

# MBR20200CTP

## SWITCHMODE™ Power

### Dual Schottky Rectifier

... using Schottky Barrier technology with a platinum barrier metal. This state-of-the-art device is designed for use in high frequency switching power supplies and converters with up to 48 volt outputs. They block up to 200 volts and offer improved Schottky performance at frequencies from 250 kHz to 5.0 MHz.

- **200 Volt Blocking Voltage**
- Low Forward Voltage Drop
- Guardring for Stress Protection and High dv/dt Capability (10,000 V/μs)
- Dual Diode Construction – Terminals 1 and 3 Must be Connected for Parallel Operation at Full Rating

#### 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: B20200P

#### MAXIMUM RATINGS (Per Leg)

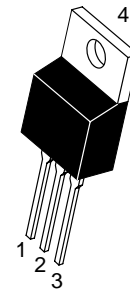
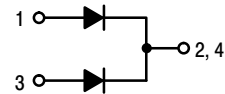
Rating	Symbol	Value	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	$V_{RRM}$ $V_{RWM}$ $V_R$	200	V
Average Rectified Forward Current (Rated $V_R$ , $T_C = 125^\circ\text{C}$ ) Per Leg Per Package	$I_{F(AV)}$	10 20	A
Peak Repetitive Forward Current (Rated $V_R$ , Square Wave, 20 kHz, $T_C = 90^\circ\text{C}$ ) Per Leg	$I_{FRM}$	20	A
Non-Repetitive 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)	$I_{RRM}$	1.0	A
Storage Temperature Range	$T_{stg}$	-65 to +175	°C
Operating Junction Temperature	$T_J$	-65 to +150	°C
Voltage Rate of Change (Rated $V_R$ )	dv/dt	10,000	V/μs



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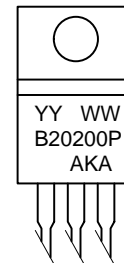
<http://onsemi.com>

### SCHOTTKY BARRIER RECTIFIER 20 AMPERES 200 VOLTS



CASE 221A  
TO-220AB  
PLASTIC

#### MARKING DIAGRAM



YY = Year  
WW = Work Week  
B20200P = Device Code  
AKA = Diode Polarity

#### ORDERING INFORMATION

Device	Package	Shipping
MBR20200CTP	TO-220	50 Units/Rail

# MBR20200CTP

## THERMAL CHARACTERISTICS (Per Leg)

Characteristic	Symbol	Value	Unit
Thermal Resistance, Junction to Case	$R_{\theta JC}$	2.0	$^{\circ}C/W$

## ELECTRICAL CHARACTERISTICS (Per Leg)

Maximum Instantaneous Forward Voltage (Note 1.) ( $i_F = 10$ Amps, $T_C = 25^{\circ}C$ ) ( $i_F = 10$ Amps, $T_C = 125^{\circ}C$ ) ( $i_F = 20$ Amps, $T_C = 25^{\circ}C$ ) ( $i_F = 20$ Amps, $T_C = 125^{\circ}C$ )	$V_F$	0.9 0.8 1.0 0.9	Volts
Maximum Instantaneous Reverse Current (Note 1.) (Rated dc Voltage, $T_C = 25^{\circ}C$ ) (Rated dc Voltage, $T_C = 125^{\circ}C$ )	$i_R$	1.0 50	mA

## DYNAMIC CHARACTERISTICS (Per Leg)

Capacitance ( $V_R = -5.0$ V, $T_C = 25^{\circ}C$ , Frequency = 1.0 MHz)	$C_T$	110	pF
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1. Pulse Test: Pulse Width = 300  $\mu s$ , Duty Cycle  $\leq 2.0\%$

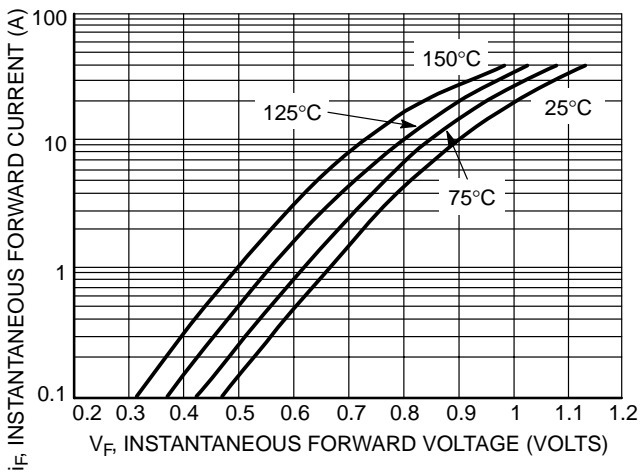


Figure 1. Maximum Forward Voltage

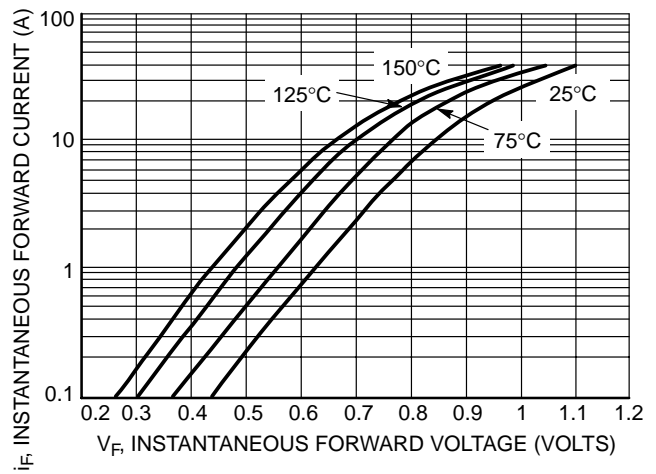


Figure 2. Typical Forward Voltage

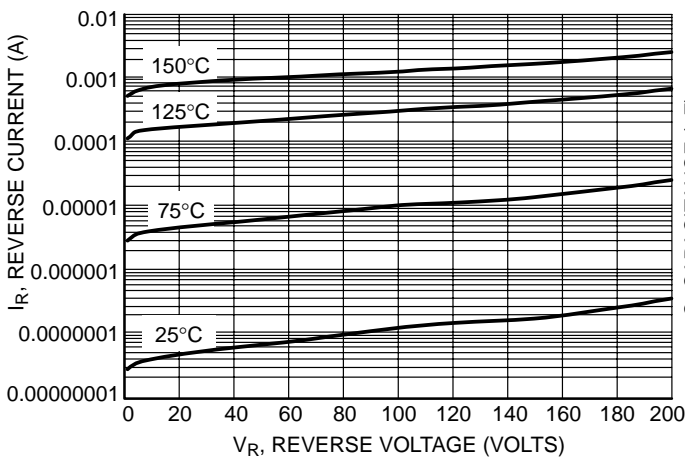


Figure 3. Typical Reverse Current

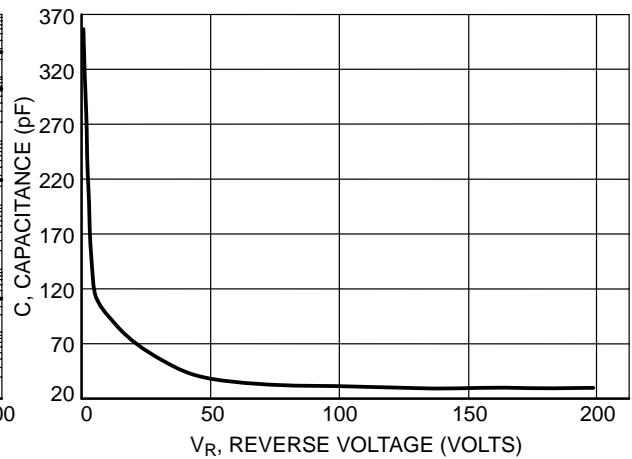


Figure 4. Typical Capacitance

# MBR2020CTP

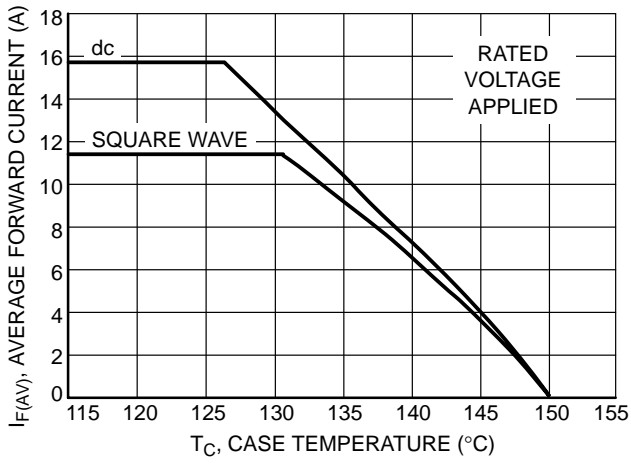


Figure 5. Current Derating, Case, Per Diode

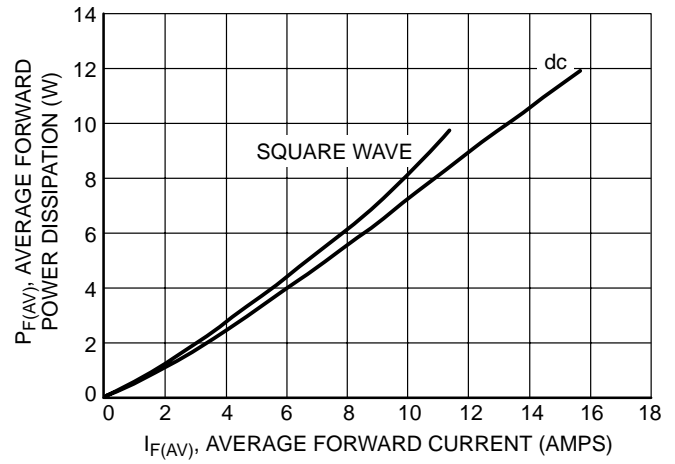
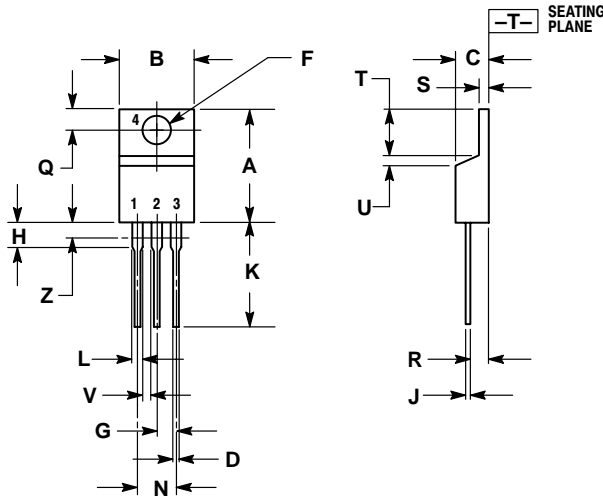


Figure 6. Forward Power Dissipation, Per Diode

# MBR20200CTP

## PACKAGE DIMENSIONS

### TO-220 THREE-LEAD TO-220AB 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	0.88
F	0.142	0.147	3.61	3.73
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	0.562	12.70	14.27
L	0.045	0.060	1.15	1.52
N	0.190	0.210	4.83	5.33
Q	0.100	0.120	2.54	3.04
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	0.050	0.00	1.27
V	0.045	---	1.15	---
Z	---	0.080	---	2.04

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