

# Switch-mode Schottky Power Rectifier

## Surface Mount Power Package

### MBRD5H100, NBRD5H100

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!
- NBRD Prefix for Automotive and Other Applications Requiring Unique Site and Control Change Requirements; AEC-Q101 Qualified and PPAP Capable
- These Devices are Pb-Free and are RoHS Compliant\*

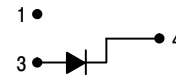
#### Mechanical Characteristics:

- Case: Epoxy, Molded, Epoxy Meets UL 94 V-0
- Weight: 0.4 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)

## SCHOTTKY BARRIER RECTIFIER 5 AMPERES, 100 VOLTS

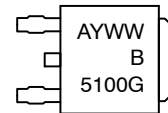


DPAK  
CASE 369C



(Pin 1: No Connect)

#### MARKING DIAGRAM



A = Assembly Location  
 Y = Year  
 WW = Work Week  
 B5100 = Device Code  
 G = Pb-Free Package

#### ORDERING INFORMATION

Device	Package	Shipping†
MBRD5H100T4G	DPAK (Pb-Free)	2,500 / Tape & Reel
NBRD5H100T4G-VF01	DPAK (Pb-Free)	2,500 / Tape & Reel

#### DISCONTINUED (Note 1)

NBRD5H100T4G	DPAK (Pb-Free)	2500 / Tape & Reel
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†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](http://www.onsemi.com).

\*For additional information on our Pb-Free strategy and soldering details, please download the **onsemi** Soldering and Mounting Techniques Reference Manual, [SOLDERRM/D](#)

# MBRD5H100, NBRD5H100

## 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 $T_C = 171\text{ }^{\circ}\text{C}$	$I_{F(AV)}$	5	A
Peak Repetitive Forward Current (Square Wave, Duty = 0.5) $T_C = 171\text{ }^{\circ}\text{C}$	$I_{FRM}$	10	A
Nonrepetitive Peak Surge Current (Surge applied at rated load conditions halfwave, single phase, 60 Hz)	$I_{FSM}$	105	A
Operating Junction and Storage Temperature Range (Note 1)	$T_J, T_{stg}$	-65 to +175	$^{\circ}\text{C}$

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

Characteristic	Symbol	Value	Unit
Thermal Resistance Junction-to-Case (Note 2) Junction-to-Ambient (Note 2)	$R_{\theta JC}$ $R_{\theta JA}$	1.6 95.8	$^{\circ}\text{C}/\text{W}$

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

## ELECTRICAL CHARACTERISTICS

Characteristic	Symbol	Value	Unit
Maximum Instantaneous Forward Voltage (Note 3) ( $I_F = 5\text{ A}$ , $T_J = 25\text{ }^{\circ}\text{C}$ ) ( $I_F = 5\text{ A}$ , $T_J = 125\text{ }^{\circ}\text{C}$ )	$V_F$	0.71 0.60	V
Maximum Instantaneous Reverse Current (Note 3) (Rated dc Voltage, $T_J = 125\text{ }^{\circ}\text{C}$ ) (Rated dc Voltage, $T_J = 25\text{ }^{\circ}\text{C}$ )	$I_R$	4.5 3.5	mA $\mu\text{A}$

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.

3. Pulse Test: Pulse Width = 300  $\mu\text{s}$ , Duty Cycle  $\leq 2.0\%$

# MBRD5H100, NBRD5H100

## TYPICAL CHARACTERISTICS

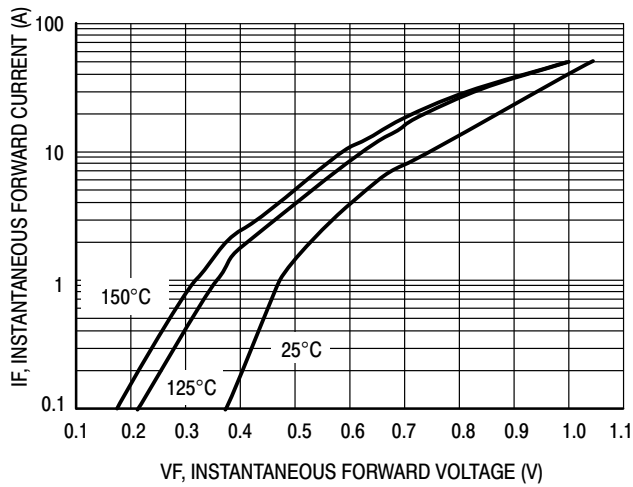


Figure 1. Typical Forward Voltage

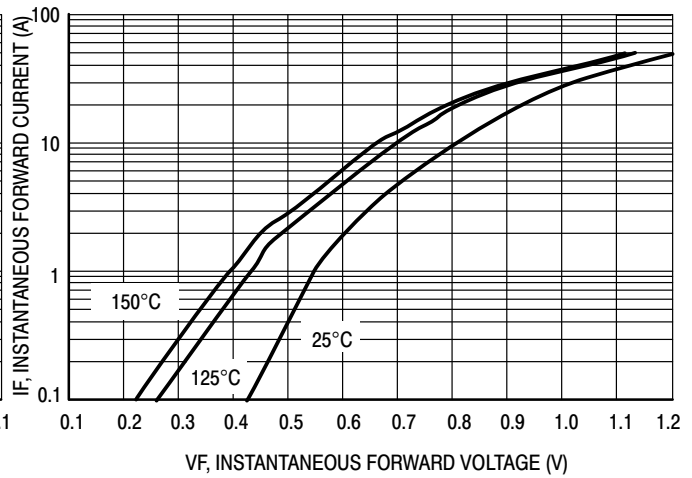


Figure 2. Maximum Forward Voltage

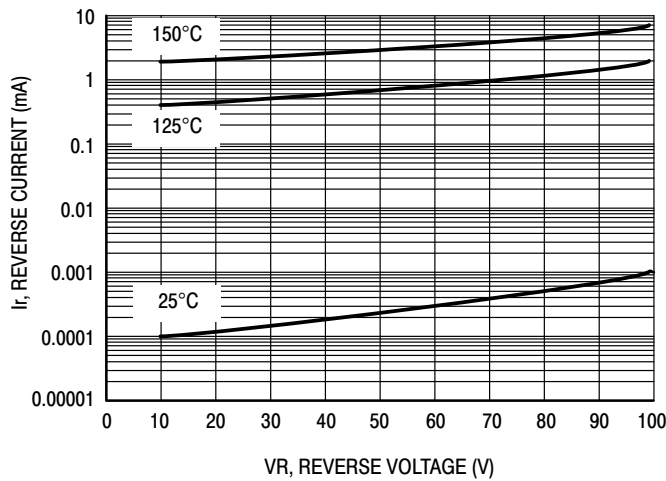


Figure 3. Typical Reverse Current

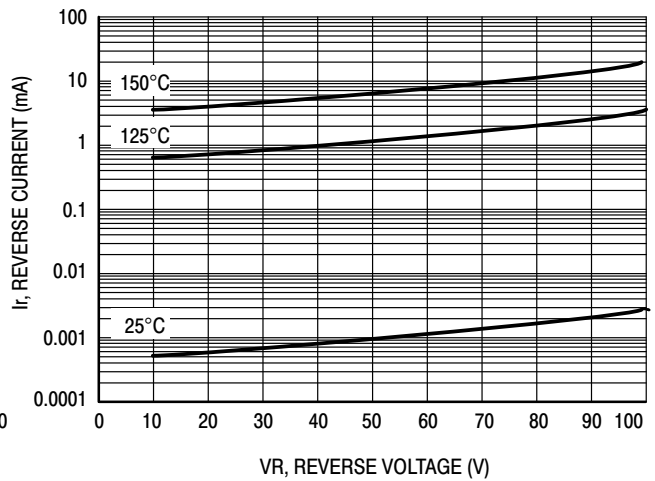


Figure 4. Maximum Reverse Current

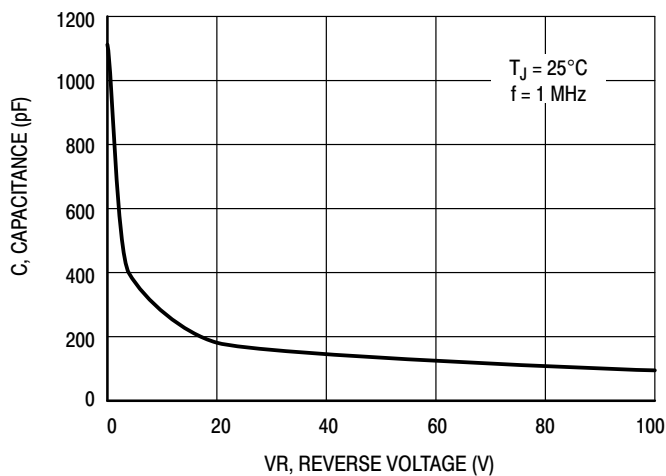


Figure 5. Typical Capacitance

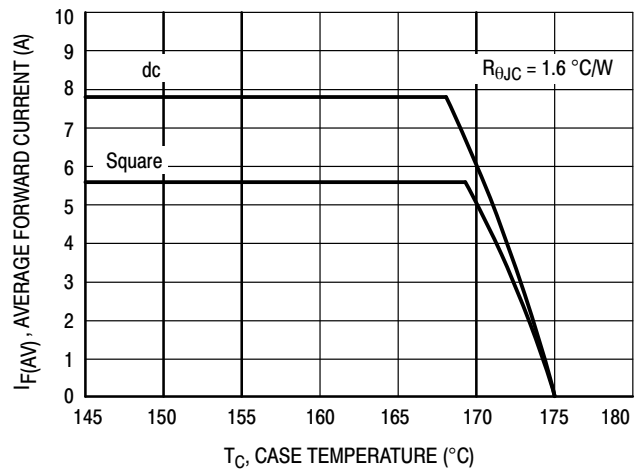


Figure 6. Current Derating, Case

# MBRD5H100, NBRD5H100

## TYPICAL CHARACTERISTICS

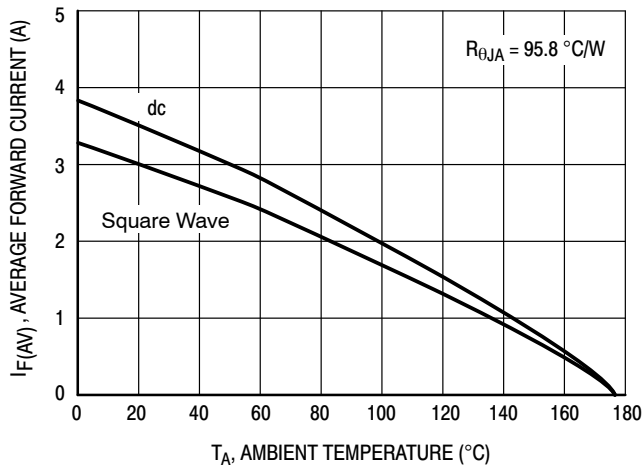


Figure 7. Current Derating, Ambient

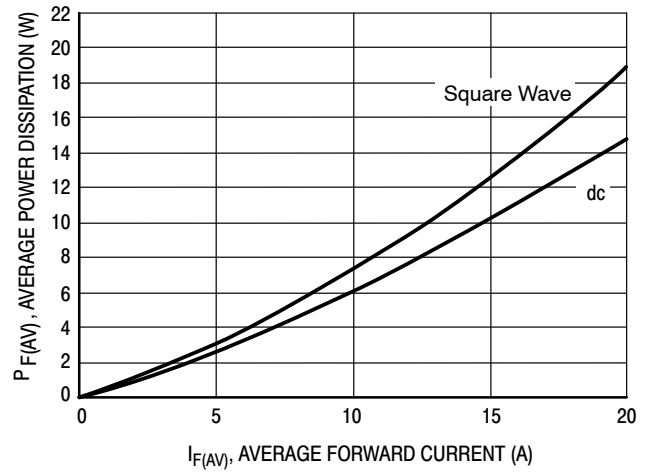


Figure 8. Forward Power Dissipation

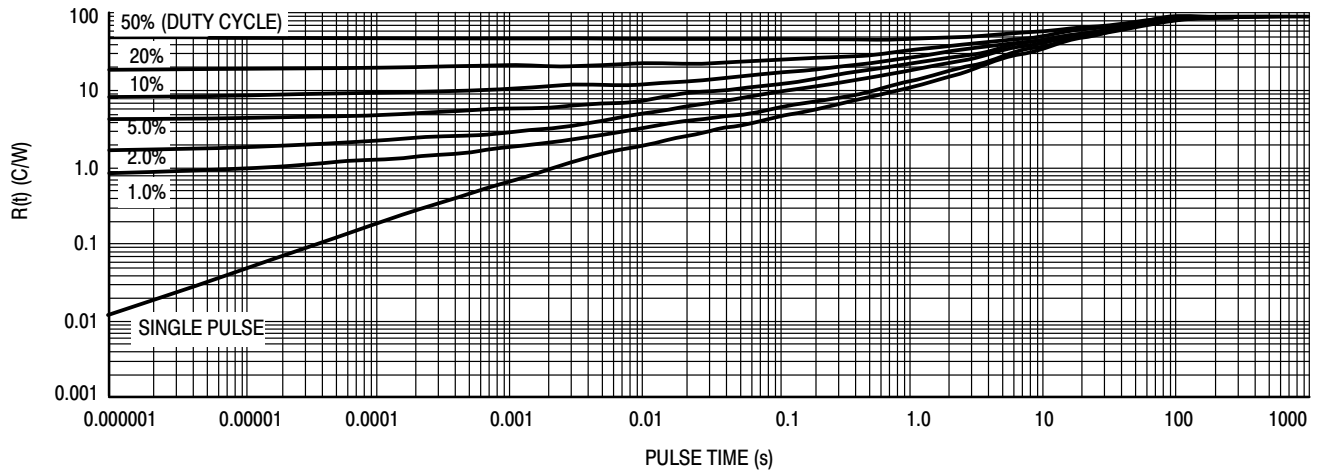


Figure 9. Thermal Response, Junction-to-Case

## MBRD5H100, NBRD5H100

### REVISION HISTORY

Revision	Description of Changes	Date
10	NBRD5H100T4G OPN Marked as Discontinued + Rebranded the Data Sheet to <b>onsemi</b> format	7/2/2025

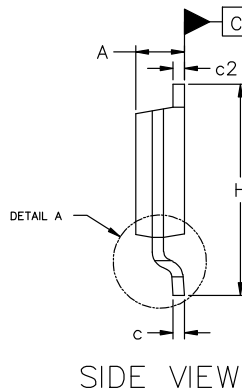
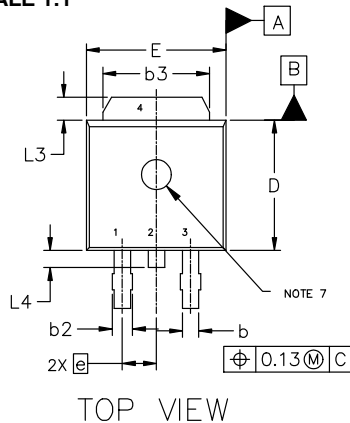
This document has undergone updates prior to the inclusion of this revision history table. The changes tracked here only reflect updates made on the noted approval dates.



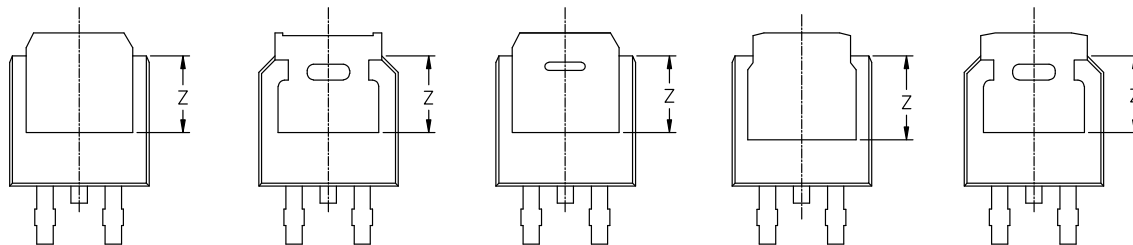
DPAK3 6.10x6.54x2.28, 2.29P  
CASE 369C  
ISSUE J

DATE 12 AUG 2025

SCALE 1:1

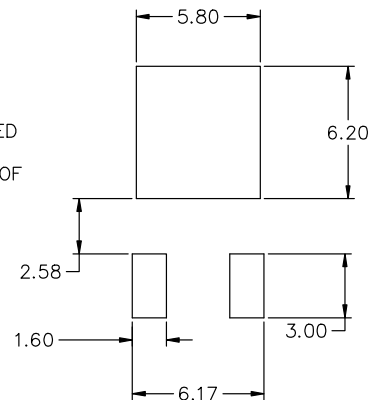
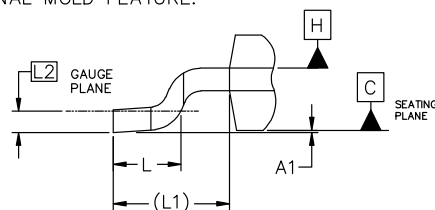


MILLIMETERS			
DIM	MIN	NOM	MAX
A	2.18	2.28	2.38
A1	0.00	---	0.13
b	0.63	0.76	0.89
b2	0.72	0.93	1.14
b3	4.57	5.02	5.46
c	0.46	0.54	0.61
c2	0.46	0.54	0.61
D	5.97	6.10	6.22
E	6.35	6.54	6.73
e	2.29 BSC		
H	9.40	9.91	10.41
L	1.40	1.59	1.78
L1	2.90 REF		
L2	0.51 BSC		
L3	0.89	---	1.27
L4	---	---	1.01
Z	3.93	---	---



NOTES:

1. DIMENSIONING AND TOLERANCING ASME Y14.5M, 2018.
2. CONTROLLING DIMENSION: MILLIMETERS.
3. THERMAL PAD CONTOUR OPTIONAL WITHIN DIMENSIONS b3, L3, AND Z.
4. DIMENSIONS D AND E DO NOT INCLUDE MOLD FLASH, PROTRUSIONS, OR BURRS. MOLD FLASH, PROTRUSIONS, OR GATE BURRS SHALL NOT EXCEED 0.15mm PER SIDE.
5. DIMENSIONS D AND E ARE DETERMINED AT THE OUTERMOST EXTREMES OF THE PLASTIC BODY.
6. DATUMS A AND B ARE DETERMINED AT DATUM PLANE H.
7. OPTIONAL MOLD FEATURE.



RECOMMENDED MOUNTING FOOTPRINT\*

\*FOR ADDITIONAL INFORMATION ON OUR PB-FREE STRATEGY AND SOLDERING DETAILS, PLEASE DOWNLOAD THE ONSEMI SOLDERING AND MOUNTING TECHNIQUES REFERENCE MANUAL, SOLDERRM/D.

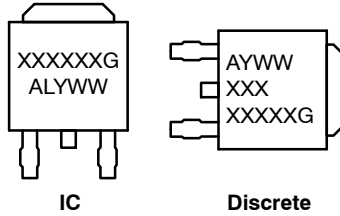
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DESCRIPTION:	DPAK3 6.10x6.54x2.28, 2.29P	PAGE 1 OF 2

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**DPAK3 6.10x6.54x2.28, 2.29P**  
CASE 369C  
ISSUE J

DATE 12 AUG 2025

**GENERIC  
MARKING DIAGRAM\***



XXXXXX = Device Code  
A = Assembly Location  
L = 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. Some products may not follow the Generic Marking.

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. CATHODE 2. ANODE 3. GATE 4. ANODE	STYLE 5: PIN 1. GATE 2. ANODE 3. CATHODE 4. ANODE
STYLE 6: PIN 1. MT1 2. MT2 3. GATE 4. MT2	STYLE 7: PIN 1. GATE 2. COLLECTOR 3. EMITTER 4. COLLECTOR	STYLE 8: PIN 1. N/C 2. CATHODE 3. ANODE 4. CATHODE	STYLE 9: PIN 1. ANODE 2. CATHODE 3. RESISTOR ADJUST 4. CATHODE	STYLE 10: PIN 1. CATHODE 2. ANODE 3. CATHODE 4. ANODE

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