

# MBRF30H150CTG, MBR30H150CTG

## Switch-mode Power Rectifier 150 V, 30 A

### Features and Benefits

- Low Forward Voltage
- Low Power Loss/High Efficiency
- High Surge Capability
- 30 A Total (15 A Per Diode Leg)
- Guard-Ring for Stress Protection
- These Devices are Pb-Free and are RoHS Compliant

### Applications

- Power Supply – Output Rectification
- Power Management
- Instrumentation

### Mechanical Characteristics:

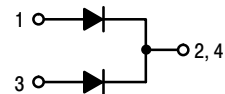
- Case: Epoxy, Molded
- Epoxy Meets UL 94 V-0 @ 0.125 in
- Weight (Approximately): 1.9 Grams (TO-220 & TO-220FP)
- Finish: All External Surfaces Corrosion Resistant and Terminal Leads are Readily Solderable
- Lead Temperature for Soldering Purposes:  
260°C Max. for 10 Seconds



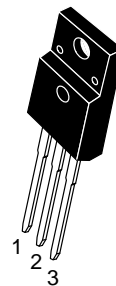
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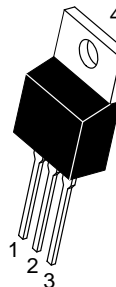
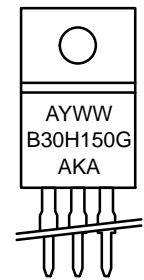
## SCHOTTKY BARRIER RECTIFIER 30 AMPERES, 150 VOLTS



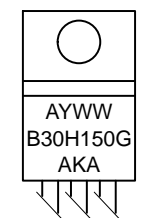
### MARKING DIAGRAMS



TO-220 FULLPAK™  
CASE 221AH



TO-220  
CASE 221A  
STYLE 6



A = Assembly Location  
Y = Year  
WW = Work Week  
B30H150 = Device Code  
G = Pb-Free Device  
AKA = Polarity Designator

### ORDERING INFORMATION

See detailed ordering and shipping information on page 2 of this data sheet.

# MBRF30H150CTG, MBR30H150CTG

## MAXIMUM RATINGS (Per Diode Leg)

Rating	Symbol	Value	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	$V_{RRM}$ $V_{RWM}$ $V_R$	150	V
Average Rectified Forward Current (Rated $V_R$ ) $T_C = 124^\circ\text{C}$	$I_{F(AV)}$	15 30	A
Nonrepetitive Peak Surge Current (Surge applied at rated load conditions halfwave, single phase, 60 Hz)	$I_{FSM}$	200	A
Operating Junction Temperature (Note 1)	$T_J$	-20 to +150	$^\circ\text{C}$
Storage Temperature	$T_{stg}$	-65 to +150	$^\circ\text{C}$
Voltage Rate of Change (Rated $V_R$ )	dv/dt	10,000	V/ $\mu\text{s}$
ESD Ratings:	Machine Model = C Human Body Model = 3B	> 400 > 8000	V

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

Rating	Symbol	Value	Unit
Maximum Thermal Resistance (MBR30H150CTG)	$R_{\theta JC}$	2.0	$^\circ\text{C}/\text{W}$
	- Junction-to-Case		
	- Junction-to-Ambient	45	
(MBRF30H150CTG)	$R_{\theta JC}$	2.5	
	- Junction-to-Case		

## ELECTRICAL CHARACTERISTICS (Per Diode Leg)

Rating	Symbol	Typ	Max	Unit
Maximum Instantaneous Forward Voltage (Note 2) ( $I_F = 5\text{ A}$ , $T_C = 25^\circ\text{C}$ ) ( $I_F = 5\text{ A}$ , $T_C = 125^\circ\text{C}$ ) ( $I_F = 15\text{ A}$ , $T_C = 25^\circ\text{C}$ ) ( $I_F = 15\text{ A}$ , $T_C = 125^\circ\text{C}$ )	$V_F$	0.69 0.55 0.98 0.68	0.75 0.60 1.11 0.73	V
Maximum Instantaneous Reverse Current (Note 2) (Rated DC Voltage, $T_C = 25^\circ\text{C}$ ) (Rated DC Voltage, $T_C = 125^\circ\text{C}$ )	$i_R$		60 50	$\mu\text{A}$ 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 = 300  $\mu\text{s}$ , Duty Cycle  $\leq 2.0\%$ .

## DEVICE ORDERING INFORMATION

Device Order Number	Package Type	Shipping <sup>†</sup>
MBRF30H150CTG	TO-220FP (Pb-Free)	50 Units / Rail
MBR30H150CTG	TO-220 (Pb-Free)	50 Units / Rail

<sup>†</sup>For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specification Brochure, BRD8011/D.

# MBRF30H150CTG, MBR30H150CTG

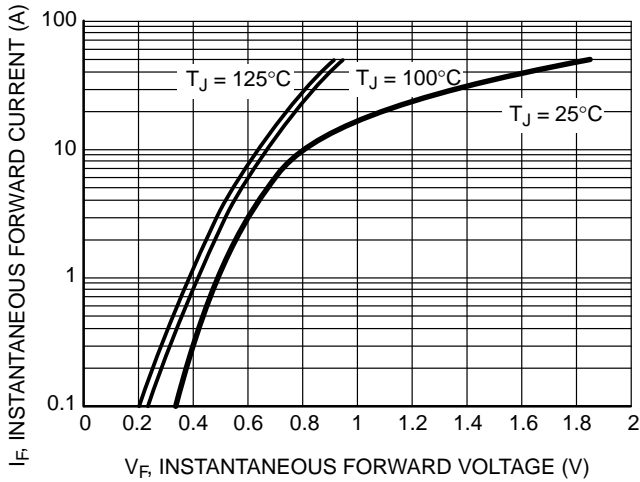


Figure 1. Typical Forward Voltage

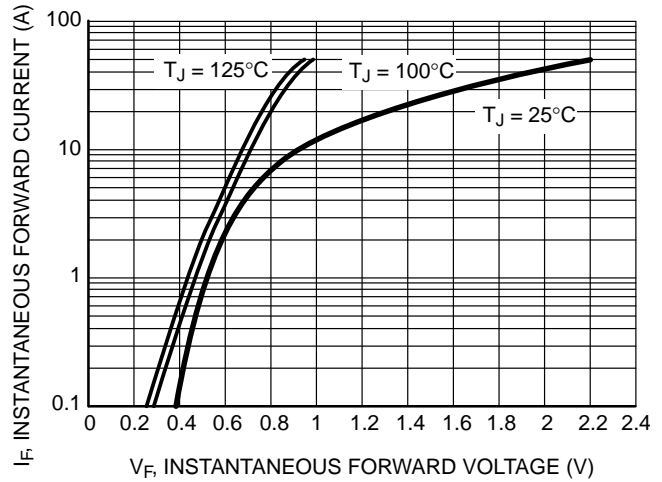


Figure 2. Maximum Forward Voltage

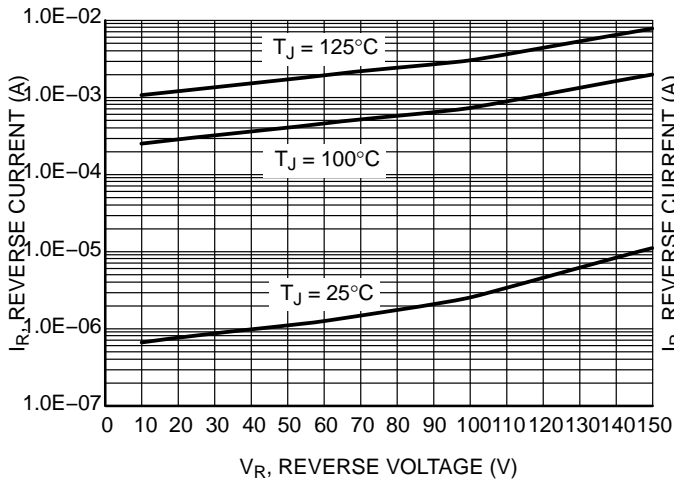


Figure 3. Typical Reverse Current

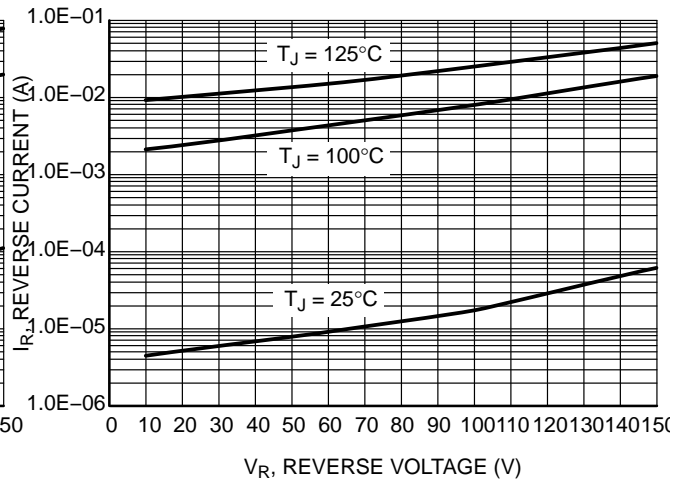


Figure 4. Maximum Reverse Current

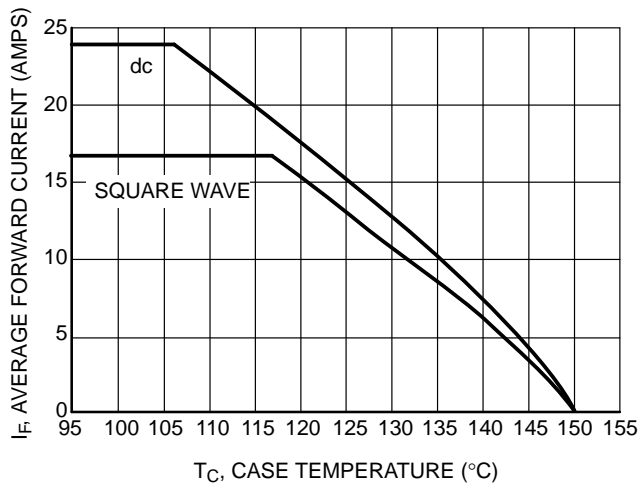


Figure 5. Current Derating

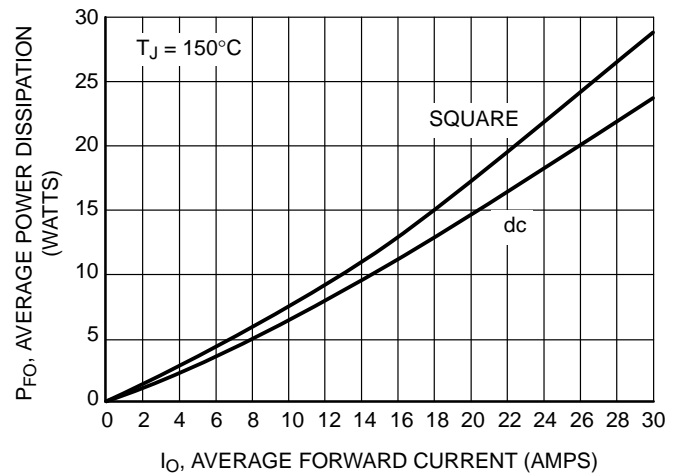


Figure 6. Forward Power Dissipation

# MBRF30H150CTG, MBR30H150CTG

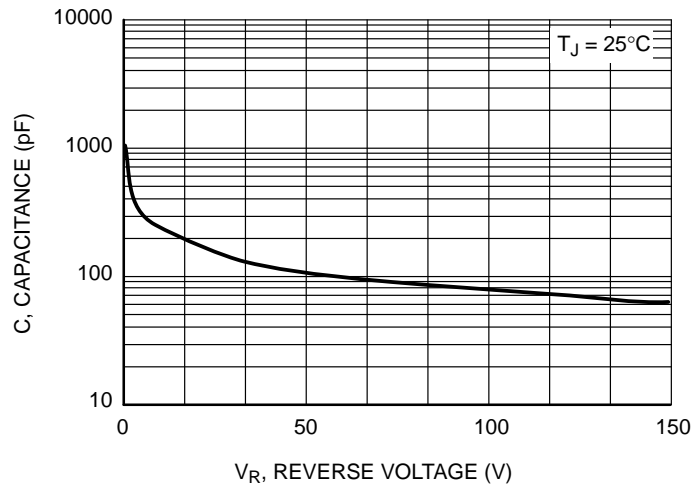


Figure 7. Capacitance

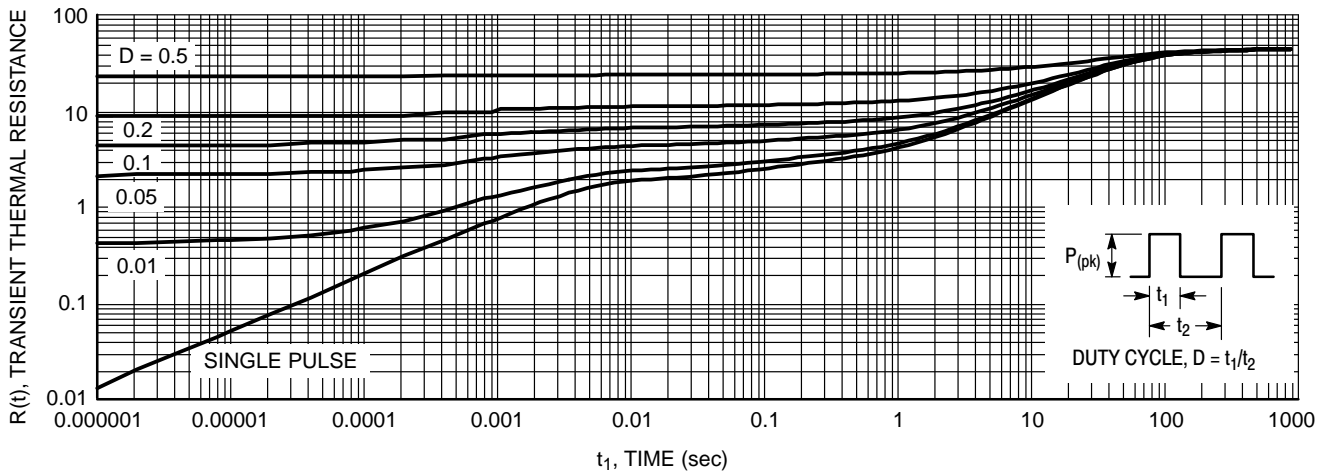


Figure 8. Thermal Response Junction-to-Ambient for MBR30H150CTG

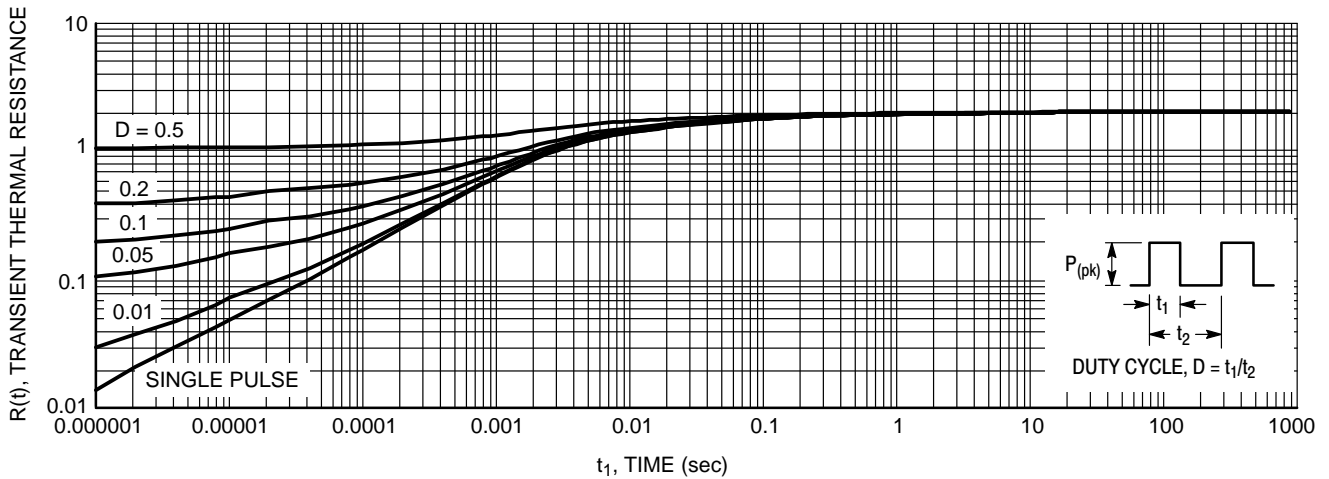


Figure 9. Thermal Response Junction-to-Case for MBR30H150CTG

# MBRF30H150CTG, MBR30H150CTG

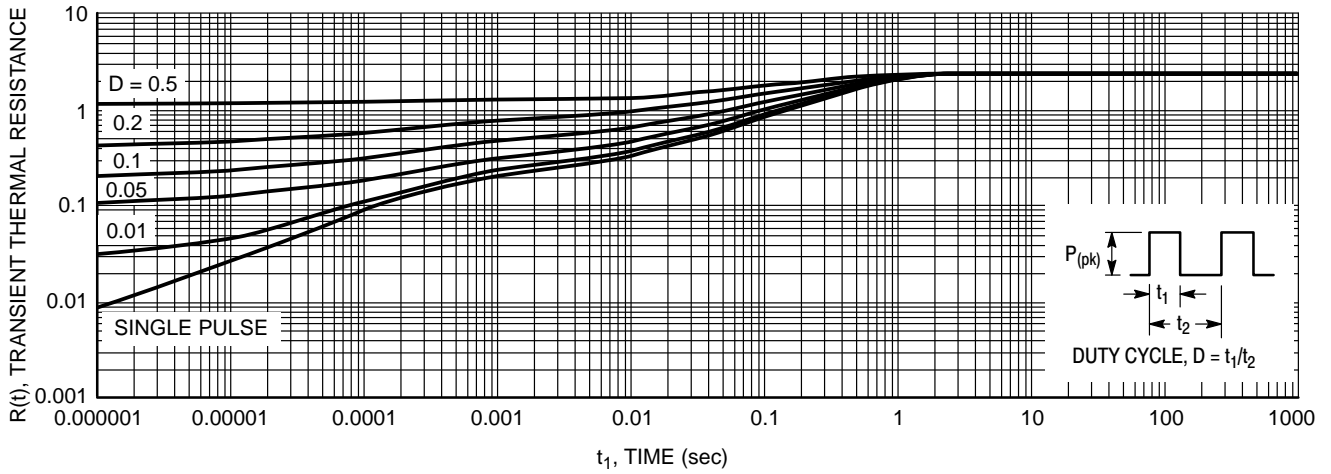


Figure 10. Thermal Response Junction-to-Case for MBRF30H150CTG

# MECHANICAL CASE OUTLINE

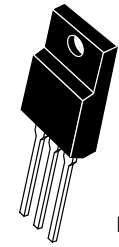
## PACKAGE DIMENSIONS

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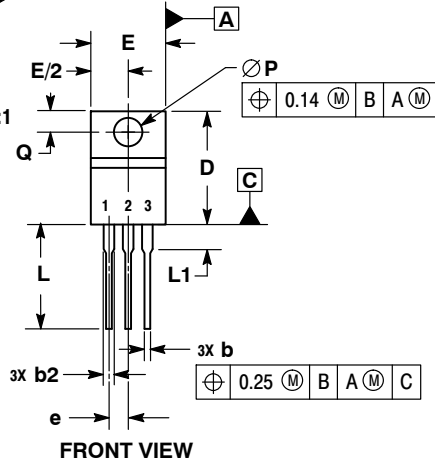


### TO-220 FULLPACK, 3-LEAD CASE 221AH ISSUE F

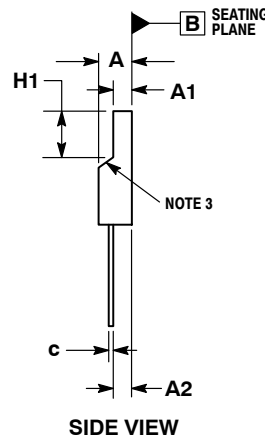
DATE 30 SEP 2014



SCALE 1:1



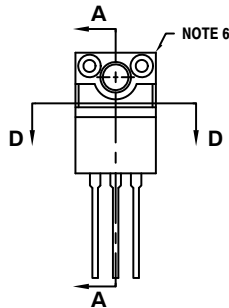
FRONT VIEW



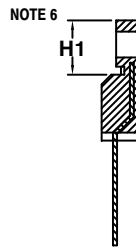
SIDE VIEW



SECTION D-D



ALTERNATE CONSTRUCTION



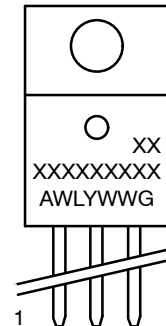
SECTION A-A

NOTES:

1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 1994.
2. CONTROLLING DIMENSION: MILLIMETERS.
3. CONTOUR UNCONTROLLED IN THIS AREA.
4. DIMENSIONS D AND E DO NOT INCLUDE MOLD FLASH AND GATE PROTRUSIONS. MOLD FLASH AND GATE PROTRUSIONS NOT TO EXCEED 0.13 PER SIDE. THESE DIMENSIONS ARE TO BE MEASURED AT OUTERMOST EXTREME OF THE PLASTIC BODY.
5. DIMENSION b2 DOES NOT INCLUDE DAMBAR PROTRUSION. LEAD WIDTH INCLUDING PROTRUSION SHALL NOT EXCEED 2.00.
6. CONTOURS AND FEATURES OF THE MOLDED PACKAGE BODY MAY VARY WITHIN THE ENVELOPE DEFINED BY DIMENSIONS A1 AND H1 FOR MANUFACTURING PURPOSES.

MILLIMETERS		
DIM	MIN	MAX
A	4.30	4.70
A1	2.50	2.90
A2	2.50	2.90
b	0.54	0.84
b2	1.10	1.40
c	0.49	0.79
D	14.70	15.30
E	9.70	10.30
e	2.54 BSC	
H1	6.60	7.10
L	12.50	14.73
L1	---	2.80
P	3.00	3.40
Q	2.80	3.20

#### GENERIC MARKING DIAGRAM\*



- A = Assembly Location
- WL = Wafer Lot
- Y = Year
- WW = Work Week
- G = Pb-Free Package

\*This information is generic. Please refer to device data sheet for actual part marking. Pb-Free indicator, "G" or microdot "▪", may or may not be present.

- STYLE 1:  
PIN 1. MAIN TERMINAL 1  
2. MAIN TERMINAL 2  
3. GATE
- STYLE 2:  
PIN 1. CATHODE  
2. ANODE  
3. GATE

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DESCRIPTION:	TO-220 FULLPACK, 3-LEAD	PAGE 1 OF 1

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