SWITCHMODE™ 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 are Pb-Free Devices

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

MAXIMUM RATINGS

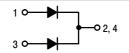
Please See the Table on the Following Page



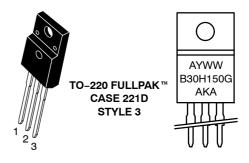
ON Semiconductor®

http://onsemi.com

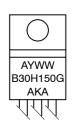
SCHOTTKY BARRIER RECTIFIER 30 AMPERES, 150 VOLTS



MARKING DIAGRAMS







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 in the package dimensions section on page 2 of this data sheet.

1

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 Curre (Rated V_R) $T_C = 124^{\circ}C$	nt (Per Leg) (Per Device)	I _{F(AV)}	15 30	Α
Nonrepetitive Peak Surge Current (Surge applied at rated load conditions halfwave, single phase, 60 Hz)		I _{FSM}	200	Α
Operating Junction Temperature (Note 1)		TJ	-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

THERMAL CHARACTERISTICS

Rating	Symbol	Value	Unit
Maximum Thermal Resistance (MBR30H150CTG) - Junction-to-Case - Junction-to-Ambient (MBRF30H150CTG) - Junction-to-Case	R _{θJC} R _{θJA} R _{θJC}	2.0 45 2.5	°C/W

ELECTRICAL CHARACTERISTICS (Per Diode Leg)

Rating	Symbol	Тур	Max	Unit
$\label{eq:maximum Instantaneous Forward Voltage (Note 2)} \begin{array}{c} \text{(I}_F = 5 \text{ A, T}_C = 25^\circ\text{C)} \\ \text{(I}_F = 5 \text{ A, T}_C = 125^\circ\text{C)} \\ \text{(I}_F = 5 \text{ A, T}_C = 125^\circ\text{C)} \\ \text{(I}_F = 15 \text{ A, T}_C = 25^\circ\text{C)} \\ \text{(I}_F = 15 \text{ A, T}_C = 125^\circ\text{C)} \end{array}$	VF	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)	İR		60 50	μ A mA

Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

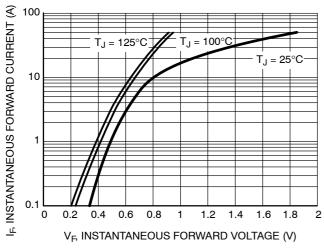
DEVICE ORDERING INFORMATION

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.

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

^{2.} Pulse Test: Pulse Width = 300 μ s, Duty Cycle \leq 2.0%.



T_J = 125°C T_J = 100°C T_J = 25°C T_J = 25°C T_J = 100°C T

Figure 1. Typical Forward Voltage

Figure 2. Maximum Forward Voltage

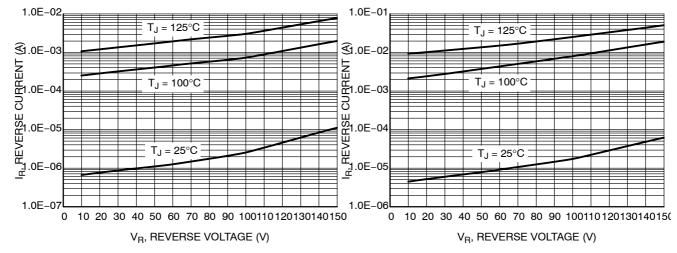
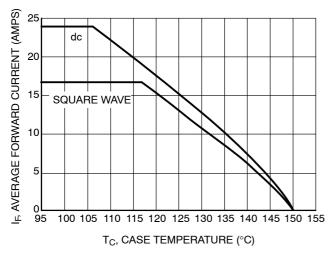


Figure 3. Typical Reverse Current

Figure 4. Maximum Reverse Current





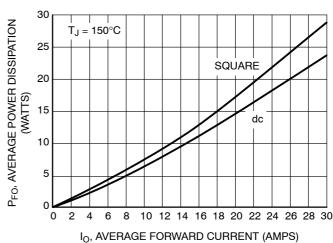


Figure 6. Forward Power Dissipation

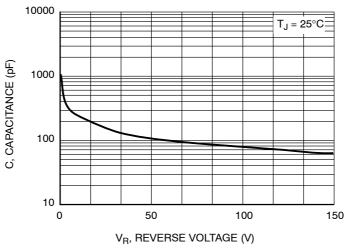


Figure 7. Capacitance

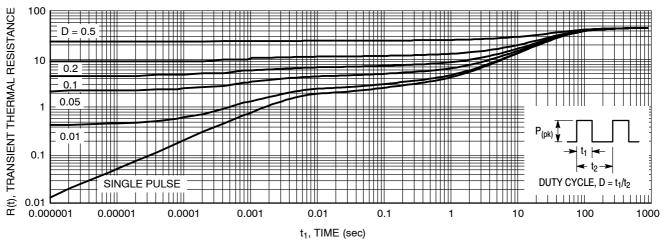


Figure 8. Thermal Response Junction-to-Ambient for MBR30H150CTG

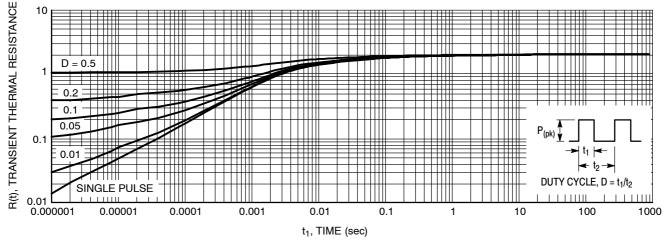


Figure 9. Thermal Response Junction-to-Case for MBR30H150CTG

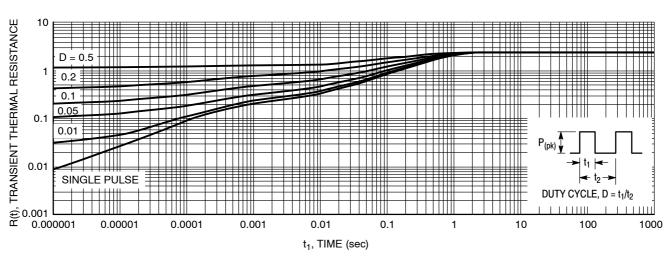
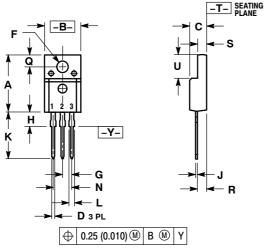


Figure 10. Thermal Response Junction-to-Case for MBRF30H150CTG

PACKAGE DIMENSIONS

TO-220 FULLPAK

CASE 221D-03 **ISSUE K**



A 0.617 0.635 15.67 0.419 9.96 0 177 0 193 4 50 D 0.024 0.039 0.60 0.116 0.129 2.95 G 0.100 BSC H 0.118 0.135 J 0.018 0.025 3.00 0.45 K 0.503 0.541 12.78 0.048 0.058 N 0.200 BSC 5.08 BSC Q 0.122 0.138 R 0.099 0.117 3.10

NOTES:

Y14.5M, 1982.

DIM

STANDARD 221D-03.

STYLE 3:

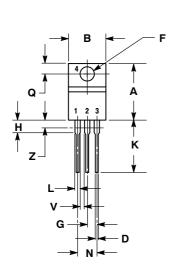
- PIN 1. ANODE
 - CATHODE

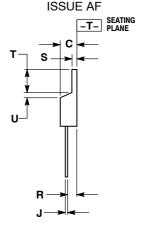
0.092 0.113

U 0.239 0.271 6.06 6.88

ANODE

TO-220 CASE 221A-09





DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.

DIMENSIONING AND TOLERANCING PER ANSI

MILLIMETERS MIN MAX

16.12

10.63

4 90

1.00

3.28

3.43

0.63

13.73

3.50

2.34 2.87

CONTROLLING DIMENSION: INCH 3. 221D-01 THRU 221D-02 OBSOLETE, NEW

INCHES

MIN MAX

- CONTROLLING DIMENSION: INCH.
 DIMENSION Z DEFINES A ZONE WHERE ALL
- BODY AND LEAD IRREGULARITIES ARE ALLOWED

	INCHES		MILLIN	MILLIMETERS	
DIM	MIN	MAX	MIN	MAX	
Α	0.570	0.620	14.48	15.75	
В	0.380	0.405	9.66	10.28	
С	0.160	0.190	4.07	4.82	
D	0.025	0.035	0.64	0.88	
F	0.142	0.161	3.61	4.09	
G	0.095	0.105	2.42	2.66	
Н	0.110	0.155	2.80	3.93	
J	0.014	0.025	0.36	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	
٧	0.045		1.15		
Z		0.080		2.04	

STYLE 6:

- PIN 1. ANODE
 - CATHODE 2
 - ANODE CATHODE
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