MBR1060, MBR1080, MBR1090, MBR10100

MBR1060 and MBR10100 are Preferred Devices

SWITCHMODE™ Power Rectifiers

This series of SWITCHMODE power rectifiers uses the Schottky Barrier principle with a platinum barrier metal. These state−of−the−art devices have the following features:

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
- Pb−Free Packages are Available*

Mechanical Characteristics

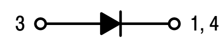
- Case: Epoxy, Molded
- Weight: 1.9 Grams (Approximately)
- Finish: All External Surfaces Corrosion Resistant and Terminal Leads are Readily Solderable
- Lead Temperature for Soldering Purposes: 260°C Max. for 10 Seconds

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

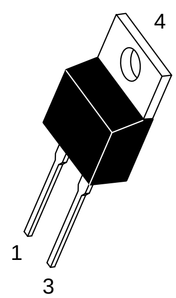
ON Semiconductor®

http://onsemi.com

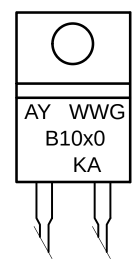
SCHOTTKY BARRIER RECTIFIERS 10 AMPERES, 60 to 100 VOLTS



MARKING DIAGRAM



TO−220AC
CASE 221B
PLASTIC



A	= Assembly Location
Y	= Year
WW	= Work Week
G	= Pb−Free Package
B10x0	= Device Code
x	= 6, 8, 9 or 10
KA	= Diode Polarity

ORDERING INFORMATION

Device	Package	Shipping
MBR1060	TO−220	50 Units/Rail
MBR1060G	TO−220 (Pb−Free)	50 Units/Rail
MBR1080	TO−220	50 Units/Rail
MBR1080G	TO−220 (Pb−Free)	50 Units/Rail
MBR1090	TO−220	50 Units/Rail
MBR1090G	TO−220 (Pb−Free)	50 Units/Rail
MBR10100	TO−220	50 Units/Rail
MBR10100G	TO−220 (Pb−Free)	50 Units/Rail

Preferred devices are recommended choices for future use and best overall value.

MAXIMUM RATINGS

Rating	Symbol	MBR				Unit
		1060	1080	1090	10100	
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	V_{RRM} V_{RWM} V_R	60	80	90	100	V
Average Rectified Forward Current (Rated V_R) T_C = 133°C	$I_{F(AV)}$	10				A
Peak Repetitive Forward Current (Rated V_R, Square Wave, 20 kHz) T_C = 133°C	I_{FRM}	20				A
Nonrepetitive Peak Surge Current (Surge applied at rated load conditions halfwave, single phase, 60 Hz)	I_{FSM}	150				A
Peak Repetitive Reverse Surge Current (2.0 μs, 1.0 kHz)	I_{RRM}	0.5				A
Operating Junction Temperature (Note 1)	T_J	– 65 to +175				°C
Storage Temperature	T_{stg}	– 65 to +175				°C
Voltage Rate of Change (Rated V_R)	dv/dt	10,000				V/μs

Maximum ratings are those values beyond which device damage can occur. Maximum ratings applied to the device are individual stress limit values (not normal operating conditions) and are not valid simultaneously. If these limits are exceeded, device functional operation is not implied, 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

Maximum Thermal Resistance, Junction−to−Case	$R_{\theta JC}$	2.0	°C/W
Maximum Thermal Resistance, Junction−to−Ambient	$R_{\theta JA}$	60	°C/W

ELECTRICAL CHARACTERISTICS

Maximum Instantaneous Forward Voltage (Note 2) (i_F = 10 Amps, T_C = 125°C) (i_F = 10 Amps, T_C = 25°C) (i_F = 20 Amps, T_C = 125°C) (i_F = 20 Amps, T_C = 25°C)	v_F	 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)	i_R	 6.0 0.10	mA

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

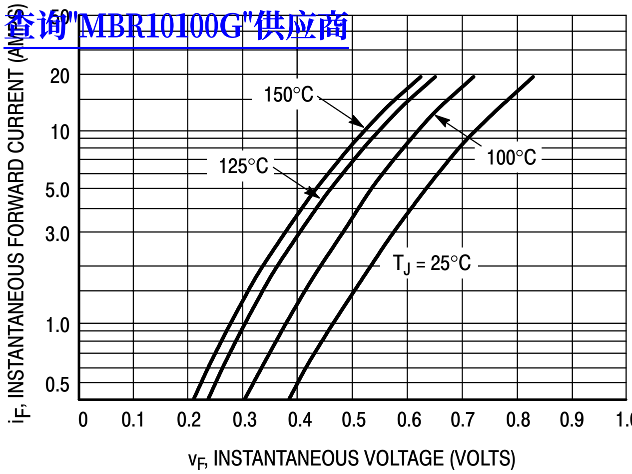


Figure 1. Typical Forward Voltage

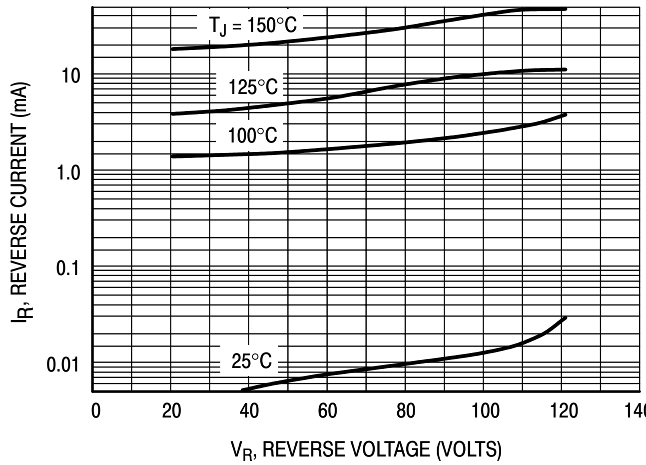


Figure 2. Typical Reverse Current

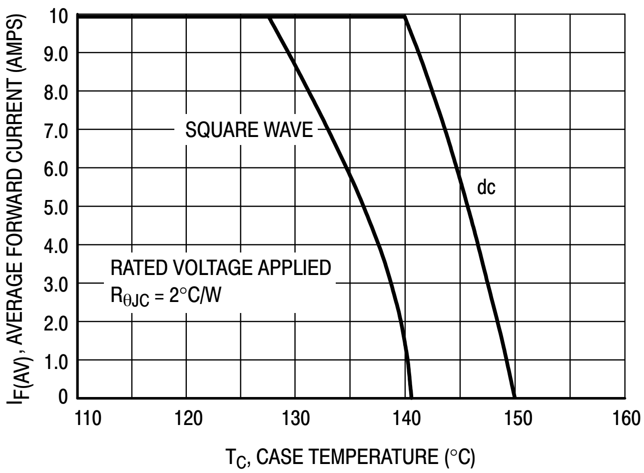


Figure 3. Current Derating, Case

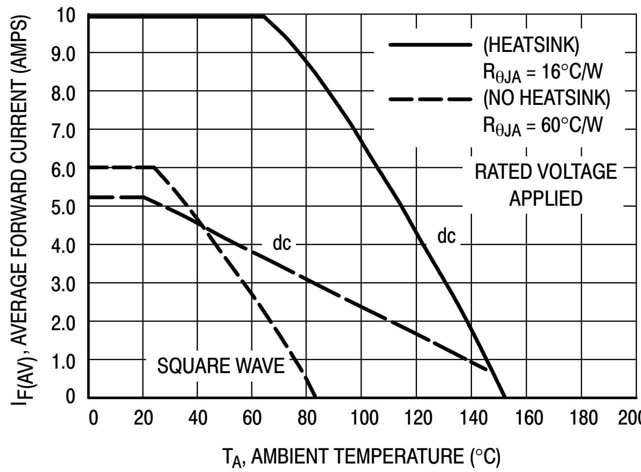


Figure 4. Current Derating, Ambient

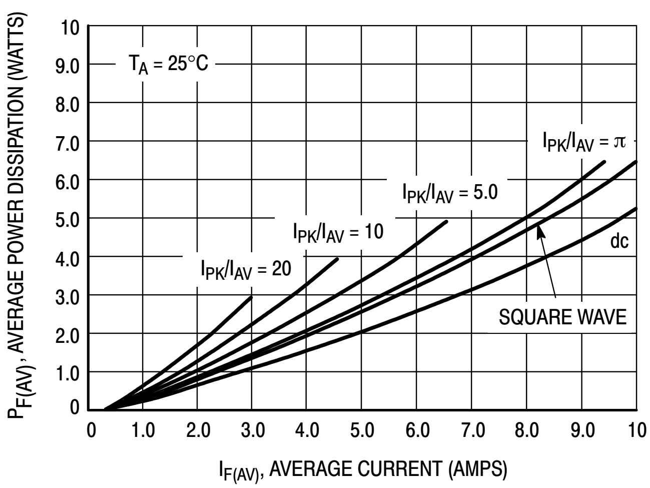
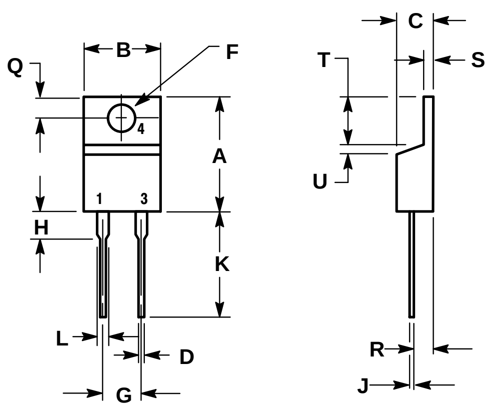


Figure 5. Forward Power Dissipation

PACKAGE DIMENSIONS

TO−220
PLASTIC
CASE 221B−04
ISSUE D



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

	INCHES		MILLIMETERS	
DIM	MIN	MAX	MIN	MAX
A	0.595	0.620	15.11	15.75
B	0.380	0.405	9.65	10.29
C	0.160	0.190	4.06	4.82
D	0.025	0.035	0.64	0.89
F	0.142	0.147	3.61	3.73
G	0.190	0.210	4.83	5.33
H	0.110	0.130	2.79	3.30
J	0.018	0.025	0.46	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

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PUBLICATION ORDERING INFORMATION

LITERATURE FULFILLMENT:
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