# **SWITCHMODE Power Rectifiers**

These state-of-the-art devices have the following features:

#### **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
- NRVB Prefix for Automotive and Other Applications Requiring Unique Site and Control Change Requirements; AEC-Q101 Qualified and PPAP Capable
- Wettable Flanks Option available
- 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
- The Heat Generated must be less than the Thermal Conductivity from Junction-to-Ambient: dPD/dTJ < 1/RJA</li>

#### **MAXIMUM RATINGS**

Rating	Symbol	Value	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	V <sub>RRM</sub> V <sub>RWM</sub> V <sub>R</sub>	60	V
Average Rectified Forward Current (Rated V <sub>R</sub> , T <sub>C</sub> = 160°C)	I <sub>F(AV)</sub>	5.0	Α
Peak Repetitive Forward Current, (Rated V <sub>R</sub> , Square Wave, 20 kHz, T <sub>C</sub> = 165°C)	I <sub>FRM</sub>	10	А
Non-Repetitive Peak Surge Current (Surge Applied at Rated Load Conditions Halfwave, Single Phase, 60 Hz)	I <sub>FSM</sub>	100	Α
Storage Temperature Range	T <sub>stg</sub>	-65 to +175	°C
Operating Junction Temperature	TJ	-55 to +175	°C
Unclamped Inductive Switching Energy (10 mH Inductor, Non-repetitive)	E <sub>AS</sub>	10	mJ
ESD Rating (Human Body Model)		3B	
ESD Rating (Machine Model)		M4	

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.



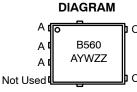
#### ON Semiconductor®

http://onsemi.com

# SCHOTTKY BARRIER RECTIFIERS 5 AMPERES 60 VOLTS







**MARKING** 

B560 = Specific Device Code A = Assembly Location

Y = Year
W = Work Week
ZZ = Lot Traceability

#### **ORDERING INFORMATION**

Device	Package	Shipping†	
MBR560MFST1G	SO-8 FL (Pb-Free)	1500 / Tape & Reel	
MBR560MFST3G	SO-8 FL (Pb-Free)	5000 / Tape & Reel	
NRVB560MFST1G	SO-8 FL (Pb-Free)	1500 / Tape & Reel	
NRVB560MFST3G	SO-8 FL (Pb-Free)	5000 / Tape & Reel	

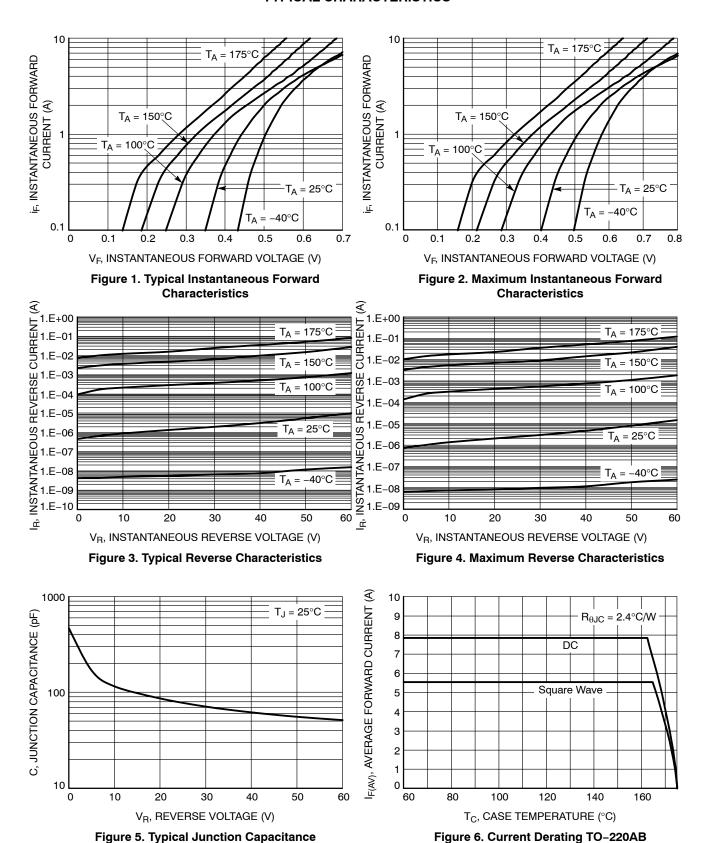
†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specification Brochure, BRD8011/D.

#### THERMAL CHARACTERISTICS

Characteristic	Symbol	Тур	Max	Unit
Thermal Resistance, Junction-to-Case, Steady State (Assumes 600 mm <sup>2</sup> 1 oz. copper bond pad, on a FR4 board)	$R_{ heta JC}$	-	2.4	°C/W
ELECTRICAL CHARACTERISTICS				-
Instantaneous Forward Voltage (Note 1) ( $i_F = 5 \text{ Amps}, T_J = 100^{\circ}\text{C}$ ) ( $i_F = 5 \text{ Amps}, T_J = 25^{\circ}\text{C}$ )	VF	0.60 0.65	0.72 0.78	V
Instantaneous Reverse Current (Note 1) (Rated dc Voltage, T <sub>J</sub> = 100°C) (Rated dc Voltage, T <sub>J</sub> = 25°C)	İR	1.5 0.015	2.5 0.150	mA

<sup>1.</sup> Pulse Test: Pulse Width = 300  $\mu s,$  Duty Cycle  $\leq$  2.0%.

#### **TYPICAL CHARACTERISTICS**



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#### **TYPICAL CHARACTERISTICS**

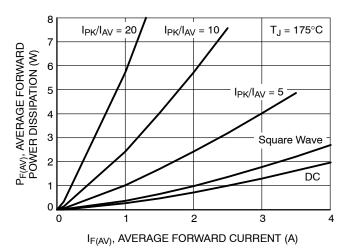


Figure 7. Forward Power Dissipation

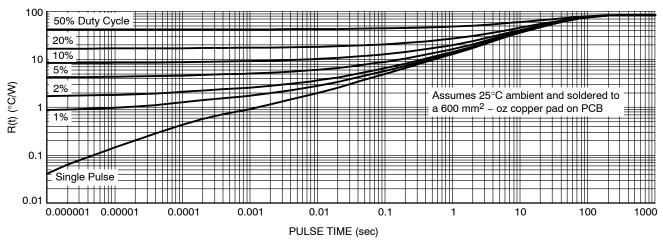
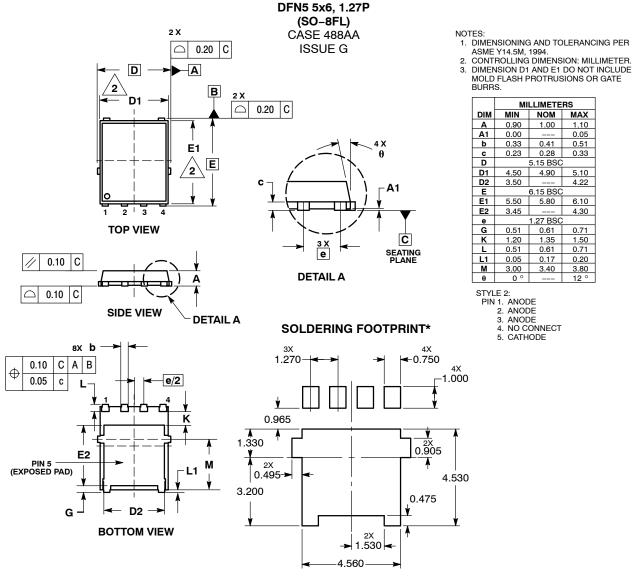


Figure 8. Thermal Characteristics

#### PACKAGE DIMENSIONS



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

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