

# MBR16100CT

## SWITCHMODE™ Power Rectifier

These state-of-the-art devices use the Schottky Barrier principle with a platinum barrier metal.

### Features

- 16 Amps Total (8.0 Amps Per Diode Leg)
- 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

### MAXIMUM RATINGS (Per Diode Leg)

Rating	Symbol	Value	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	$V_{RRM}$ $V_{RWM}$ $V_R$	100	V
Average Rectified Forward Current (Rated $V_R$ ) $T_C = 133^\circ\text{C}$	$I_{F(AV)}$	8.0	A
Peak Repetitive Forward Current (Rated $V_R$ , Square Wave, 20 kHz) $T_C = 133^\circ\text{C}$	$I_{FRM}$	16	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 (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/ $\mu\text{s}$

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:  $dP_D/dT_J < 1/R_{\theta JA}$ .

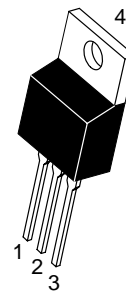
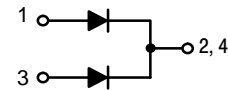
\*For additional information on our Pb-Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.



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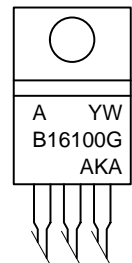
<http://onsemi.com>

## SCHOTTKY BARRIER RECTIFIER 16 AMPERES, 100 VOLTS



TO-220AB  
CASE 221A  
PLASTIC

### MARKING DIAGRAM



A = Assembly Location  
Y = Year  
W = Work Week  
B16100 = Device Code  
G = Pb-Free Package  
AKA = Diode Polarity

### ORDERING INFORMATION

Device	Package	Shipping
MBR16100CT	TO-220	50 Units/Rail
MBR16100CTG	TO-220 (Pb-Free)	50 Units/Rail

# MBR16100CT

## THERMAL CHARACTERISTICS

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

## ELECTRICAL CHARACTERISTICS (Per Diode Leg)

Maximum Instantaneous Forward Voltage (Note 2) ( $i_F = 8.0$ Amps, $T_C = 125^{\circ}C$ ) ( $i_F = 8.0$ Amps, $T_C = 25^{\circ}C$ ) ( $i_F = 16$ Amps, $T_C = 125^{\circ}C$ ) ( $i_F = 16$ Amps, $T_C = 25^{\circ}C$ )	$V_F$	0.6 0.74 0.69 0.84	V
Maximum Instantaneous Reverse Current (Note 2) (Rated dc Voltage, $T_C = 125^{\circ}C$ ) (Rated dc Voltage, $T_C = 25^{\circ}C$ )	$i_R$	5.0 0.1	mA

2. Pulse Test: Pulse Width = 300  $\mu s$ , Duty Cycle  $\leq 2\%$ .

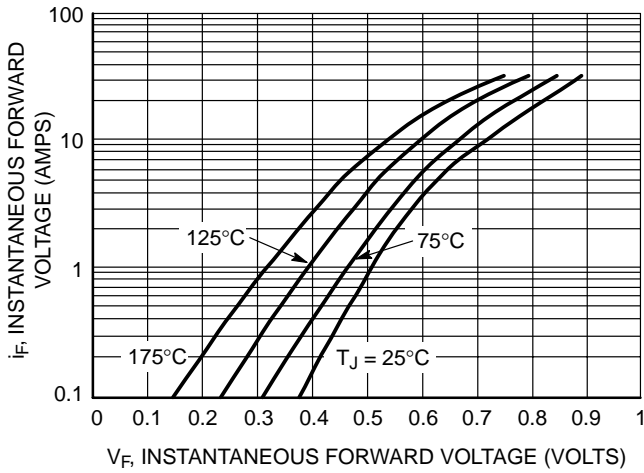


Figure 1. Typical Forward Voltage Per Diode

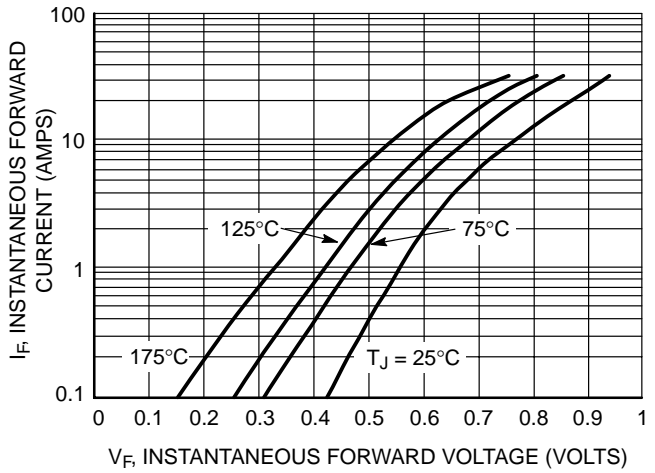


Figure 2. Maximum Forward Voltage Per Diode

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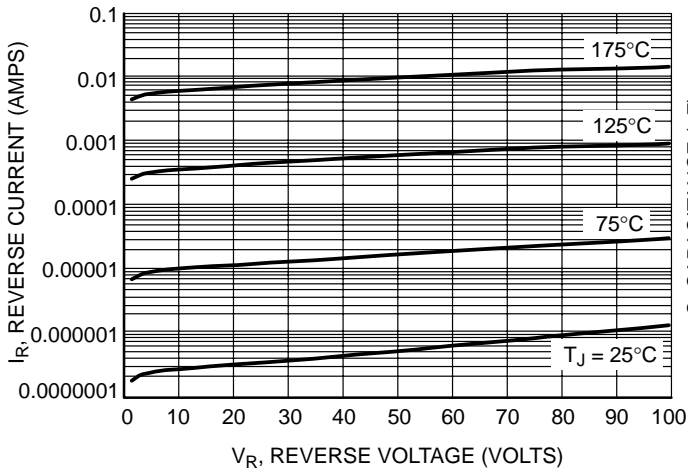


Figure 3. Typical Reverse Current Per Diode

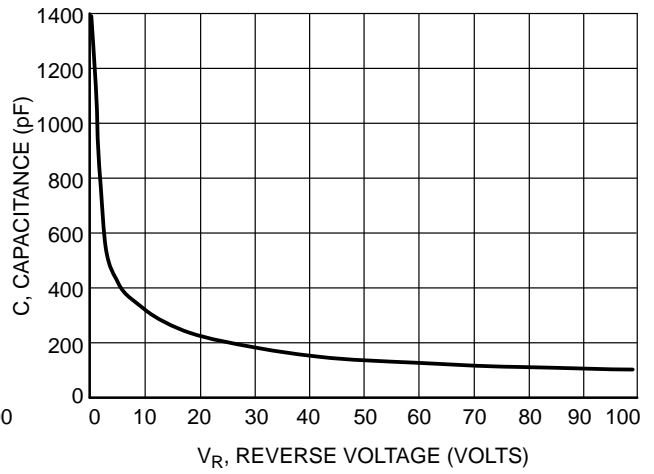


Figure 4. Typical Capacitance Per Diode

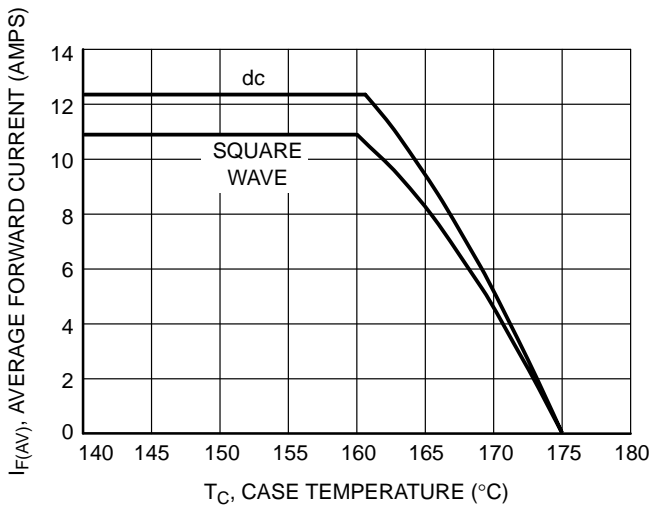


Figure 5. Current Derating (Per Diode), Case

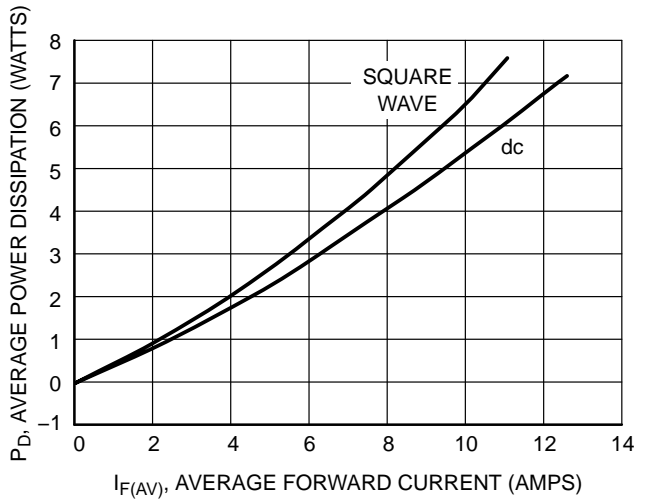
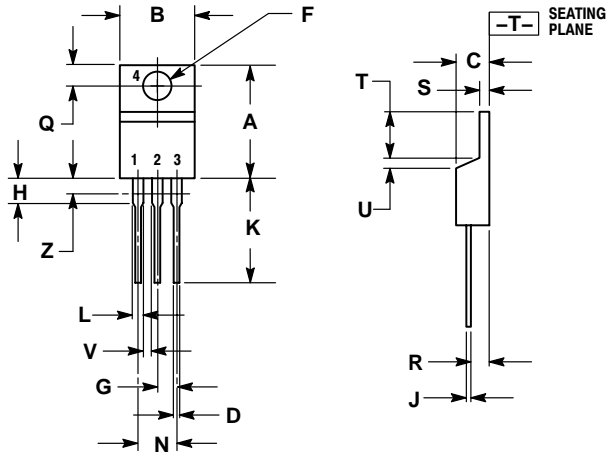


Figure 6. Average Power Dissipation

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## PACKAGE DIMENSIONS

TO-220  
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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