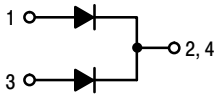
MBRF30H150CTG, MBR30H150CTG

Switch-mode Power Rectifier 150 V, 30 A

ON Semiconductor®

www.onsemi.com

SCHOTTKY BARRIER RECTIFIER 30 AMPERES, 150 VOLTS



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

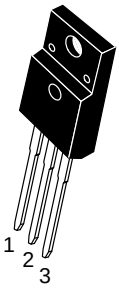
Applications

- Power Supply − Output Rectification
- Power Management
- Instrumentation

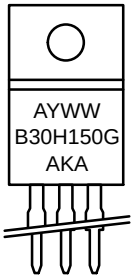
Mechanical Characteristics:

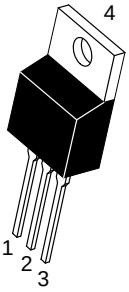
- Case: Epoxy, Molded
- Epoxy Meets UL 94 V−0 @ 0.125 in
- Weight (Approximately): 1.9 Grams (TO−220 & TO−220FP)
- Finish: All External Surfaces Corrosion Resistant and Terminal Leads are Readily Solderable
- Lead Temperature for Soldering Purposes: 260°C Max. for 10 Seconds

MARKING DIAGRAMS

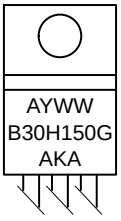


TO−220 FULLPAK™
CASE 221AH





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.

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°C	(Per Leg) (Per Device)	$I_{F(AV)}$	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	°C
Storage Temperature		T_{stg}	−65 to +150	°C
Voltage Rate of Change (Rated V_R)		dv/dt	10,000	V/μs
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) (MBRF30H150CTG)	− Junction−to−Case − Junction−to−Ambient − Junction−to−Case	$R_{\theta JC}$ $R_{\theta JA}$ $R_{\theta JC}$	2.0 45 2.5	°C/W

ELECTRICAL CHARACTERISTICS (Per Diode Leg)

Rating	Symbol	Typ	Max	Unit
Maximum Instantaneous Forward Voltage (Note 2) (I_F = 5 A, T_C = 25°C) (I_F = 5 A, T_C = 125°C) (I_F = 15 A, T_C = 25°C) (I_F = 15 A, T_C = 125°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°C) (Rated DC Voltage, T_C = 125°C)	i_R		 60 50	 μA 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 μs, Duty Cycle ≤ 2.0%.

DEVICE ORDERING INFORMATION

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

†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.

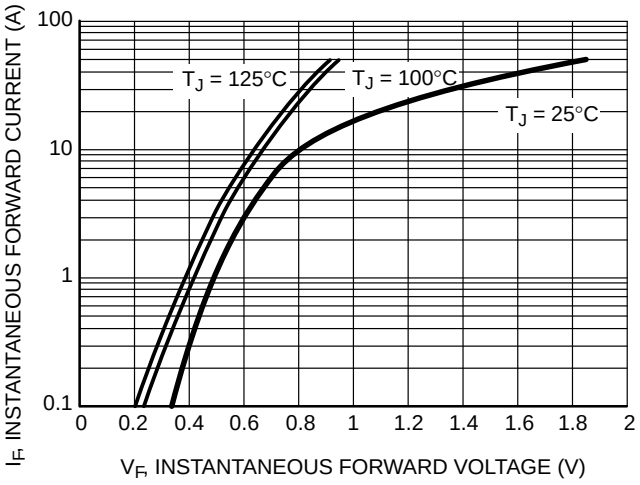


Figure 1. Typical Forward Voltage

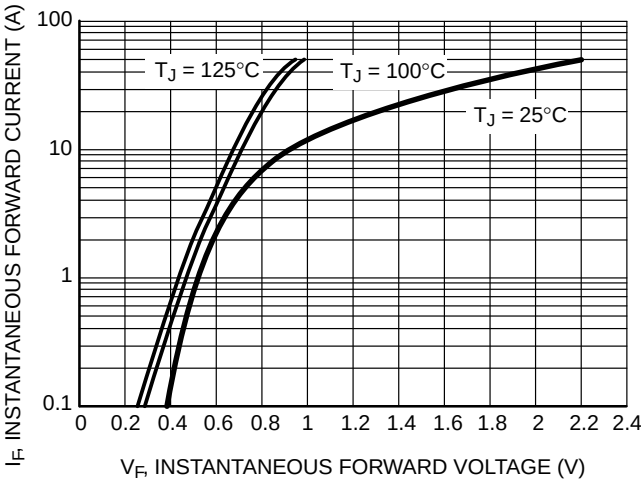


Figure 2. Maximum Forward Voltage

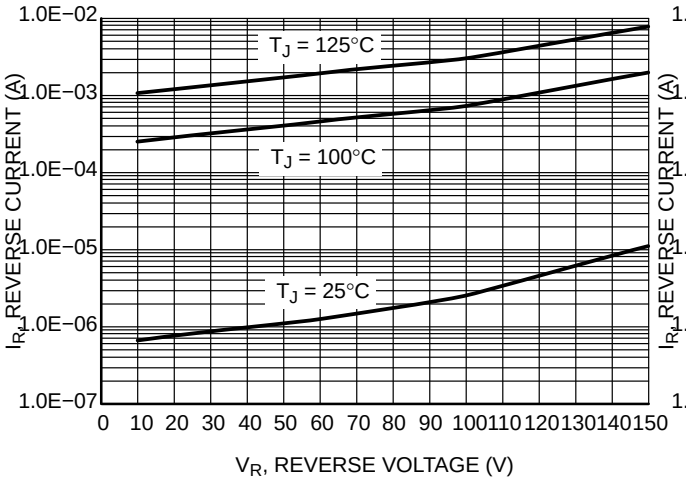


Figure 3. Typical Reverse Current

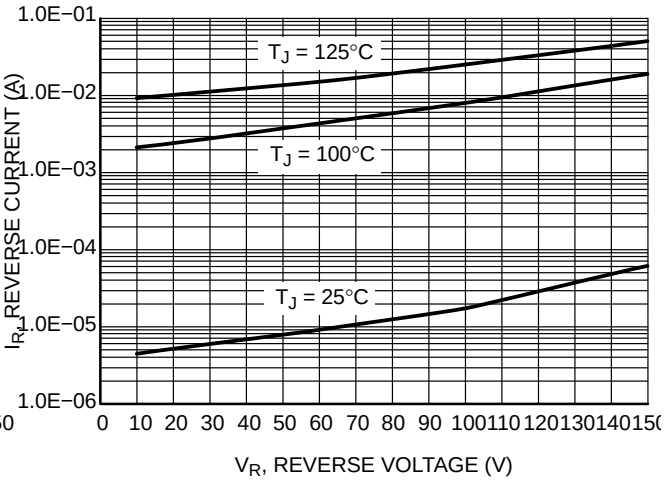


Figure 4. Maximum Reverse Current

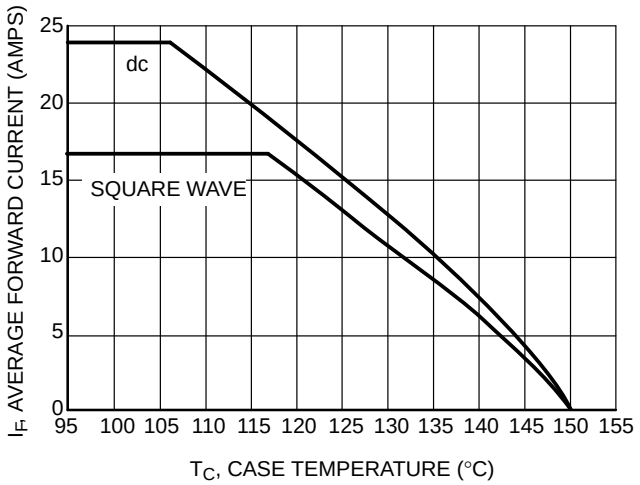


Figure 5. Current Derating

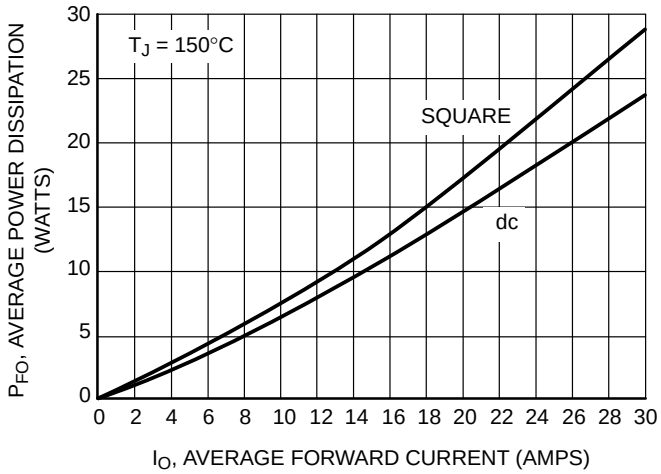


Figure 6. Forward Power Dissipation

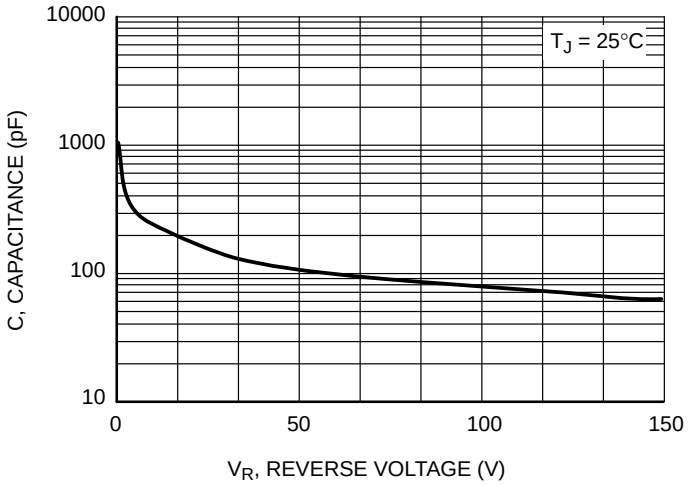


Figure 7. Capacitance

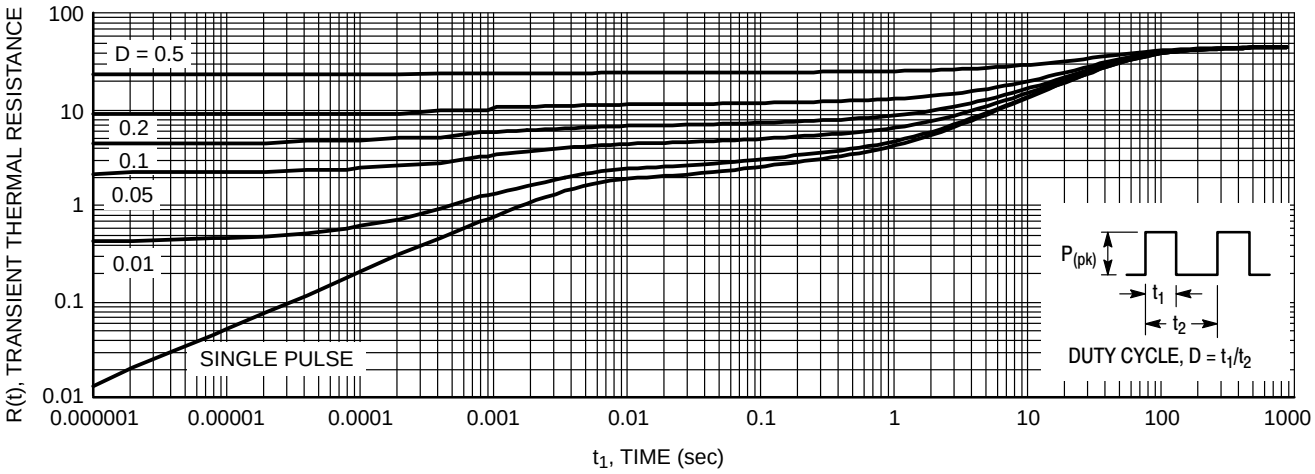


Figure 8. Thermal Response Junction−to−Ambient for MBR30H150CTG

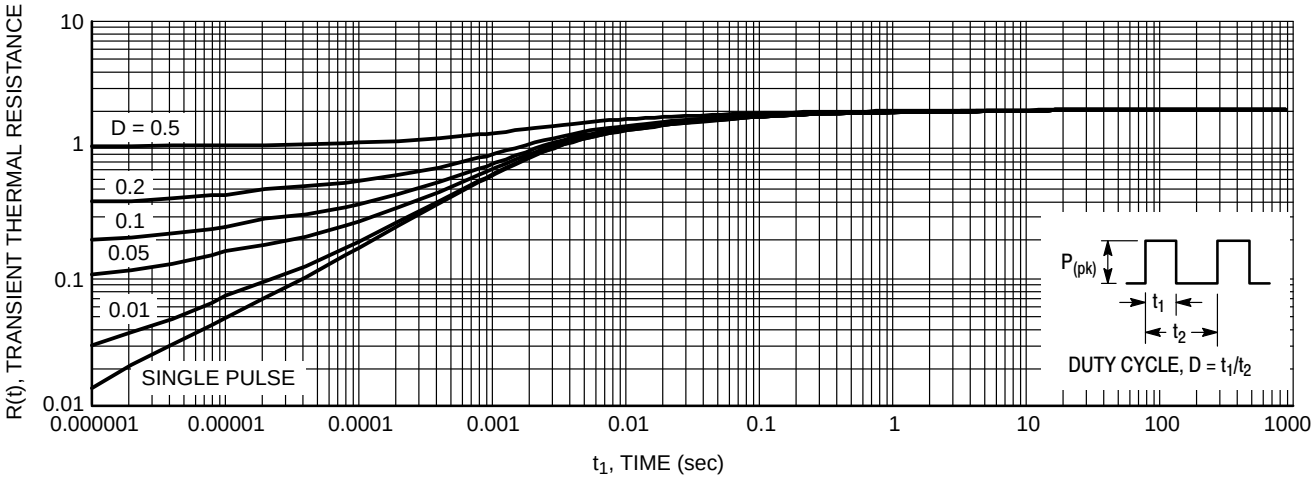


Figure 9. Thermal Response Junction−to−Case for MBR30H150CTG

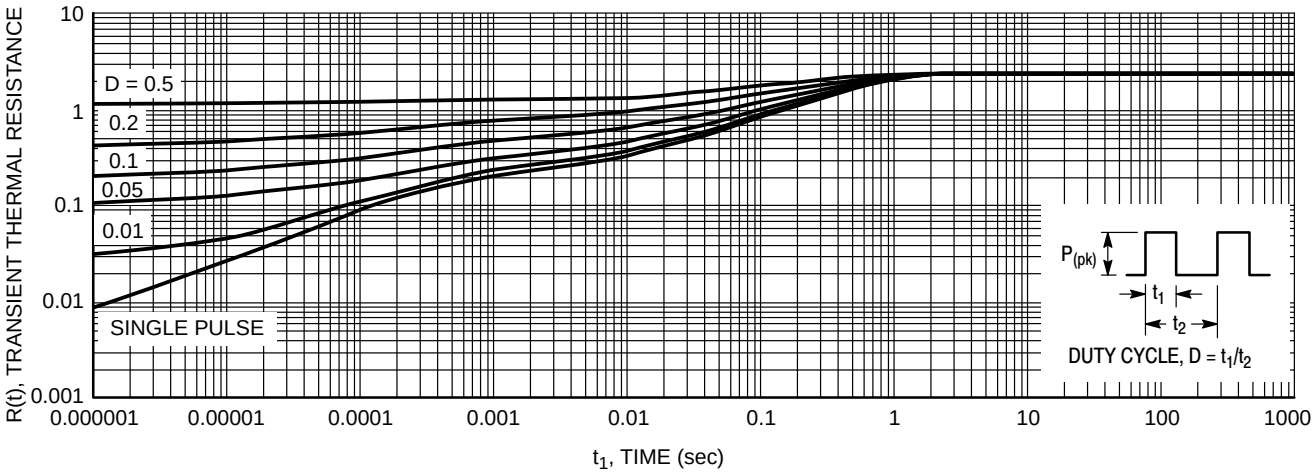


Figure 10. Thermal Response Junction−to−Case for MBRF30H150CTG

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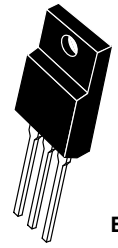
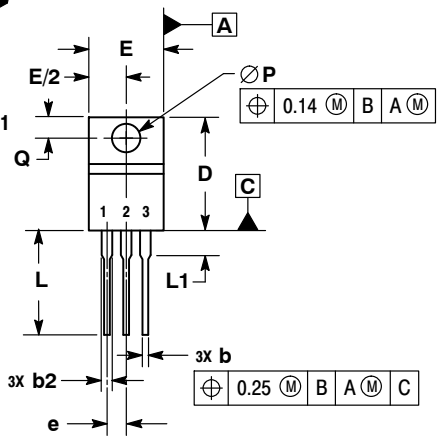
TO−220 FULLPACK, 3−LEAD
CASE 221AH
ISSUE F

DATE 30 SEP 2014

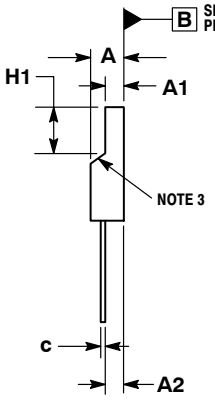


SCALE 1:1



FRONT VIEW

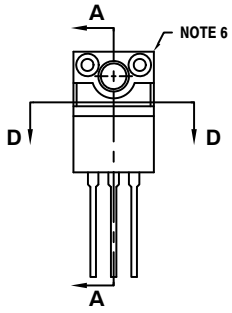
SECTION D−D



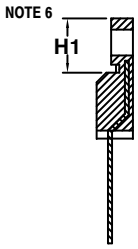
SIDE VIEW

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 ENVELOP 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

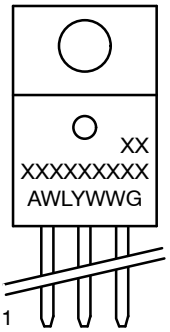


ALTERNATE CONSTRUCTION



SECTION A−A

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

DOCUMENT NUMBER:	**98AON52577E**	Electronic versions are uncontrolled except when accessed directly from the Document Repository. Printed versions are uncontrolled except when stamped “CONTROLLED COPY” in red.	
DESCRIPTION:	**TO−220 FULLPACK, 3−LEAD**		**PAGE 1 OF 1**

ADDITIONAL INFORMATION

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