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 Working Peak Reverse Voltage DC Blocking Voltage	V_{RRM} V_{RWM} V_R	15	V
Average Rectified Forward Current Per Diode Per Device	$I_{F(AV)}$	 20 40	A
Peak Repetitive Forward Current (Rated V_R, Square Wave, 20 kHz, T_C = 105°C) Per Diode	I_{FRM}	40	A
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 μs, 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/μs

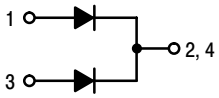
Maximum ratings are those values beyond which device damage can occur. Maximum ratings applied to the device are individual stress limit values (not normal operating conditions) and are not valid simultaneously. If these limits are exceeded, device functional operation is not implied, damage may occur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

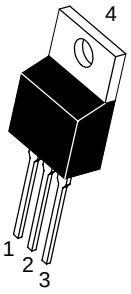
*For additional information on our Pb−Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.

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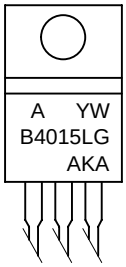
SCHOTTKY BARRIER RECTIFIER 40 AMPERES, 15 VOLTS





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

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THERMAL CHARACTERISTICS (Per Diode)

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

ELECTRICAL CHARACTERISTICS (Per Diode)

Maximum Instantaneous Forward Voltage (Note 1) (i_F = 20 Amps, T_C = 125°C) (i_F = 40 Amps, T_C = 125°C) (i_F = 20 Amps, T_C = 25°C) (i_F = 40 Amps, T_C = 25°C)	v_F	 0.34 0.50 0.43 0.54	V
Maximum Instantaneous Reverse Current (Rated dc Voltage, T_C = 125°C) (Rated dc Voltage, T_C = 25°C)	i_R	 600 10	mA

1. Pulse Test: Pulse Width = 300 μs, Duty Cycle ≤ 2.0%

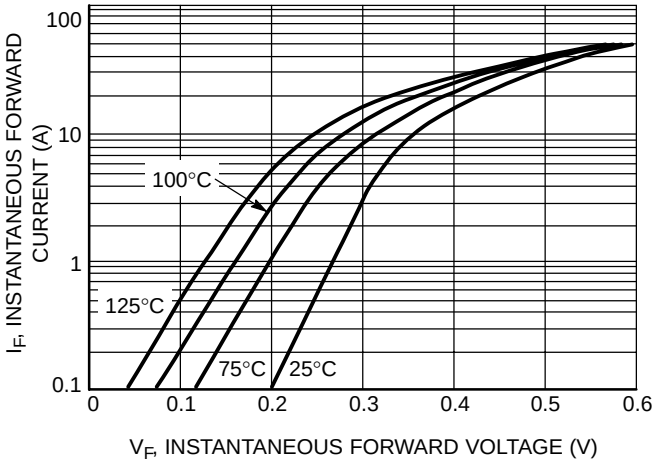


Figure 1. Maximum Forward Voltage

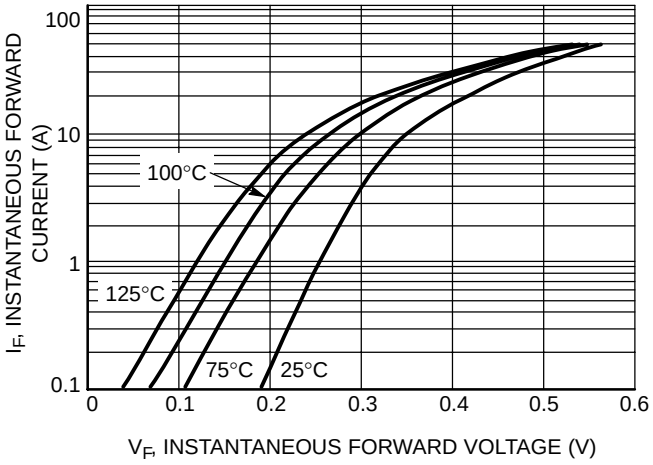


Figure 2. Typical Forward Voltage

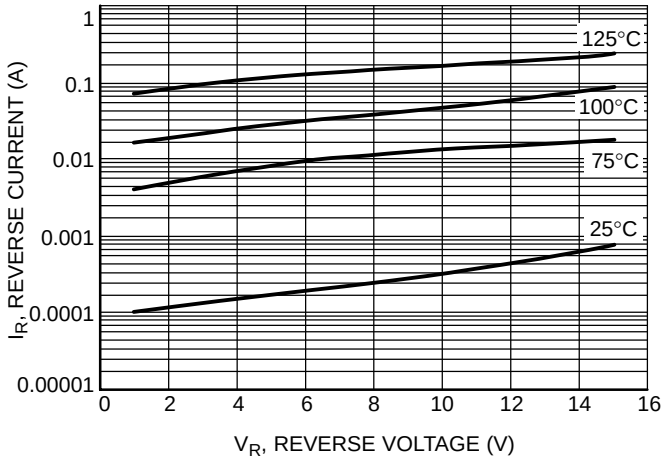


Figure 3. Typical Reverse Current

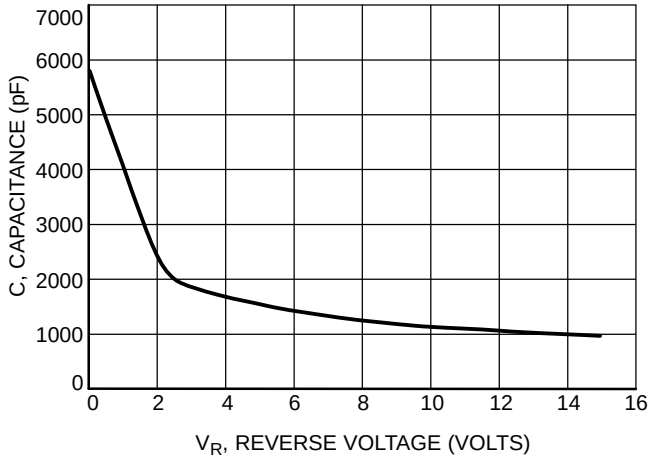


Figure 4. Typical Capacitance

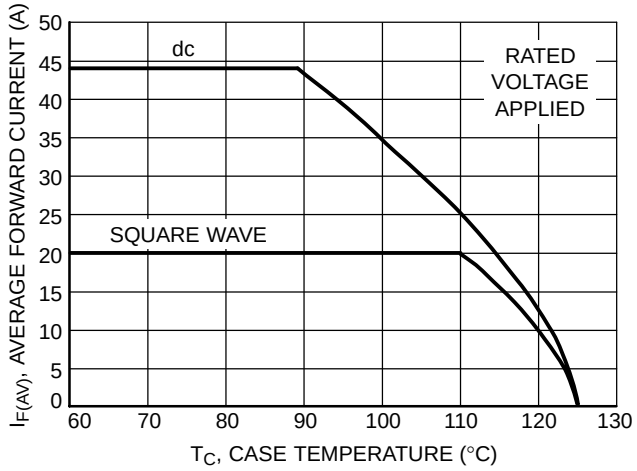


Figure 5. Current Derating, Case (Per Diode)

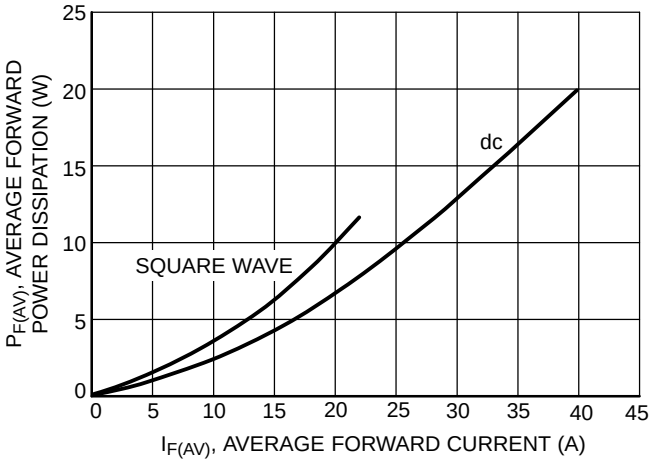
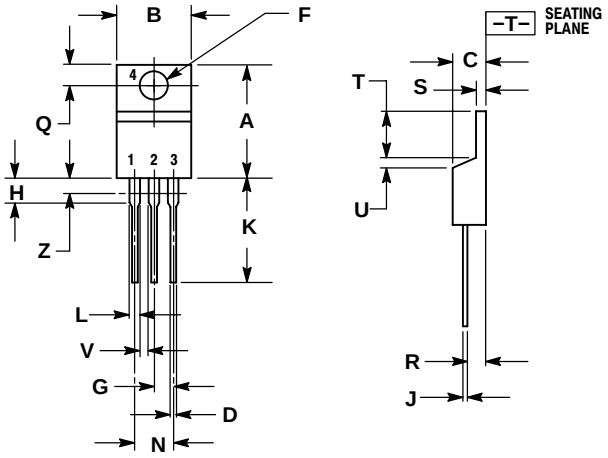


Figure 6. Forward Power Dissipation (Per Diode)

MBR4015CTL

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.

	INCHES		MILLIMETERS	
DIM	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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