

# SWITCHMODE™ Power Rectifiers

... using the Schottky Barrier principle with a platinum barrier metal. These state-of-the-art devices have the following features:

- Guard-Ring for Stress Protection
- Low Forward Voltage
- 150°C Operating Junction Temperature
- Guaranteed Reverse Avalanche
- Epoxy Meets UL94, VO at 1/8"
- Low Power Loss/High Efficiency
- High Surge Capacity
- Low Stored Charge Majority Carrier Conduction

### Mechanical Characteristics:

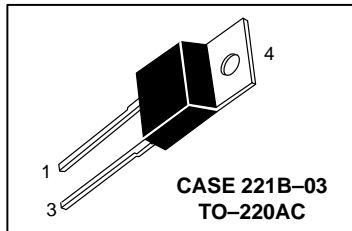
- Case: Epoxy, Molded
- Weight: 1.9 grams (approximately)
- Finish: All External Surfaces Corrosion Resistant and Terminal Leads are Readily Solderable
- Lead Temperature for Soldering Purposes: 260°C Max. for 10 Seconds
- Shipped 50 units per plastic tube
- Marking: B1060, B1070, B1080, B1090, B10100



**MBR1060**  
**MBR1070**  
**MBR1080**  
**MBR1090**  
**MBR10100**

MBR1060 and MBR10100 are  
Motorola Preferred Devices

**SCHOTTKY BARRIER  
RECTIFIERS**  
**10 AMPERES**  
**60 to 100 VOLTS**



### MAXIMUM RATINGS

Rating	Symbol	MBR					Unit
		1060	1070	1080	1090	10100	
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	$V_{RRM}$ $V_{RWM}$ $V_R$	60	70	80	90	100	Volts
Average Rectified Forward Current (Rated $V_R$ ) $T_C = 133^\circ\text{C}$	$I_{F(AV)}$	10					Amps
Peak Repetitive Forward Current (Rated $V_R$ , Square Wave, 20 kHz) $T_C = 133^\circ\text{C}$	$I_{FRM}$	20					Amps
Nonrepetitive Peak Surge Current (Surge applied at rated load conditions halfwave, single phase, 60 Hz)	$I_{FSM}$	150					Amps
Peak Repetitive Reverse Surge Current (2.0 $\mu\text{s}$ , 1.0 kHz)	$I_{RRM}$	0.5					Amp
Operating Junction Temperature	$T_J$	-65 to +150					$^\circ\text{C}$
Storage Temperature	$T_{stg}$	-65 to +175					$^\circ\text{C}$
Voltage Rate of Change (Rated $V_R$ )	$dv/dt$	10,000					$\text{V}/\mu\text{s}$

### THERMAL CHARACTERISTICS

Maximum Thermal Resistance — Junction to Case — Junction to Ambient	$R_{\theta JC}$ $R_{\theta JA}$	2.0 60	$^\circ\text{C}/\text{W}$
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### ELECTRICAL CHARACTERISTICS

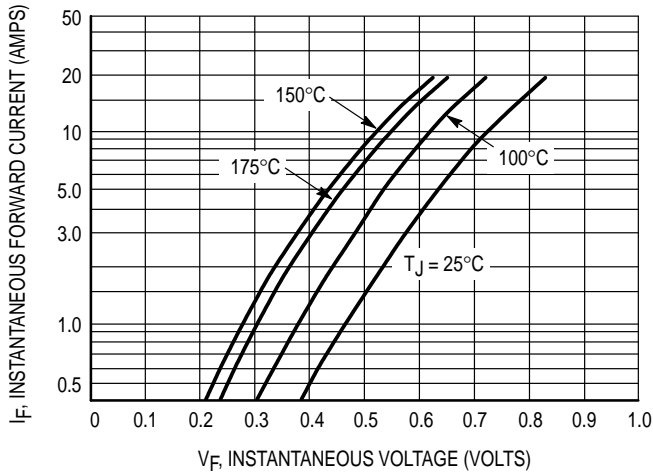
Maximum Instantaneous Forward Voltage (1) ( $i_F = 10$ Amps, $T_C = 125^\circ\text{C}$ ) ( $i_F = 10$ Amps, $T_C = 25^\circ\text{C}$ ) ( $i_F = 20$ Amps, $T_C = 125^\circ\text{C}$ ) ( $i_F = 20$ Amps, $T_C = 25^\circ\text{C}$ )	$v_F$	0.7 0.8 0.85 0.95	Volts
Maximum Instantaneous Reverse Current (1) (Rated dc Voltage, $T_C = 125^\circ\text{C}$ ) (Rated dc Voltage, $T_C = 25^\circ\text{C}$ )	$i_R$	6.0 0.10	mA

(1) Pulse Test: Pulse Width = 300  $\mu\text{s}$ , Duty Cycle  $\leq 2.0\%$ .

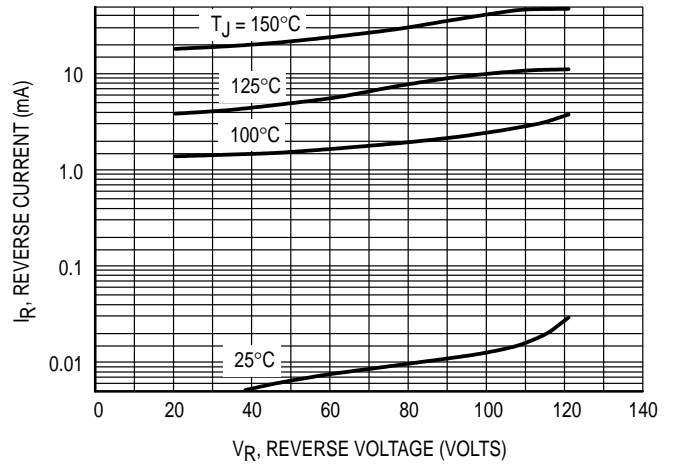
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Preferred devices are Motorola recommended choices for future use and best overall value.

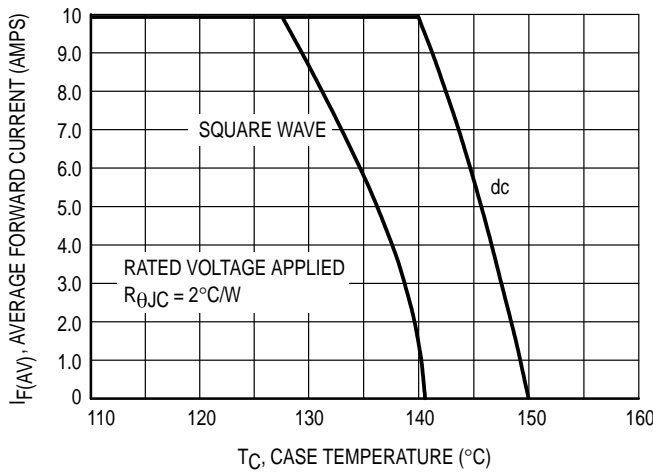
**MBR1060 MBR1070 MBR1080 MBR1090 MBR10100**



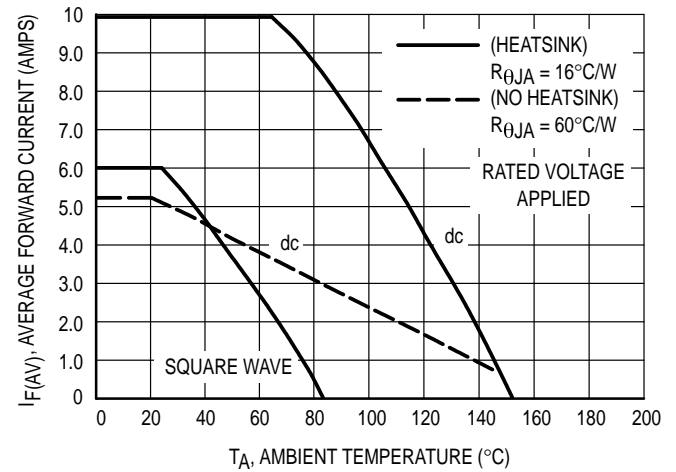
**Figure 1. Typical Forward Voltage**



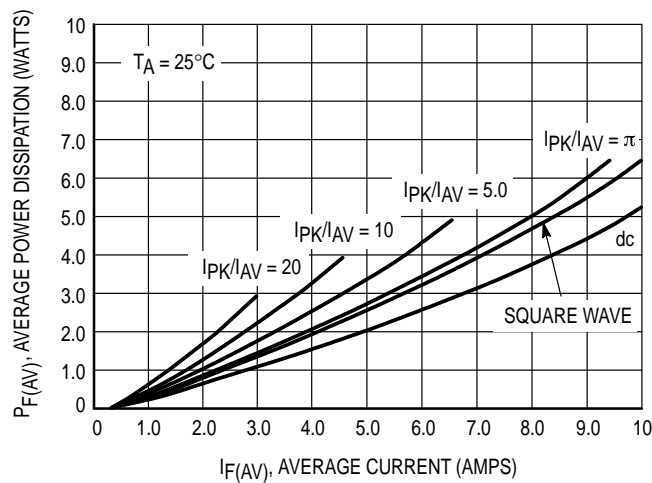
**Figure 2. Typical Reverse Current**



**Figure 3. Current Derating, Case**

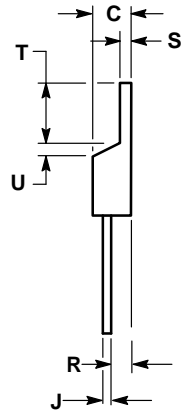
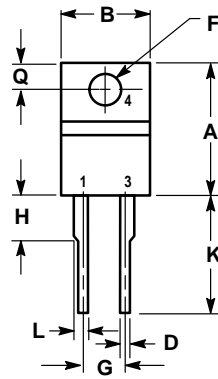


**Figure 4. Current Derating, Ambient**



**Figure 5. Forward Power Dissipation**


**MBR1060 MBR1070 MBR1080 MBR1090 MBR10100**  
**PACKAGE DIMENSIONS**



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

DIM	INCHES		MILLIMETERS	
	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

**CASE 221B-03  
 (TO-220AC)  
 ISSUE B**

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