

ON Semiconductor

Is Now

The logo for onsemi, featuring the word "onsemi" in a dark teal, lowercase, sans-serif font. The letter "i" is stylized with a white dot and a teal vertical bar. A small orange triangle is positioned above the top right of the "i". A trademark symbol (TM) is located to the right of the logo.

To learn more about onsemi™, please visit our website at
www.onsemi.com

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Switch-mode Power Rectifier

150 V, 10 A

MBRF10H150CTG

Features and Benefits

- Low Forward Voltage
- Low Power Loss/High Efficiency
- High Surge Capability
- 10 A Total (5 A Per Diode Leg)
- Guard-Ring for Stress Protection
- This is a Pb-Free Device

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
- 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

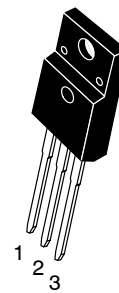
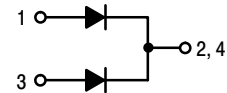


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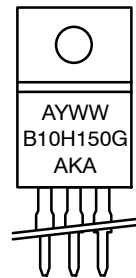
SCHOTTKY BARRIER RECTIFIER

10 AMPERES, 150 VOLTS



TO-220 FULLPAK™
CASE 221D

MARKING DIAGRAM



A = Assembly Location
Y = Year
WW = Work Week
B10H150 = 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.

MBRF10H150CTG

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) $T_C = 142^\circ\text{C}$ (Per Leg) (Per Device) | $I_{F(AV)}$ | 5 10 | A |
| Nonrepetitive Peak Surge Current (Surge applied at rated load conditions halfwave, single phase, 60 Hz) | I_{FSM} | 150 | 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 | 10000 | 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 – Junction-to-Case | $R_{\theta JC}$ | 2.5 | $^\circ\text{C}/\text{W}$ |

ELECTRICAL CHARACTERISTICS (Per Diode Leg)

| Rating | Symbol | Typ | Max | Unit |
|---|--------|--------------|----------|---------------------|
| Maximum Instantaneous Forward Voltage (Note 2) ($I_F = 5\text{ A}$, $T_C = 25^\circ\text{C}$) ($I_F = 5\text{ A}$, $T_C = 125^\circ\text{C}$) | V_F | 0.85 0.63 | 0.69 | 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 | | 45 20 | μA mA |

2. Pulse Test: Pulse Width = 300 μs , Duty Cycle $\leq 2.0\%$.

DEVICE ORDERING INFORMATION

| Device Order Number | Package Type | Shipping† |
|---------------------|-----------------------|-----------------|
| MBRF10H150CTG | TO-220FP (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.

MBRF10H150CTG

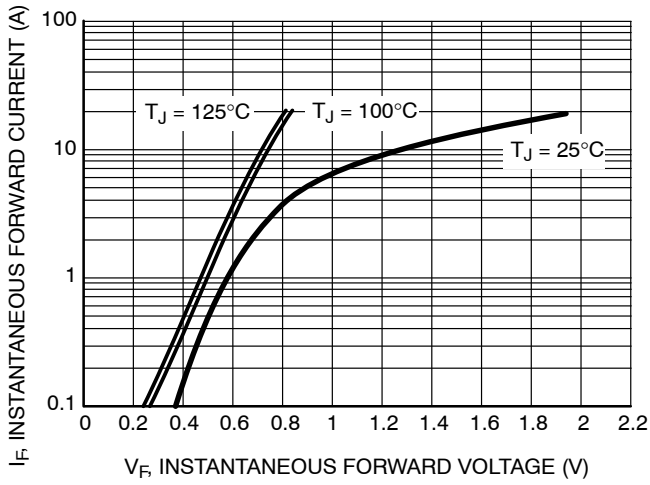


Figure 1. Typical Forward Voltage

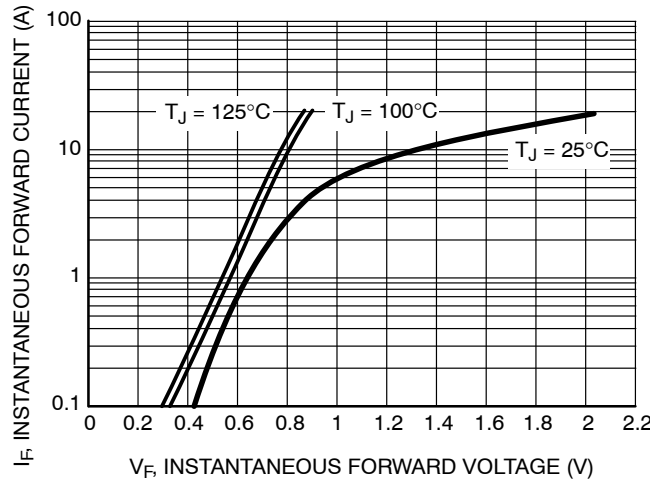


Figure 2. Maximum Forward Voltage

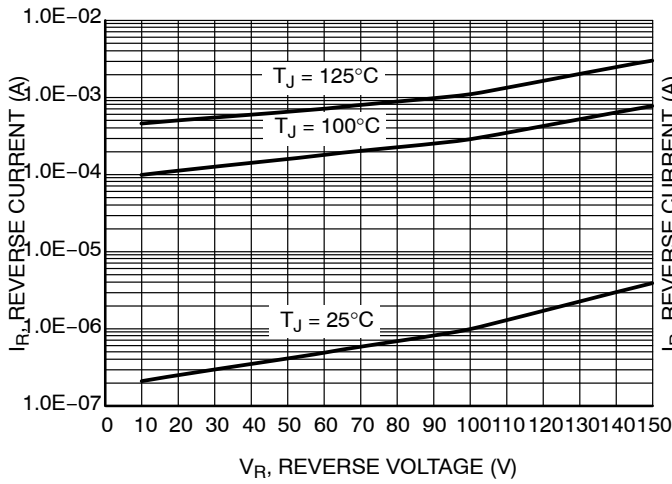


Figure 3. Typical Reverse Current

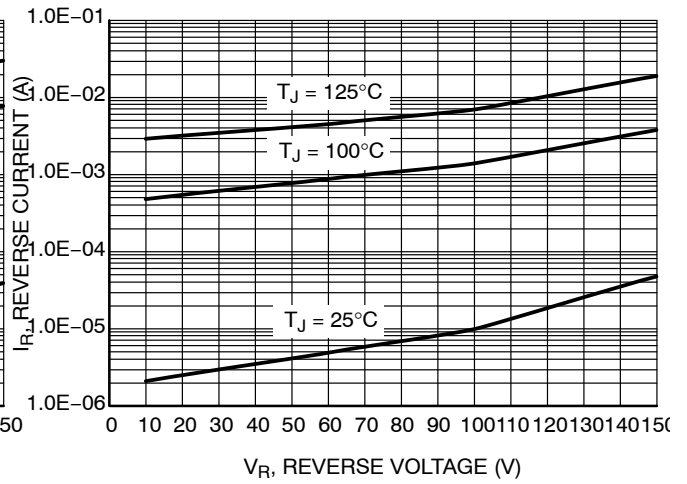


Figure 4. Maximum Reverse Current

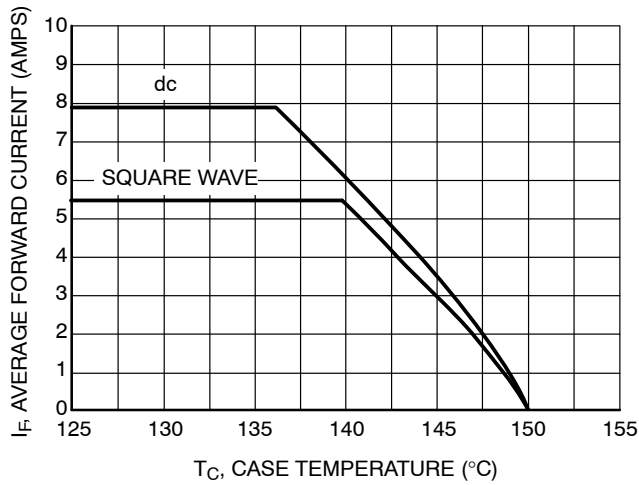


Figure 5. Current Derating

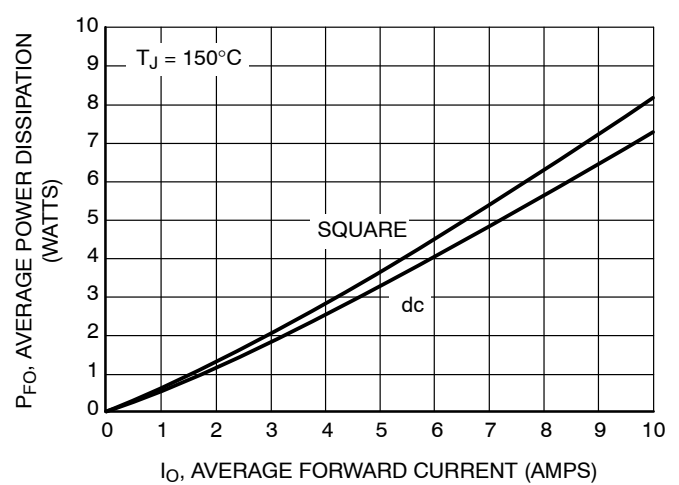


Figure 6. Forward Power Dissipation

MBRF10H150CTG

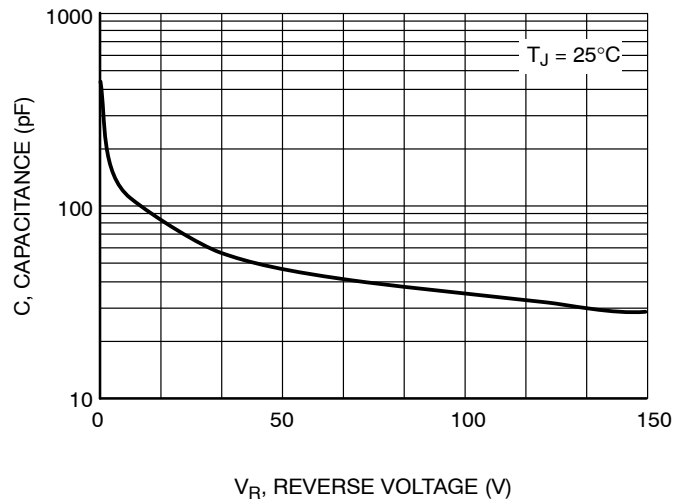


Figure 7. Capacitance

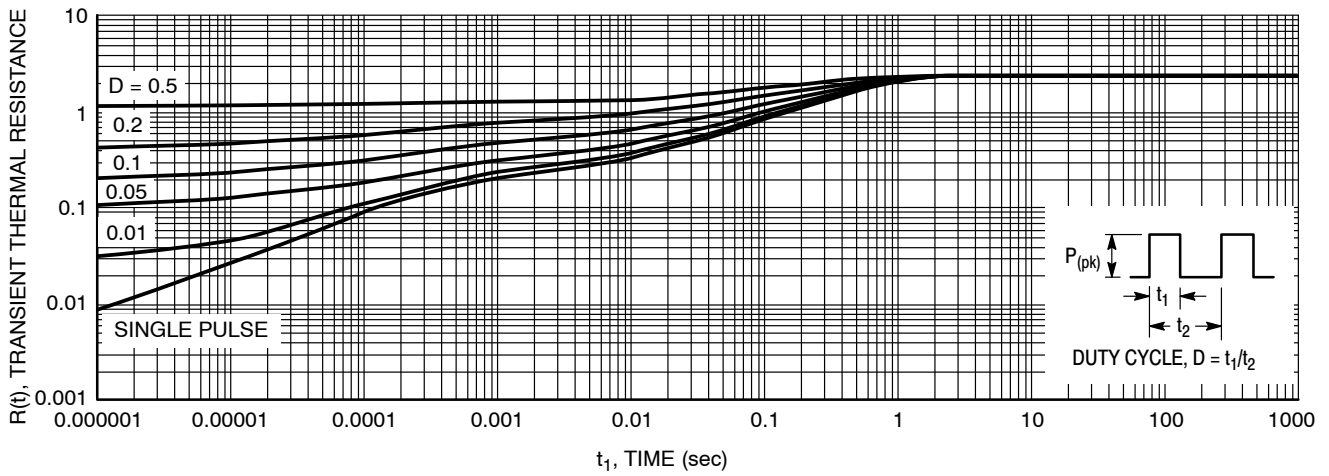
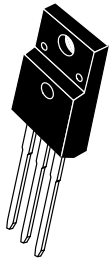


Figure 8. Thermal Response Junction-to-Case for MBRF10H150CTG

MECHANICAL CASE OUTLINE PACKAGE DIMENSIONS

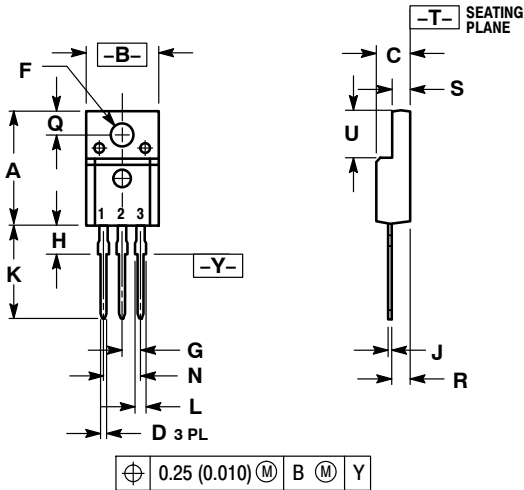
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SCALE 1:1

TO-220 FULLPAK CASE 221D-03 ISSUE K

DATE 27 FEB 2009



- NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
 2. CONTROLLING DIMENSION: INCH
 3. 221D-01 THRU 221D-02 OBSOLETE, NEW STANDARD 221D-03.

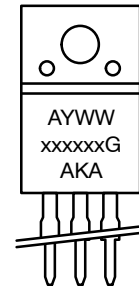
| DIM | INCHES | | MILLIMETERS | |
|-----|-----------|-------|-------------|-------|
| | MIN | MAX | MIN | MAX |
| A | 0.617 | 0.635 | 15.67 | 16.12 |
| B | 0.392 | 0.419 | 9.96 | 10.63 |
| C | 0.177 | 0.193 | 4.50 | 4.90 |
| D | 0.024 | 0.039 | 0.60 | 1.00 |
| F | 0.116 | 0.129 | 2.95 | 3.28 |
| G | 0.100 BSC | | 2.54 BSC | |
| H | 0.118 | 0.135 | 3.00 | 3.43 |
| J | 0.018 | 0.025 | 0.45 | 0.63 |
| K | 0.503 | 0.541 | 12.78 | 13.73 |
| L | 0.048 | 0.058 | 1.23 | 1.47 |
| N | 0.200 BSC | | 5.08 BSC | |
| Q | 0.122 | 0.138 | 3.10 | 3.50 |
| R | 0.099 | 0.117 | 2.51 | 2.96 |
| S | 0.092 | 0.113 | 2.34 | 2.87 |
| U | 0.239 | 0.271 | 6.06 | 6.88 |

MARKING DIAGRAMS

- | | | |
|--|---|--|
| STYLE 1: PIN 1. GATE 2. DRAIN 3. SOURCE | STYLE 2: PIN 1. BASE 2. COLLECTOR 3. EMITTER | STYLE 3: PIN 1. ANODE 2. CATHODE 3. ANODE |
| STYLE 4: PIN 1. CATHODE 2. ANODE 3. CATHODE | STYLE 5: PIN 1. CATHODE 2. ANODE 3. GATE | STYLE 6: PIN 1. MT 1 2. MT 2 3. GATE |



Bipolar



Rectifier

- | | |
|-------------------------------|---------------------------|
| xxxxxx = Specific Device Code | A = Assembly Location |
| G = Pb-Free Package | Y = Year |
| A = Assembly Location | WW = Work Week |
| Y = Year | xxxxxx = Device Code |
| WW = Work Week | G = Pb-Free Package |
| | AKA = Polarity Designator |

| | | |
|-------------------------|-----------------------|--|
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| DESCRIPTION: | TO-220 FULLPAK | PAGE 1 OF 1 |

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