

SWITCHMODE Power Rectifiers

MBR10100MFS, NRVB10100MFS

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
- Wettable Flacks Option Available
- 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

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)}	10	Α
Peak Repetitive Forward Current, (Rated V _R , Square Wave, 20 kHz, T _C = 163°C)	I _{FRM}	20	Α
Non-Repetitive Peak Surge Current (Surge Applied at Rated Load Condi- tions Halfwave, Single Phase, 60 Hz)	I _{FSM}	150	Α
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	

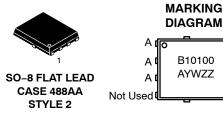
Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

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

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SCHOTTKY BARRIER RECTIFIERS 10 AMPERES 100 VOLTS





B10100 = Specific Device Code A = Assembly Location

Y = Year
W = Work Week
ZZ = Lot Traceability

ORDERING INFORMATION

Device	Package	Shipping†
NRVB10100MFST1G	SO-8 FL (Pb-Free)	1500 / Tape & Reel

DISCONTINUED (Note 1)

MBR10100MFST1G		1500 / Tape & Reel
MBR10100MFST3G	SO-8 FL (Pb-Free)	5000 /
NRVB10100MFST3G		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.
- DISCONTINUED: These devices are not recommended for new design. Please contact your onsemi representative for information. The most current information on these devices may be available on www.onsemi.com.

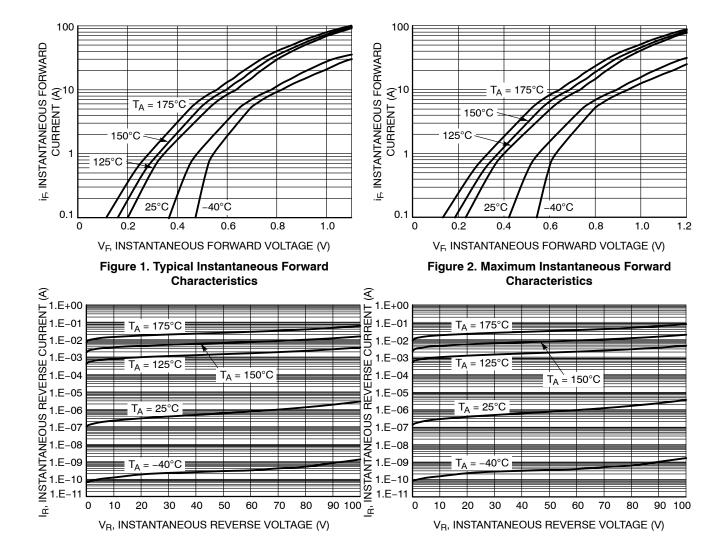
MBR10100MFS, NRVB10100MFS

THERMAL CHARACTERISTICS

Characteristic	Symbol	Тур	Max	Unit
Thermal Resistance, Junction-to-Case, Steady State (Assumes 600 mm² 1 oz. copper bond pad, on a FR4 board)	$R_{ heta JC}$	-	1.8	°C/W
ELECTRICAL CHARACTERISTICS				
Instantaneous Forward Voltage (Note 1) ($i_F = 10 \text{ Amps}, T_J = 125^{\circ}\text{C}$) ($i_F = 10 \text{ Amps}, T_J = 25^{\circ}\text{C}$)	VF	0.64 0.80	0.88 0.95	V
Instantaneous Reverse Current (Note 1) (Rated dc Voltage, T _J = 125°C) (Rated dc Voltage, T _J = 25°C)	i _R	4 0.003	13 0.100	mA

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.

TYPICAL CHARACTERISTICS



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Figure 4. Maximum Reverse Characteristics

Figure 3. Typical Reverse Characteristics

^{1.} Pulse Test: Pulse Width = 300 μs, Duty Cycle ≤[2.0%.

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TYPICAL CHARACTERISTICS

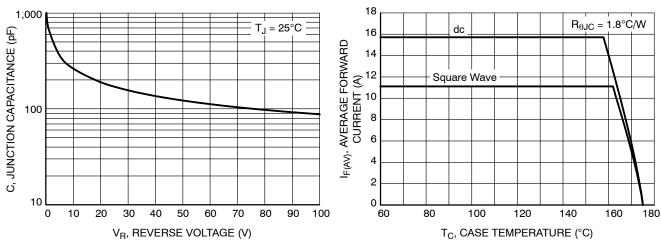


Figure 5. Typical Junction Capacitance

Figure 6. Current Derating TO-220AB

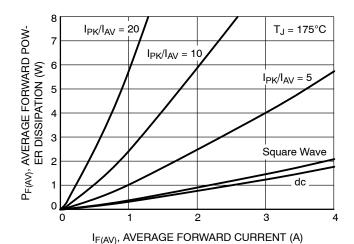


Figure 7. Forward Power Dissipation

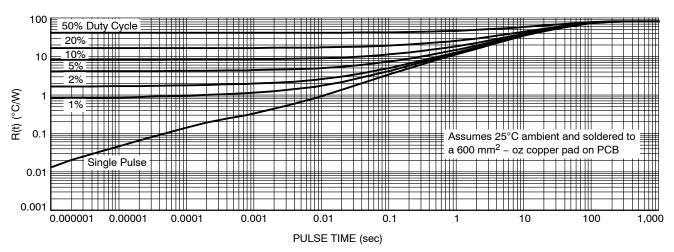


Figure 8. Thermal Response





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

DATE 25 JUN 2018

NOTES:

- 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
Α	0.90	1.00	1.10
A1	0.00		0.05
b	0.33	0.41	0.51
С	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
е	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		
М	3.00	3.40	3.80
θ	0 °		12 °

GENERIC MARKING DIAGRAM*

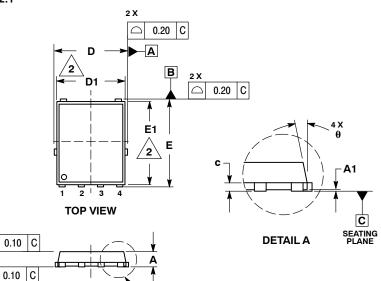


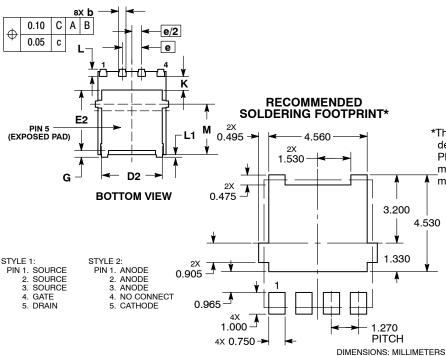
XXXXXX = Specific Device Code

= Assembly Location Α

Υ = 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.





DETAIL A

SIDE VIEW

*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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ſ	DESCRIPTION:	DFN5 5x6, 1.27P (SO-8FL)		PAGE 1 OF 1

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