50 Units / Rail

# MBR4015CTL

## THERMAL CHARACTERISTICS (Per Diode)

Characteristic	Symbol	Value	Unit
Maximum Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	1.3	$^{\circ}\text{C}/\text{W}$
Maximum Thermal Resistance, Junction-to-Ambient	$R_{\theta JA}$	2.0	$^{\circ}\text{C}/\text{W}$

## ELECTRICAL CHARACTERISTICS (Per Diode)

Maximum Instantaneous Forward Voltage (Note 1) ( $i_F = 20$ Amps, $T_C = 125^{\circ}\text{C}$ ) ( $i_F = 40$ Amps, $T_C = 125^{\circ}\text{C}$ ) ( $i_F = 20$ Amps, $T_C = 25^{\circ}\text{C}$ ) ( $i_F = 40$ Amps, $T_C = 25^{\circ}\text{C}$ )	$V_F$	0.34 0.50 0.43 0.54	V
Maximum Instantaneous Reverse Current (Rated dc Voltage, $T_C = 125^{\circ}\text{C}$ ) (Rated dc Voltage, $T_C = 25^{\circ}\text{C}$ )	$i_R$	600 10	mA

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

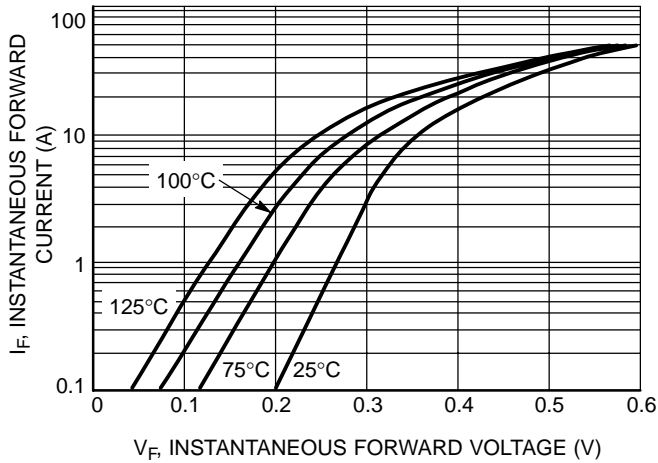


Figure 1. Maximum Forward Voltage

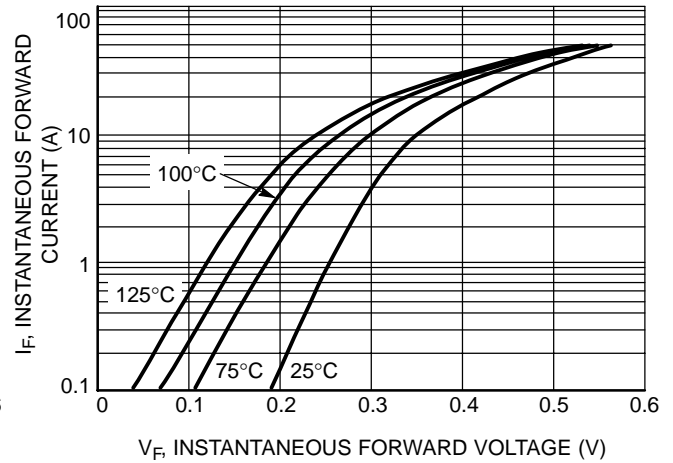


Figure 2. Typical Forward Voltage

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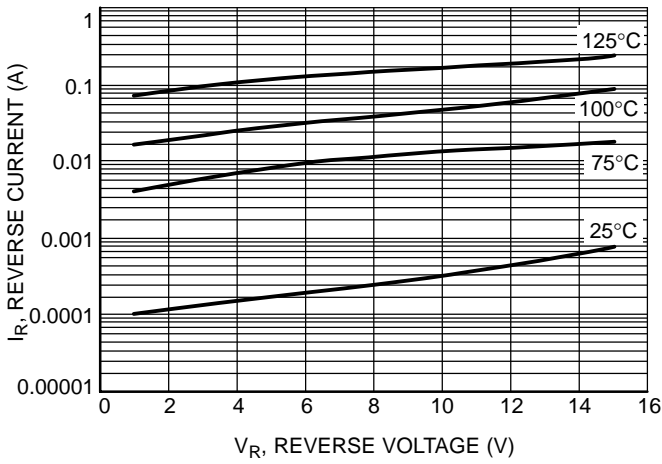


Figure 3. Typical Reverse Current

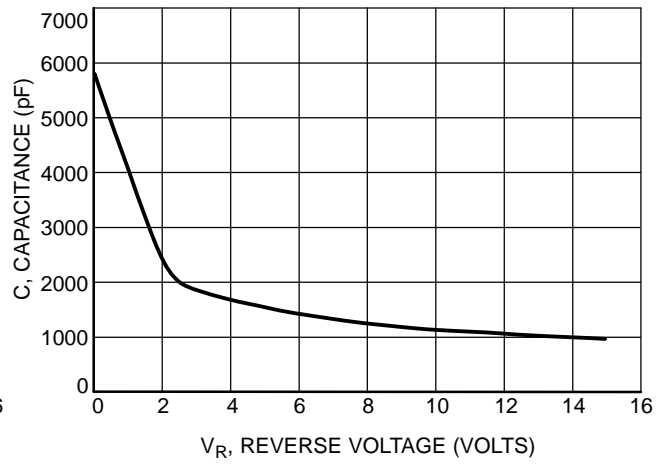


Figure 4. Typical Capacitance

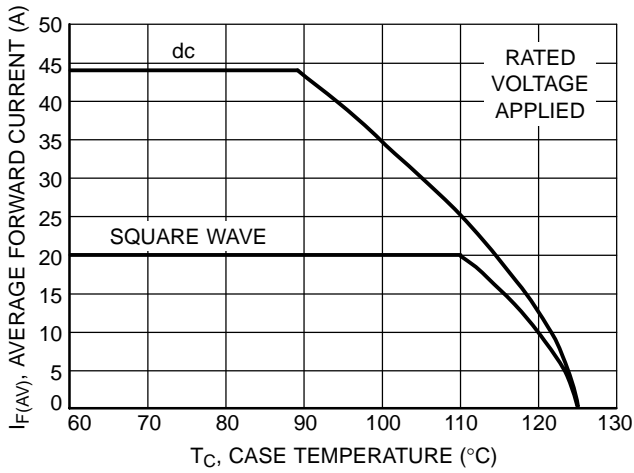


Figure 5. Current Derating, Case (Per Diode)

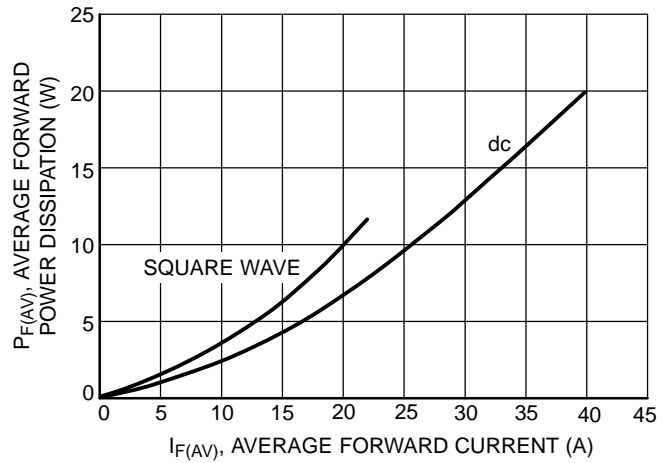
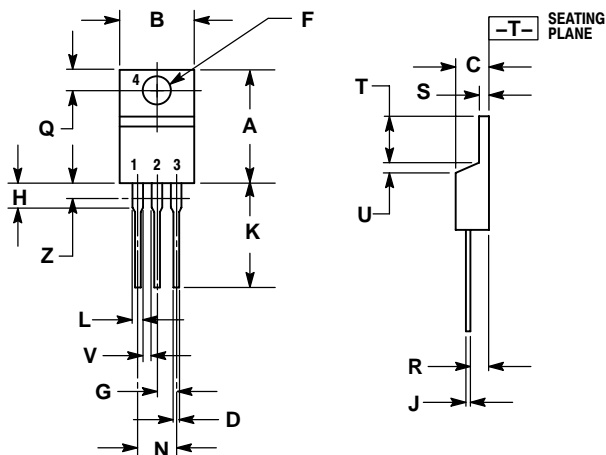


Figure 6. Forward Power Dissipation (Per Diode)

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## PACKAGE DIMENSIONS


TO-220  
CASE 221A-09  
ISSUE AA



- NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
  2. CONTROLLING DIMENSION: INCH.
  3. DIMENSION Z DEFINES A ZONE WHERE ALL BODY AND LEAD IRREGULARITIES ARE ALLOWED.

DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.570	0.620	14.48	15.75
B	0.380	0.405	9.66	10.28
C	0.160	0.190	4.07	4.82
D	0.025	0.035	0.64	0.88
F	0.142	0.147	3.61	3.73
G	0.095	0.105	2.42	2.66
H	0.110	0.155	2.80	3.93
J	0.018	0.025	0.46	0.64
K	0.500	0.562	12.70	14.27
L	0.045	0.060	1.15	1.52
N	0.190	0.210	4.83	5.33
Q	0.100	0.120	2.54	3.04
R	0.080	0.110	2.04	2.79
S	0.045	0.055	1.15	1.39
T	0.235	0.255	5.97	6.47
U	0.000	0.050	0.00	1.27
V	0.045	---	1.15	---
Z	---	0.080	---	2.04

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