MBR1080G, MBR1090G, MBR10100G, NRVB10100G

SWITCHMODE Power Rectifiers

Features

- Guard-Ring for Stress Protection
- Low Forward Voltage
- 175°C Operating Junction Temperature
- Epoxy Meets UL 94 V-0 @ 0.125 in
- Low Power Loss/High Efficiency
- High Surge Capacity
- Low Stored Charge Majority Carrier Conduction
- AEC-Q101 Qualified and PPAP Capable
- NRVB Prefix for Automotive and Other Applications Requiring Unique Site and Control Change Requirements
- All Packages are Pb-Free*

Mechanical Characteristics

- Case: Epoxy, Molded
- Weight: 1.9 Grams (Approximately)
- Finish: All External Surfaces Corrosion Resistant and Terminal Leads are Readily Solderable
- Lead Temperature for Soldering Purposes: 260°C Max. for 10 Seconds
- ESD Rating:
 - ♦ Human Body Model = 3B
 - ♦ Machine Model = C



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SCHOTTKY BARRIER RECTIFIERS 10 AMPERES, 80 to 100 VOLTS



TO-220AC CASE 221B



MARKING DIAGRAM



A = Assembly Location
Y = Year
WW = Work Week
G = Pb-Free Package
B10x0 = Device Code
x = 8, 9 or 10
KA = Diode Polarity

ORDERING INFORMATION

Device	Package	Shipping
MBR1080G	TO-220 (Pb-Free)	50 Units/Rail
MBR1090G	TO-220 (Pb-Free)	50 Units/Rail
MBR10100G	TO-220 (Pb-Free)	50 Units/Rail
NRVB10100G	TO-220 (Pb-Free)	50 Units/Rail

^{*}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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MAXIMUM RATINGS

Pattern	0	MBR/NRVB			
Rating	Symbol	1080	1090	10100	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	V _{RRM} V _{RWM} V _R	80	90	100	V
Average Rectified Forward Current (Rated V _R) T _C = 133°C	I _{F(AV)}	10		Α	
Peak Repetitive Forward Current (Rated V _R , Square Wave, 20 kHz) T _C = 133°C	I _{FRM}		20		Α
Nonrepetitive Peak Surge Current (Surge applied at rated load conditions halfwave, single phase, 60 Hz)	I _{FSM}	150		Α	
Peak Repetitive Reverse Surge Current (2.0 μs, 1.0 kHz)	I _{RRM}		0.5		Α
Operating Junction Temperature (Note 1)	TJ	-	-65 to +17	75	°C
Storage Temperature	T _{stg}	-	- 65 to +17	75	°C
Voltage Rate of Change (Rated V _R)	dv/dt		10,000		V/μs

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.

THERMAL CHARACTERISTICS

Characteristic	Symbol	Value	Unit
Maximum Thermal Resistance, Junction-to-Case	$R_{ heta JC}$	2.0	°C/W
Maximum Thermal Resistance, Junction-to-Ambient	$R_{\theta JA}$	60	°C/W

ELECTRICAL CHARACTERISTICS

Characteristic	Symbol	Value	Unit
$\label{eq:maximum Instantaneous Forward Voltage (Note 2)} \begin{tabular}{l} (i_F = 10 \ Amps, T_C = 125^{\circ}C) \\ (i_F = 10 \ Amps, T_C = 25^{\circ}C) \\ (i_F = 20 \ Amps, T_C = 125^{\circ}C) \\ (i_F = 20 \ Amps, T_C = 25^{\circ}C) \\ \end{tabular}$	VF	0.7 0.8 0.85 0.95	V
Maximum Instantaneous Reverse Current (Note 2) (Rated dc Voltage, $T_C = 125$ °C) (Rated dc Voltage, $T_C = 25$ °C)	İR	6.0 0.10	mA

^{2.} Pulse Test: Pulse Width = 300 μs, Duty Cycle ≤ 2.0%.

^{1.} The heat generated must be less than the thermal conductivity from Junction-to-Ambient: $dP_D/dT_J < 1/R_{\theta JA}$.

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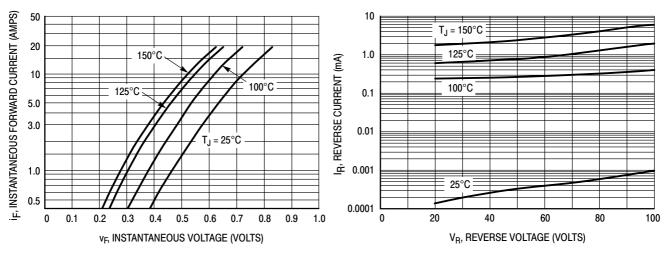


Figure 1. Typical Forward Voltage

Figure 2. Typical Reverse Current

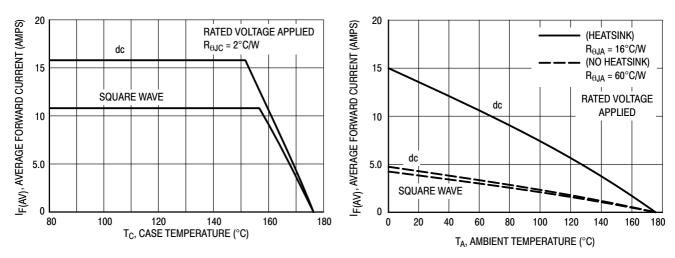


Figure 3. Typical Current Derating, Case

Figure 4. Typical Current Derating, Ambient

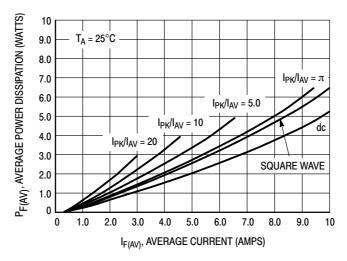
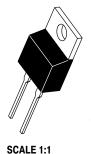


Figure 5. Forward Power Dissipation

MECHANICAL CASE OUTLINE

PACKAGE DIMENSIONS

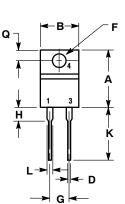


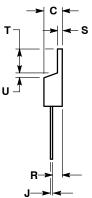


TO-220, 2-LEAD CASE 221B-04 ISSUE F

DATE 12 APR 2013







NOTES:

- DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
- 2. CONTROLLING DIMENSION: INCH.

	INCHES		MILLIMETERS		
DIM	MIN	MAX	MIN	MAX	
Α	0.595	0.620	15.11	15.75	
В	0.380	0.405	9.65	10.29	
С	0.160	0.190	4.06	4.82	
D	0.025	0.039	0.64	1.00	
F	0.142	0.161	3.61	4.09	
G	0.190	0.210	4.83	5.33	
Н	0.110	0.130	2.79	3.30	
J	0.014	0.025	0.36	0.64	
K	0.500	0.562	12.70	14.27	
L	0.045	0.060	1.14	1.52	
Q	0.100	0.120	2.54	3.04	
R	0.080	0.110	2.04	2.79	
S	0.045	0.055	1.14	1.39	
T	0.235	0.255	5.97	6.48	
U	0.000	0.050	0.000	1.27	

STYLE 1: PIN 1. CATHODE 2. N/A 3. ANODE 4. CATHODE

STYLE 2: PIN 1. ANODE 2. N/A 3. CATHODE 4. ANODE

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