Switch Mode Power Rectifiers

MBR8H100MFS, NRVB8H100MFS

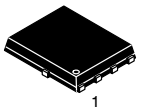
SCHOTTKY BARRIER RECTIFIERS 8 AMPERES 100 VOLTS

Features

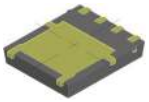
- Low Power Loss / High Efficiency
- New Package Provides Capability of Inspection and Probe After Board Mounting
- Guardring for Stress Protection
- Low Forward Voltage Drop
- 175°C Operating Junction Temperature
- WF Suffix for Products with Wettable Flanks
- NRVB Prefix for Automotive and Other Applications Requiring Unique Site and Control Change Requirements; AEC−Q101 Qualified and PPAP Capable
- These are Pb−Free Devices

Mechanical Characteristics:

- Case: Epoxy, Molded
- Epoxy Meets Flammability Rating UL 94−0 @ 0.125 in.
- Lead Finish: 100% Matte Sn (Tin)
- Lead and Mounting Surface Temperature for Soldering Purposes: 260°C Max. for 10 Seconds
- Device Meets MSL 1 Requirements

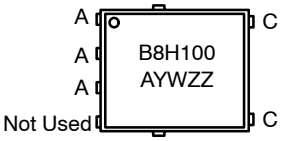


SO−8 FLAT LEAD
CASE 488AA
STYLE 2



(FULL−CUT SO8FL WF)
CASE 507BA
DFNW5

MARKING DIAGRAM



B8H100 = Specific Device Code
A = Assembly Location
Y = Year
W = Work Week
ZZ = Lot Traceability

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 = 165°C)	$I_{F(AV)}$	8.0	A
Peak Repetitive Forward Current, (Rated V_R, Square Wave, 20 kHz, T_C = 162°C)	I_{FRM}	16	A
Non−Repetitive Peak Surge Current (Surge Applied at Rated Load Conditions Halfwave, Single Phase, 60 Hz)	I_{FSM}	75	A
Storage Temperature Range	T_{stg}	−65 to +175	°C
Operating Junction Temperature	T_J	−55 to +175	°C
Unclamped Inductive Switching Energy (10 mH Inductor, Non−repetitive)	E_{AS}	75	mJ
ESD Rating (Human Body Model)		3B	
ESD Rating (Machine Model)		M4	

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.

NOTE: The heat generated must be less than the thermal conductivity from Junction−to−Ambient: dPD/dTJ < 1/RJA

ORDERING INFORMATION

Device	Package	Shipping†
MBR8H100MFST1G	SO−8 FL (Pb−Free)	1500 / Tape & Reel
MBR8H100MFST3G	SO−8 FL (Pb−Free)	5000 / Tape & Reel
NRVB8H100MFST1G	SO−8 FL (Pb−Free)	1500 / Tape & Reel
NRVB8H100MFST3G	SO−8 FL (Pb−Free)	5000 / Tape & Reel
NRVB8H100MFSWFT1G	SO−8 FL (Pb−Free)	1500 / Tape & Reel
NRVB8H100MFSWFT3G	SO−8 FL (Pb−Free)	5000 / Tape & Reel

†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.

THERMAL CHARACTERISTICS

Characteristic	Symbol	Typ	Max	Unit
Thermal Resistance, Junction−to−Case, Steady State (Assumes 600 mm^2 1 oz. copper bond pad, on a FR4 board) (Note 2)	$R_{\theta JC}$	−	2.2	°C/W
Thermal Resistance, Junction−to−Ambient, Steady State (Note 2)	$R_{\theta JA}$	−	53.1	°C/W

ELECTRICAL CHARACTERISTICS

Instantaneous Forward Voltage (Note 1) (i_F = 8 Amps, T_J = 125°C) (i_F = 8 Amps, T_J = 25°C)	v_F	 0.68 0.81	 0.76 0.90	V
Instantaneous Reverse Current (Note 1) (Rated dc Voltage, T_J = 125°C) (Rated dc Voltage, T_J = 25°C)	i_R	 180 0.06	 300 2	μA

1. Pulse Test: Pulse Width = 300 μs, Duty Cycle ≤ 2.0%.
2. Surface−mounted on FR4 board using a 650 mm^2, 1 oz. Cu pad.

TYPICAL CHARACTERISTICS

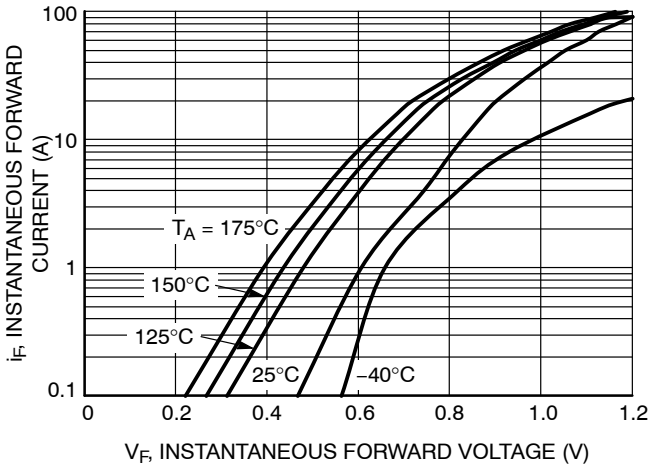


Figure 1. Typical Instantaneous Forward Characteristics

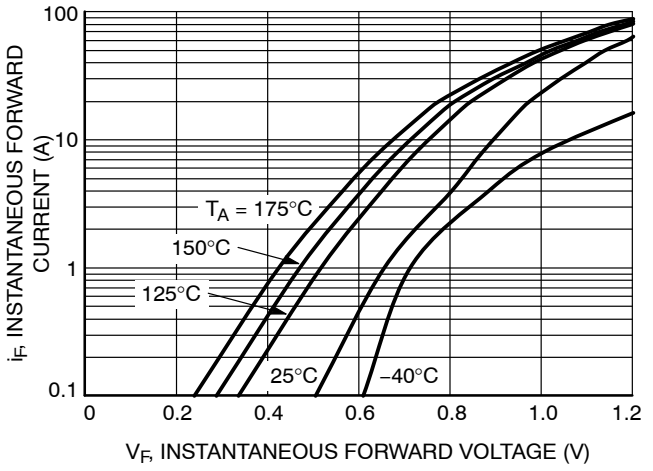


Figure 2. Maximum Instantaneous Forward Characteristics

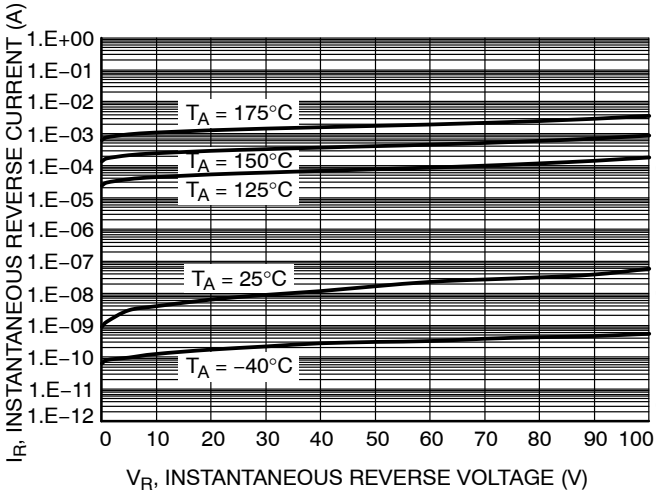


Figure 3. Typical Reverse Characteristics

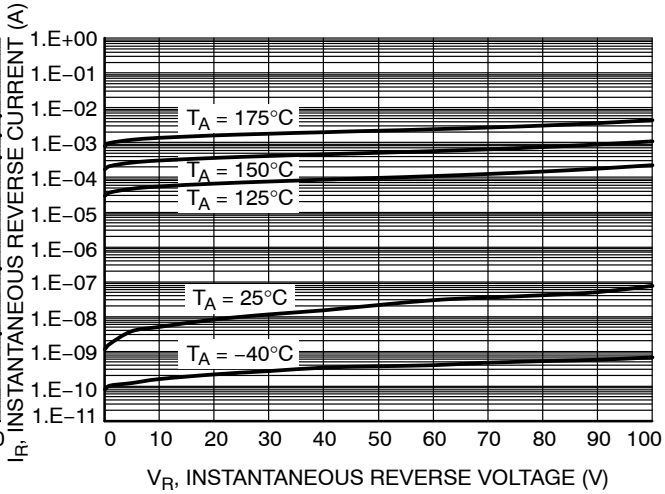


Figure 4. Maximum Reverse Characteristics

TYPICAL CHARACTERISTICS

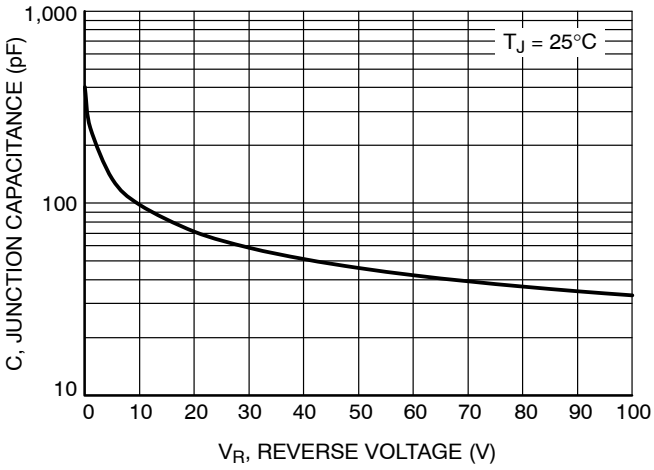


Figure 5. Typical Junction Capacitance

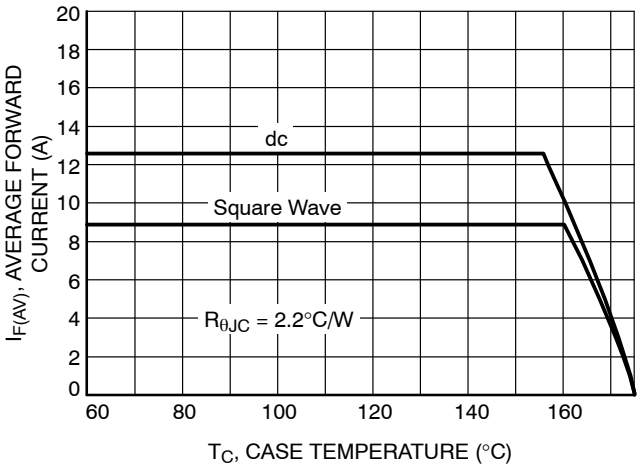


Figure 6. Current Derating

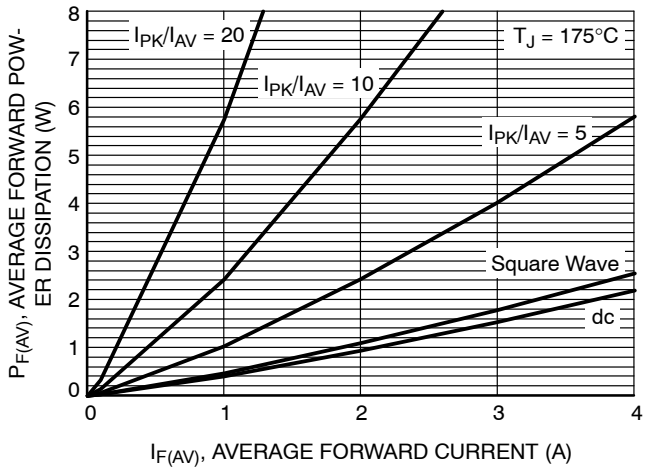


Figure 7. Forward Power Dissipation

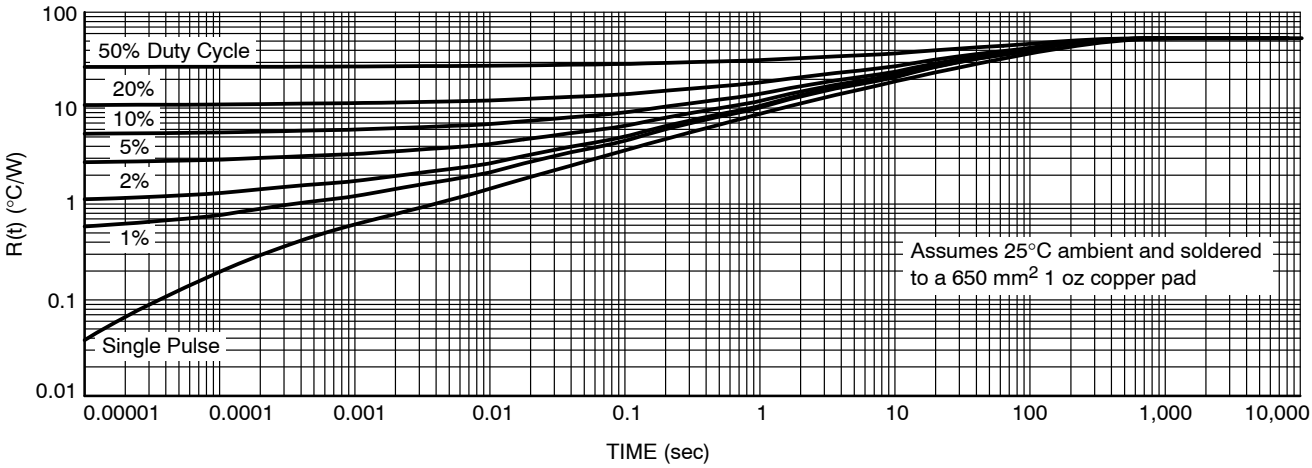
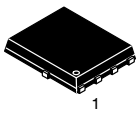


Figure 8. Thermal Response

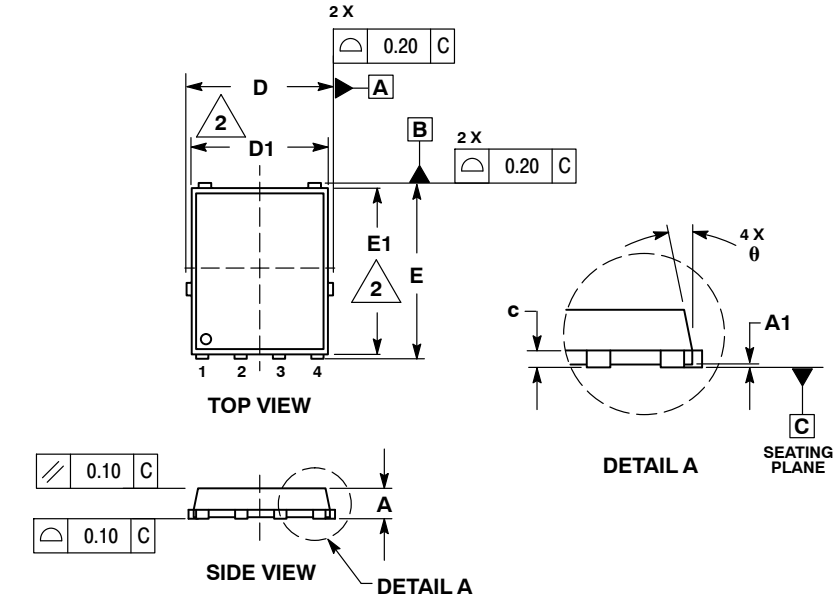
MECHANICAL CASE OUTLINE
PACKAGE DIMENSIONS



SCALE 2:1

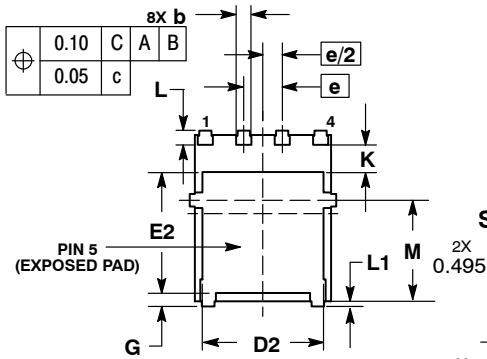
DFN5 5x6, 1.27P
(SO−8FL)
CASE 488AA
ISSUE N

DATE 25 JUN 2018

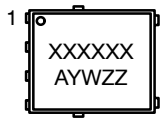


NOTES:
1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 1994.
2. CONTROLLING DIMENSION: MILLIMETER.
3. DIMENSION D1 AND E1 DO NOT INCLUDE MOLD FLASH PROTRUSIONS OR GATE BURRS.

	MILLIMETERS		
DIM	MIN	NOM	MAX
A	0.90	1.00	1.10
A1	0.00	–––	0.05
b	0.33	0.41	0.51
c	0.23	0.28	0.33
D	5.00	5.15	5.30
D1	4.70	4.90	5.10
D2	3.80	4.00	4.20
E	6.00	6.15	6.30
E1	5.70	5.90	6.10
E2	3.45	3.65	3.85
e	1.27 BSC		
G	0.51	0.575	0.71
K	1.20	1.35	1.50
L	0.51	0.575	0.71
L1	0.125 REF		
M	3.00	3.40	3.80
θ	0 °	–––	12 °



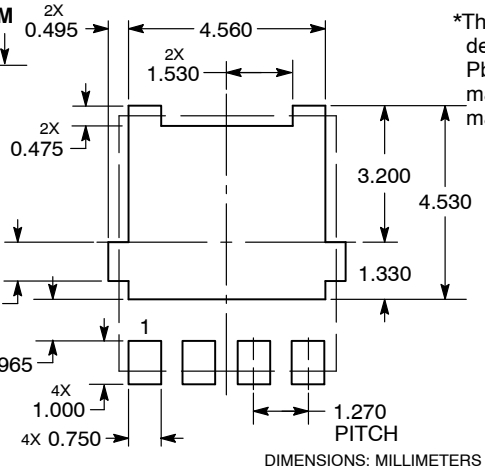
GENERIC MARKING DIAGRAM*



XXXXXX = Specific Device Code
A = Assembly Location
Y = Year
W = Work Week
ZZ = Lot Traceability

*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.

RECOMMENDED SOLDERING FOOTPRINT*



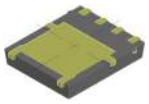
DIMENSIONS: MILLIMETERS

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

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

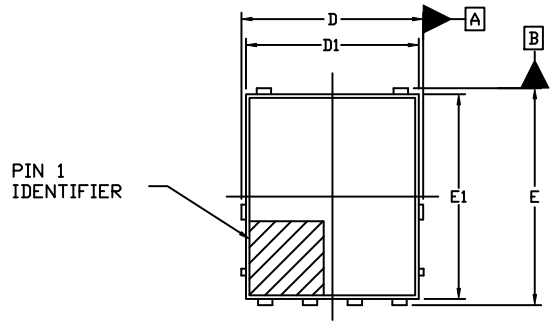
*For additional information on our Pb−Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.

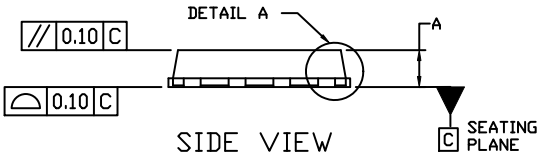
DOCUMENT NUMBER:	**98AON14036D**	Electronic versions are uncontrolled except when accessed directly from the Document Repository. Printed versions are uncontrolled except when stamped “CONTROLLED COPY” in red.
DESCRIPTION:	**DFN5 5x6, 1.27P (SO−8FL)**	**PAGE 1 OF 1**

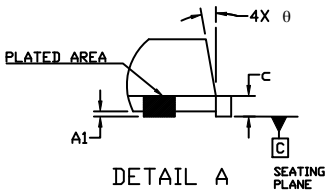


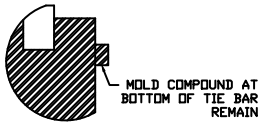
DFNW5 5x6 (FULL−CUT SO8FL WF)
CASE 507BA
ISSUE A

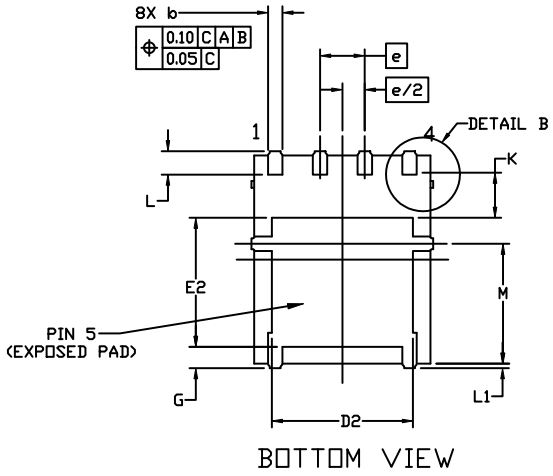
DATE 03 FEB 2021











NOTES:
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2. CONTROLLING DIMENSION: MILLIMETERS
3. DIMENSIONS D1 AND E1 DO NOT INCLUDE MOLD FLASH, PROTRUSIONS, OR GATE BURRS.
4. THIS PACKAGE CONTAINS WETTABLE FLANK DESIGN FEATURES TO AID IN FILLET FORMATION ON THE LEADS DURING MOUNTING.

	MILLIMETERS		
DIM	MIN.	NOM.	MAX.
A	0.90	1.00	1.10
A1	0.00	---	0.05
b	0.33	0.41	0.51
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G	0.51	0.575	0.71
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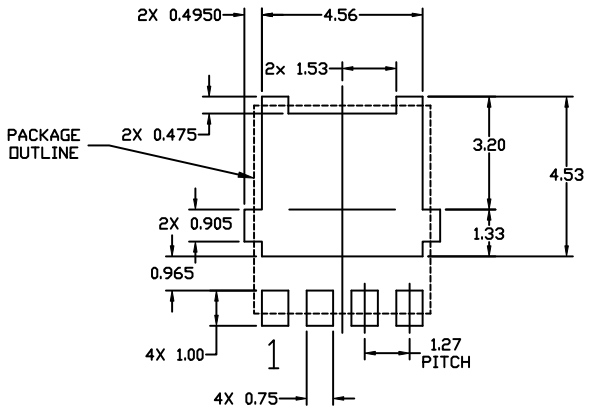
L	0.51	0.575	0.71
L1	0.150 REF		
M	3.00	3.40	3.80
θ	0°	---	12°



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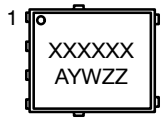

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DESCRIPTION:	**DFNW5 5x6 (FULL−CUT SO8FL WF)**	**PAGE 1 OF 1**

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