SWITCHMODE Schottky Power Rectifier

MBRB8H100T4G, NBRB8H100T4G

Surface Mount Power Package

This series of Power Rectifiers employs the Schottky Barrier principle in a large metal−to−silicon power diode. State−of−the−art geometry features epitaxial construction with oxide passivation and metal overlay contact. Ideally suited for use in low voltage, high frequency switching power supplies, free wheeling diodes, and polarity protection diodes.

Features

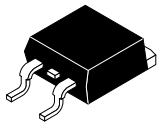
- Guardring for Stress Protection
- Low Forward Voltage
- 175°C Operating Junction Temperature
- Epoxy Meets UL 94 V−0 @ 0.125 in
- Short Heat Sink Tab Manufactured − Not Sheared!
- AEC−Q101 Qualified and PPAP Capable
- NBRB Prefix for Automotive and Other Applications Requiring Unique Site and Control Change Requirements
- All Packages are Pb−Free*

Mechanical Characteristics:

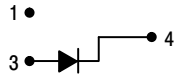
- Case: Epoxy, Molded, Epoxy Meets UL 94 V−0
- Weight: 1.7 grams (approximately)
- Finish: All External Surfaces Corrosion Resistant and Terminal Leads are Readily Solderable
- Lead and Mounting Surface Temperature for Soldering Purposes: 260°C Max. for 10 Seconds
- Device Meets MSL1 Requirements
- ESD Ratings:
  - Machine Model = C (> 400 V)
  - Human Body Model = 3B (> 8000 V)

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

SCHOTTKY BARRIER RECTIFIER 8 AMPERES, 100 VOLTS

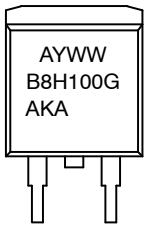


D^2PAK
CASE 418B



(Pin 1 = No Connect)

MARKING DIAGRAM



B8H100 = Specific Device Code
A = Assembly Location
Y = Year
WW = Work Week
G = Pb−Free Package
AKA = Polarity Indicator

ORDERING INFORMATION

Device	Package	Shipping†
MBRB8H100T4G	D^2PAK (Pb−Free)	800 / Tape & Reel

DISCONTINUED (Note 1)

NBRB8H100T4G	D^2PAK (Pb−Free)	800 / Tape & Reel

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

1. **DISCONTINUED:** This device is not recommended for new design. Please contact your **onsemi** representative for information. The most current information on this device may be available on www.onsemi.com.

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	V_{RRM} V_{RWM} V_R	100	V
Average Rectified Forward Current (Rated V_R) T_C = 171°C	$I_{F(AV)}$	8	A
Peak Repetitive Forward Current (Rated V_R, Square Wave, 20 kHz) T_C = 171°C	I_{FRM}	16	A
Max Nonrepetitive Peak Surge Current (Surge applied at rated load conditions halfwave, single phase, 60 Hz, 25°C)	I_{FSM}	250	A
Operating Junction and Storage Temperature Range (Note 1)	T_J, T_{stg}	−65 to +175	°C

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.

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

Characteristic	Symbol	Value	Unit
Thermal Resistance Junction−to−Case (Note 2) Junction−to−Ambient	 $R_{\theta JC}$ $R_{\theta JA}$	 1.1 44	°C/W

2. When mounted using minimum recommended pad size on FR−4 board.

ELECTRICAL CHARACTERISTICS

Characteristic	Symbol	Value	Unit
Maximum Instantaneous Forward Voltage (Note 3) (I_F = 8 A, T_J = 25°C) (I_F = 8 A, T_J = 125°C)	V_F	 0.71 0.55	V
Maximum Instantaneous Reverse Current (Note 3) (Rated dc Voltage, T_J = 25°C) (Rated dc Voltage, T_J = 125°C)	I_R	 4.5 5.3	 μA mA

DYNAMIC CHARACTERISTICS (Per Leg)

Capacitance (V_R = 4.0 V, T_C = 25°C, Frequency = 1.0 MHz)	C_T	600	pF

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

TYPICAL CHARACTERISTICS

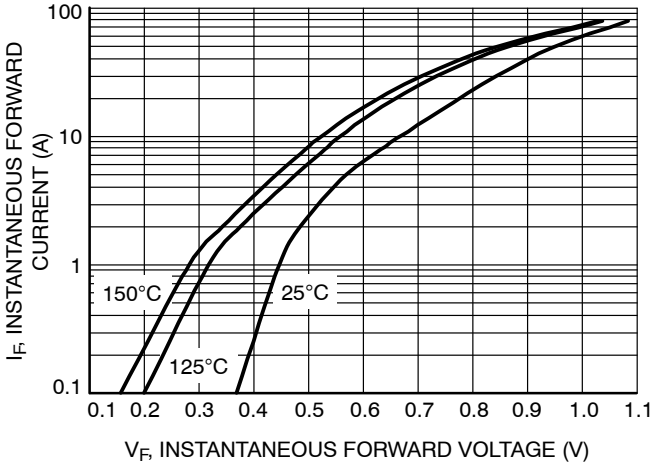


Figure 1. Typical Forward Voltage

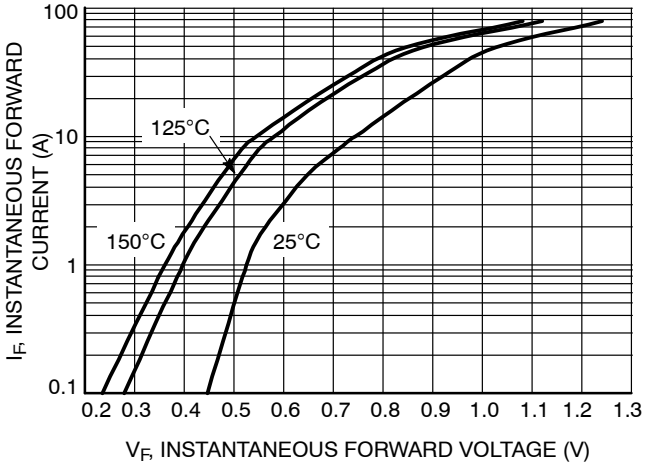


Figure 2. Maximum Forward Voltage

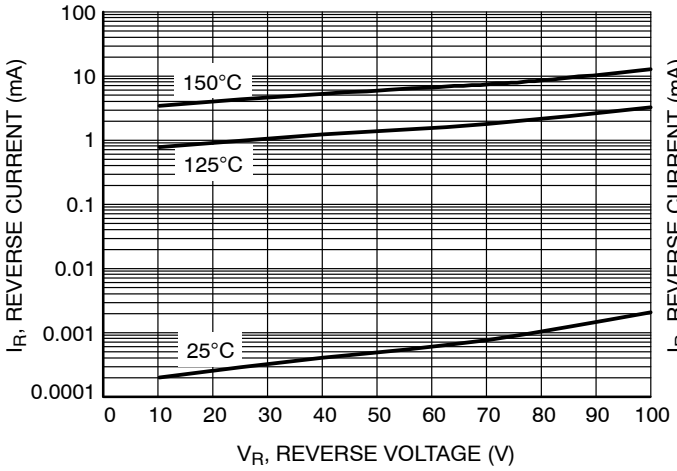


Figure 3. Typical Reverse Current

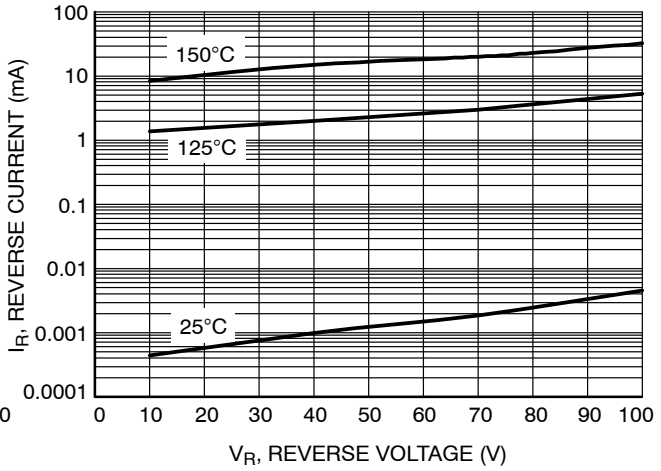


Figure 4. Maximum Reverse Current

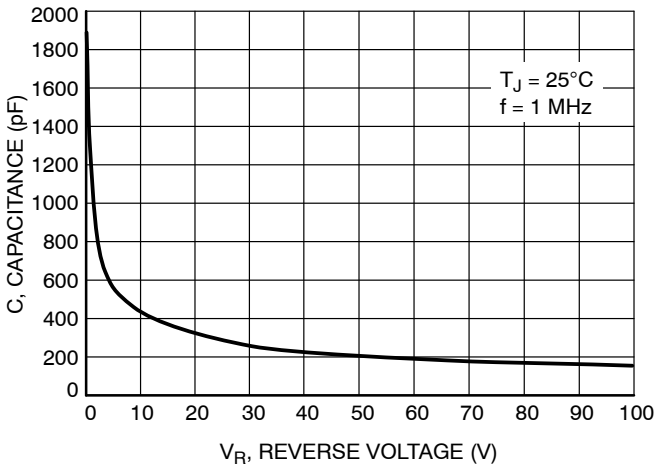


Figure 5. Typical Capacitance

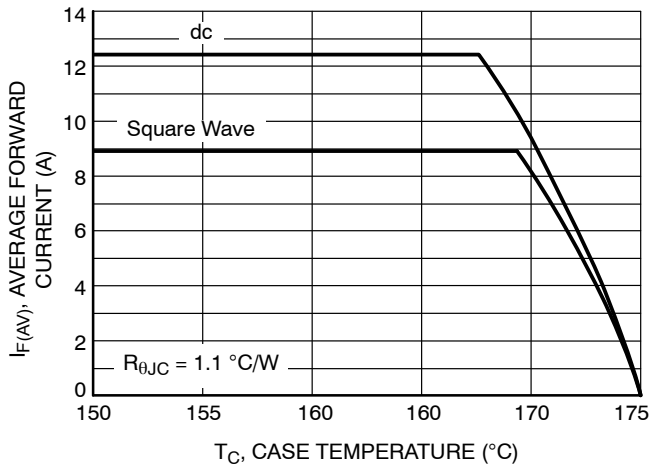


Figure 6. Current Derating, Case

TYPICAL CHARACTERISTICS

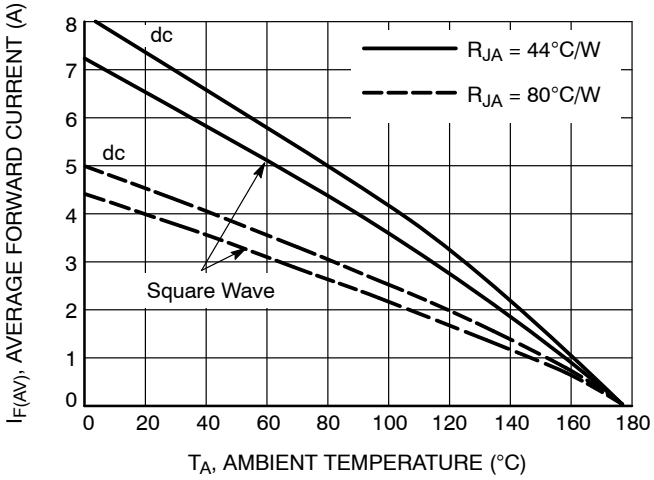


Figure 7. Current Derating, Ambient

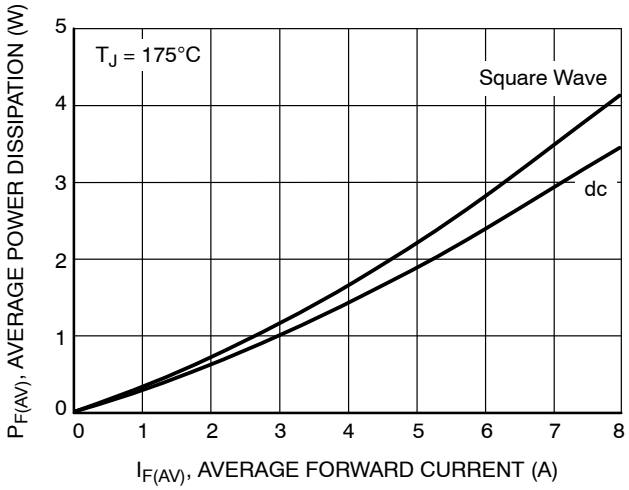


Figure 8. Typical Forward Power Dissipation

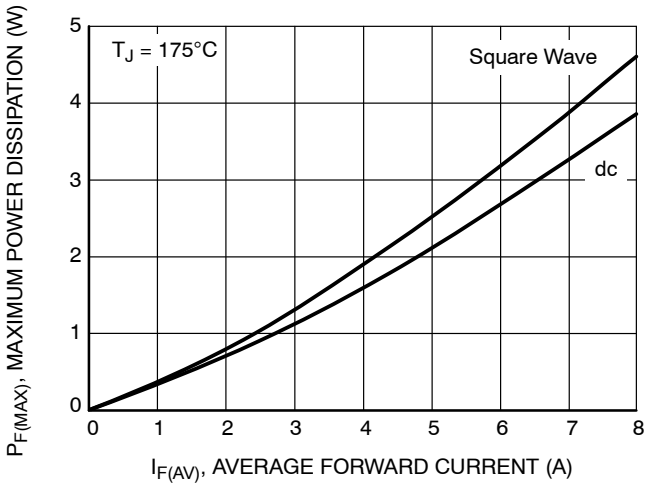


Figure 9. Maximum Forward Power Dissipation

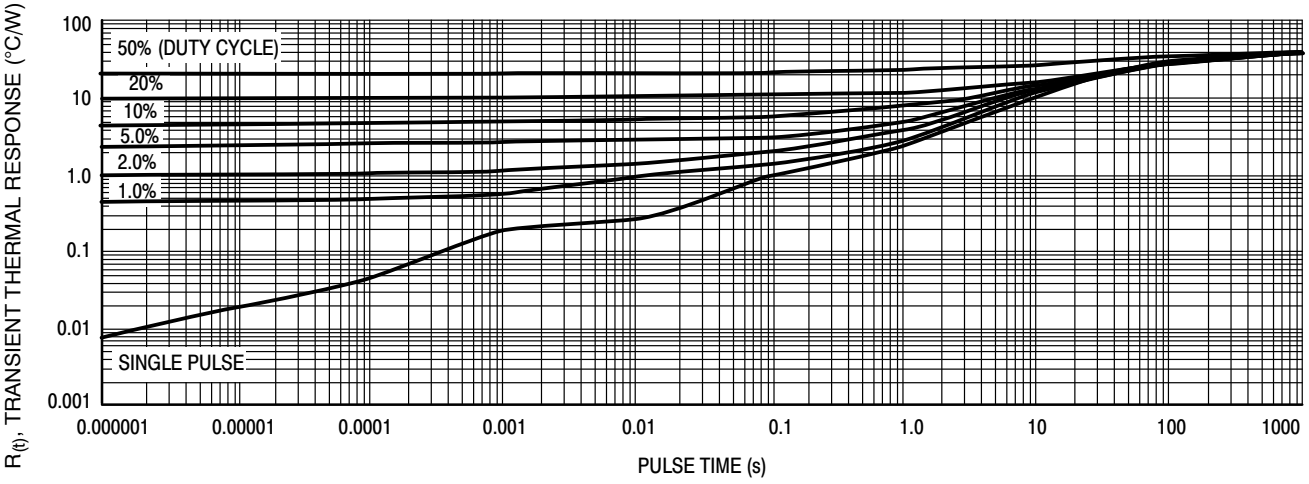
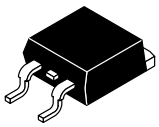


Figure 10. Thermal Response, Junction−to−Ambient



SCALE 1:1

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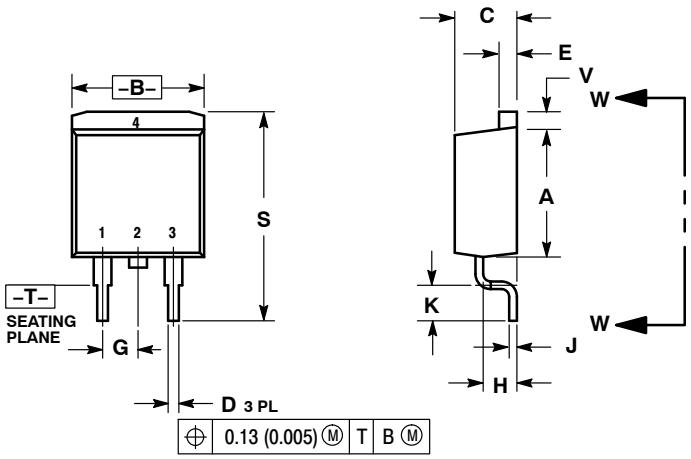
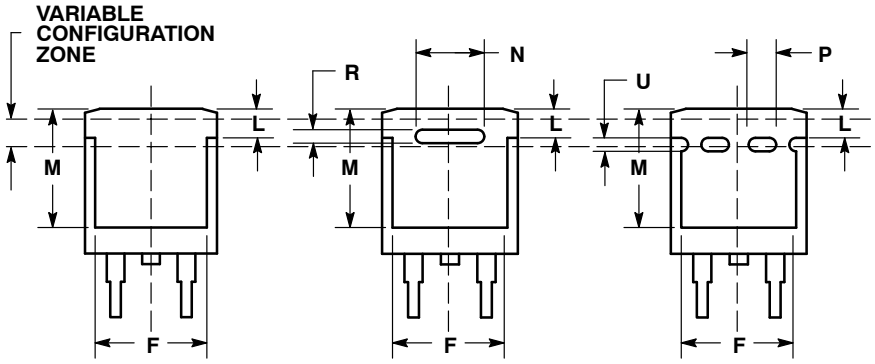
DATE 17 FEB 2015



NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.
3. 418B–01 THRU 418B–03 OBSOLETE, NEW STANDARD 418B–04.

	INCHES		MILLIMETERS	
DIM	MIN	MAX	MIN	MAX
A	0.340	0.380	8.64	9.65
B	0.380	0.405	9.65	10.29
C	0.160	0.190	4.06	4.83
D	0.020	0.035	0.51	0.89
E	0.045	0.055	1.14	1.40
F	0.310	0.350	7.87	8.89
G	0.100 BSC		2.54 BSC	
H	0.080	0.110	2.03	2.79
J	0.018	0.025	0.46	0.64
K	0.090	0.110	2.29	2.79
L	0.052	0.072	1.32	1.83
M	0.280	0.320	7.11	8.13
N	0.197 REF		5.00 REF	
P	0.079 REF		2.00 REF	
R	0.039 REF		0.99 REF	
S	0.575	0.625	14.60	15.88
V	0.045	0.055	1.14	1.40



VIEW W–W 1 | VIEW W–W 2 | VIEW W–W 3

STYLE 1:
PIN 1. BASE
2. COLLECTOR
3. EMITTER
4. COLLECTOR

STYLE 2:
PIN 1. GATE
2. DRAIN
3. SOURCE
4. DRAIN

STYLE 3:
PIN 1. ANODE
2. CATHODE
3. ANODE
4. CATHODE

STYLE 4:
PIN 1. GATE
2. COLLECTOR
3. EMITTER
4. COLLECTOR

STYLE 5:
PIN 1. CATHODE
2. ANODE
3. CATHODE
4. ANODE

STYLE 6:
PIN 1. NO CONNECT
2. CATHODE
3. ANODE
4. CATHODE

MARKING INFORMATION AND FOOTPRINT ON PAGE 2

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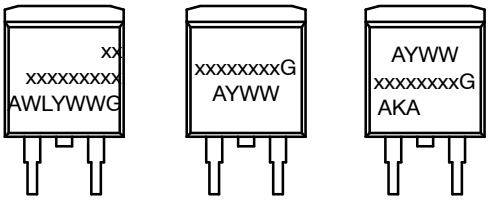
GENERIC MARKING DIAGRAM*

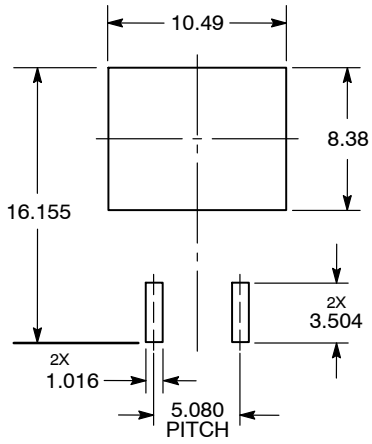


IC **Standard** **Rectifier**

xx	= Specific Device Code
A	= Assembly Location
WL	= Wafer Lot
Y	= Year
WW	= Work Week
G	= Pb−Free Package
AKA	= Polarity Indicator

*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. Some products may not follow the Generic Marking.

SOLDERING FOOTPRINT*



DIMENSIONS: MILLIMETERS

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