



# FM20100

## Power Rectifiers SWITCHMODE

### Datasheet

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

**Features**

- 20 Amps Total (10 Amps Per Diode Leg)
- Guard-Ring for Stress Protection
- Low Forward Voltage
- 150°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
- Shipped 50 units per plastic tube
- Pb-Free Packages are Available\*

**Mechanical Characteristics:**

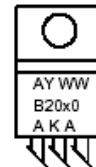
- Case: Epoxy, Molded
- Weight: 1.9 grams (approximately)
- Finish: All External Surfaces Corrosion Resistant and Terminal Leads are Readily Solderable
- Lead Temperature for Soldering Purposes: 260°C Max. for 10 Seconds

**SCHOTTKY BARRIER  
RECTIFIERS  
20 AMPERES  
60-100 VOLTS**



TO-220AB  
CASE 221A  
PLASTIC

**MARKING DIAGRAM**



- A = Assembly Location
- Y = Year
- WW = Work Week
- B20x0 = Device Code
- x = 6, 8, 9 or 10
- AKA = Polarity Designator



MAXIMUM RATINGS (Per Diode Leg)

Rating	Symbol	MBR				Unit
		2060CT	2080CT	2090CT	20100CT	
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 $V_R$ ) $T_C = 133^\circ\text{C}$	$I_{F(AV)}$	10				A
Peak Repetitive Forward Current (Rated $V_R$ , Square Wave, 20 kHz) $T_C = 133^\circ\text{C}$	$I_{FRM}$	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 $\mu\text{s}$ , 1.0 kHz)	$I_{RRM}$	0.5				A
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				V/ $\mu\text{s}$

THERMAL CHARACTERISTICS

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

ELECTRICAL CHARACTERISTICS (Per Diode Leg)

Maximum Instantaneous Forward Voltage (Note 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, $T_C = 25^\circ\text{C}$ )	$v_F$	0.75 0.85 0.85 0.95	V
Maximum Instantaneous Reverse Current (Note 1) (Rated dc Voltage, $T_C = 125^\circ\text{C}$ ) (Rated dc Voltage, $T_C = 25^\circ\text{C}$ )	$i_R$	6.0 0.1	mA

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

ORDERING INFORMATION

Device	Package	Shipping†
MBR2060CT	TO-220	50 Units / Rail
MBR2060CTG	TO-220 (Pb-Free)	
MBR2080CT	TO-220	50 Units / Rail
MBR2080CTG	TO-220 (Pb-Free)	
MBR2090CT	TO-220	50 Units / Rail
MBR2090CTG	TO-220 (Pb-Free)	
MBR2100CT	TO-220	50 Units / Rail
MBR2100CTG	TO-220 (Pb-Free)	

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

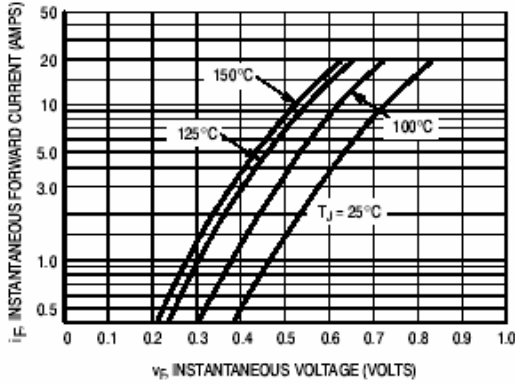


Figure 1. Typical Forward Voltage Per Diode

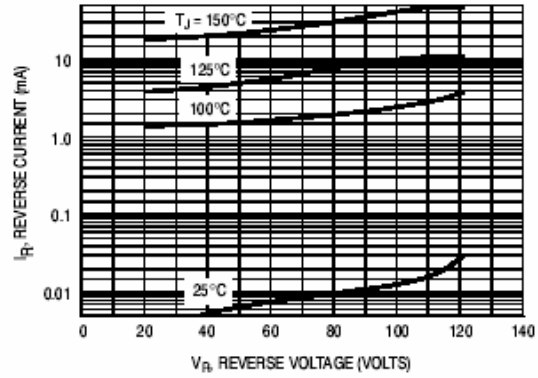


Figure 2. Typical Reverse Current Per Diode

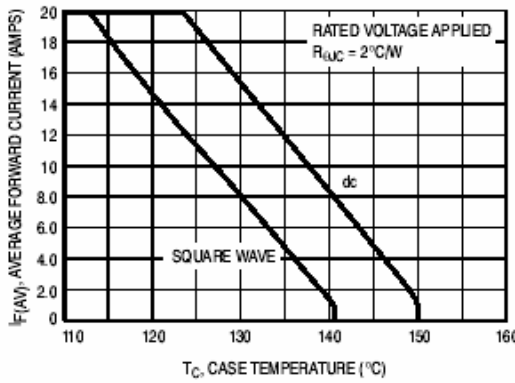


Figure 3. Current Derating, Case

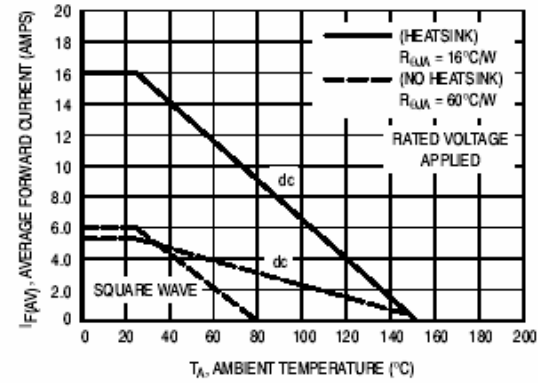


Figure 4. Current Derating, Ambient

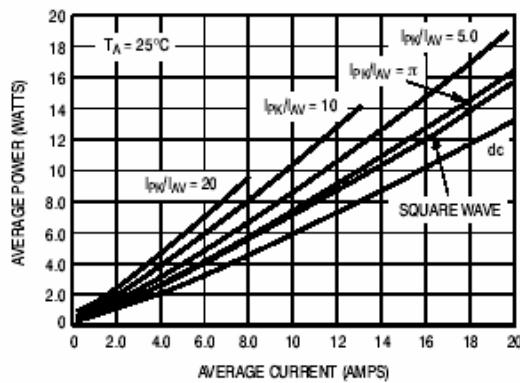
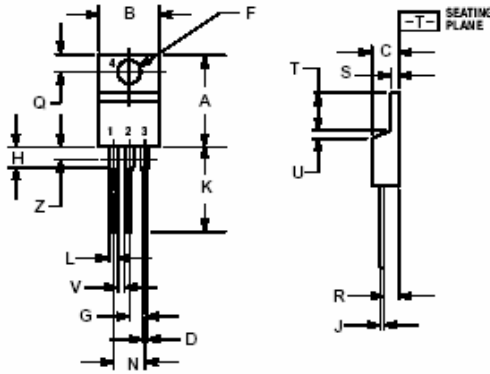


Figure 5. Average Power Dissipation and Average Current



PACKAGE DIMENSIONS

TO-220  
PLASTIC  
CASE 221A-09  
ISSUE AA



- NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
  2. CONTROLLING DIMENSION: INCH.
  3. DIMENSION Z DEFINES A ZONE WHERE ALL BODY AND LEAD IRREGULARITIES ARE ALLOWED.

DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.570	0.620	14.48	15.75
B	0.380	0.405	9.66	10.28
C	0.160	0.190	4.07	4.82
D	0.025	0.035	0.64	0.89
F	0.542	0.547	13.81	13.93
G	0.095	0.105	2.42	2.66
H	0.110	0.155	2.80	3.93
J	0.018	0.025	0.46	0.64
K	0.500	0.582	12.70	14.82
L	0.045	0.060	1.15	1.52
N	0.190	0.240	4.83	6.10
Q	0.100	0.120	2.54	3.05
R	0.080	0.110	2.04	2.79
S	0.045	0.055	1.15	1.39
T	0.235	0.255	5.97	6.47
U	0.000	0.090	0.00	2.27
V	0.045	---	1.15	---
Z	---	0.080	---	2.04