

# SWITCHMODE™ Power Rectifiers

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

### Features

- 20 A Total (10 A 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:

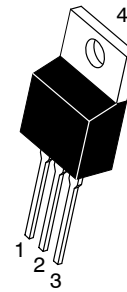
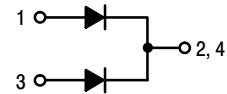
- Case: Epoxy, Molded
- Weight: 1.9 grams (approximately)
- Finish: All External Surfaces Corrosion Resistant and Terminal Leads are Readily Solderable
- Lead Temperature for Soldering Purposes:  
260°C Max. for 10 Seconds

**LMBR2040CTG, LMBR2045CTG  
LMBR2060CTG, LMBR2080CTG  
LMBR2090CTG, LMBR20100CTG  
LMBR20150CTG**

---

**SCHOTTKY BARRIER  
RECTIFIERS  
20 AMPERES  
40-150 VOLTS**

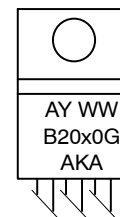
---



**TO-220AB  
CASE 221A  
PLASTIC**

---

### MARKING DIAGRAM



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

## LMBR2040CTG, LMBR2045CTG, LMBR2060CTG, LMBR2080CTG LMBR2090CTG, LMBR20100CTG, LMBR20150CTG

### MAXIMUM RATINGS (Per Diode Leg)

Rating	Symbol	LMBR							Unit
		2040 CTG	2045 CTG	2060 CTG	2080 CTG	2090 CTG	20100 CTG	20150 CTG	
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	$V_{RRM}$ $V_{RWM}$ $V_R$	40	45	60	80	90	100	150	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 (Note 1)	$T_J$	- 55 to +150							$^\circ\text{C}$
Storage Temperature	$T_{stg}$	- 55 to +150							$^\circ\text{C}$
Voltage Rate of Change (Rated $V_R$ )	$dv/dt$	10,000							V/ $\mu\text{s}$

### THERMAL CHARACTERISTICS

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

### ELECTRICAL CHARACTERISTICS (Per Diode Leg)

Maximum Instantaneous Forward Voltage (Note 2) ( $i_F = 10$ Amps, $T_C = 25^\circ\text{C}$ )	$V_F$	0.55	0.75	0.85	0.95	V
Maximum Instantaneous Reverse Current (Note 2) (Rated dc Voltage, $T_C = 125^\circ\text{C}$ ) (Rated dc Voltage, $T_C = 25^\circ\text{C}$ ) (Rated dc Voltage, $T = 125^\circ\text{C}$ – MBR2060CT only)	$i_R$	50.0 1.0 20.0	40.0 0.5	mA		

- The heat generated must be less than the thermal conductivity from Junction-to-Ambient:  $dP_D/dT_J < 1/R_{\theta JA}$ .
- Pulse Test: Pulse Width = 300  $\mu\text{s}$ , Duty Cycle  $\leq 2.0\%$ .

### ORDERING INFORMATION

Device	Package	Shipping†
LMBR2040CTG, LMBR2045CTG LMBR2060CTG, LMBR2080CTG LMBR2090CTG, LMBR20100CTG LMBR20150CTG	TO-220	50 Units/Rail

**LMBR2040CTG, LMBR2045CTG, LMBR2060CTG, LMBR2080CTG**  
**LMBR2090CTG, LMBR20100CTG, LMBR20150CTG**

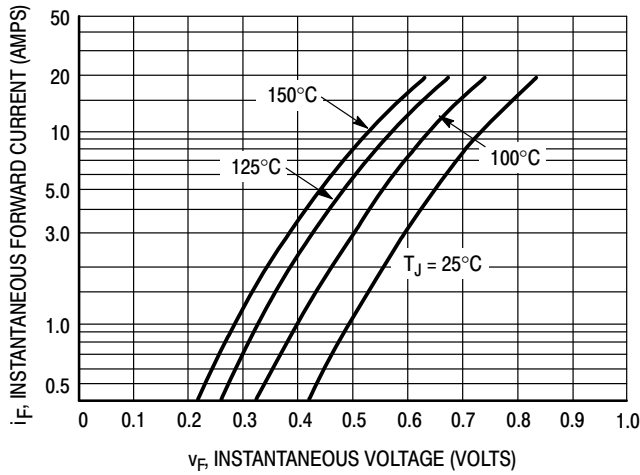


Figure 1. Typical Forward Voltage Per Diode

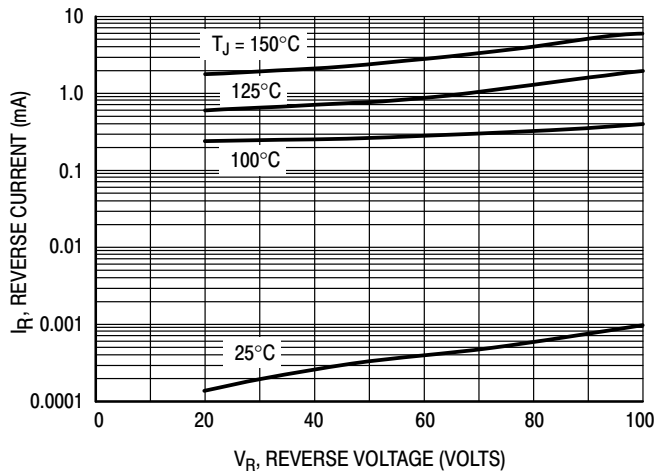


Figure 2. Typical Reverse Current Per Diode

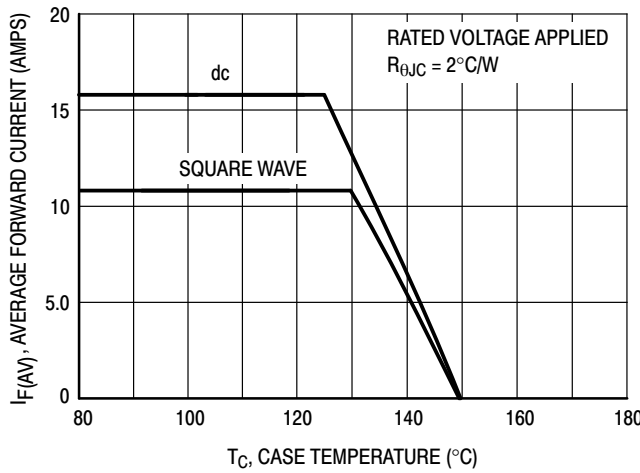


Figure 3. Typical Current Derating, Case, Per Leg

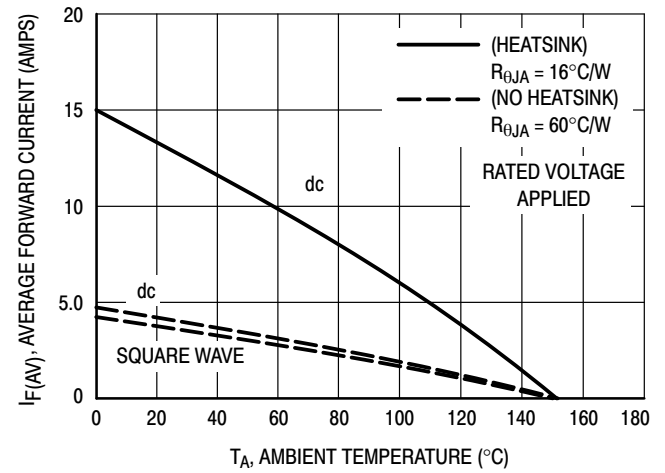


Figure 4. Typical Current Derating, Ambient, Per Leg

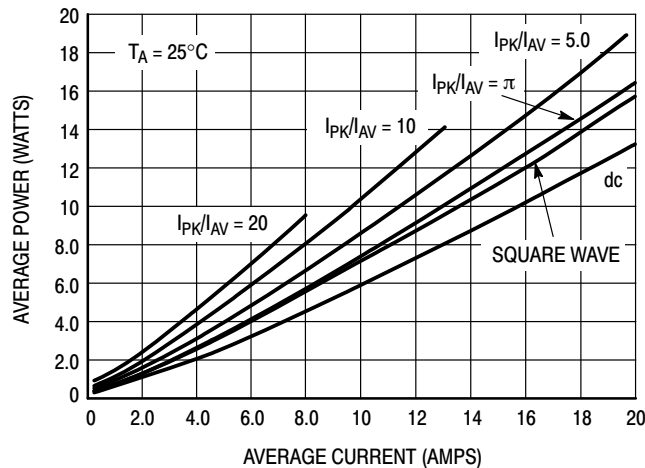
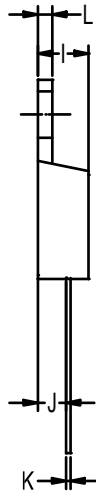
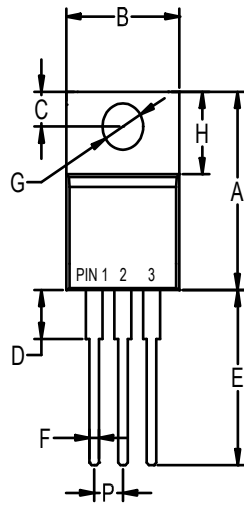


Figure 5. Average Power Dissipation and Average Current

**PACKAGE DIMENSIONS**

**TO-220**  
CASE 221A-09  
ISSUE AF



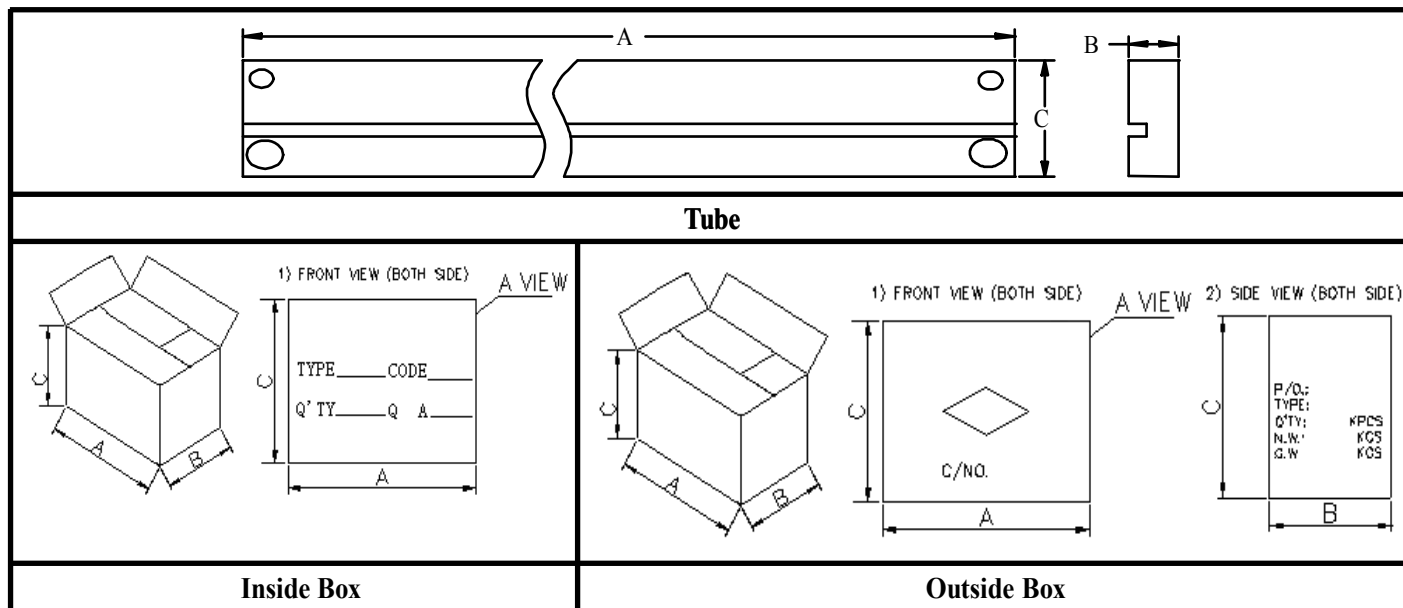
- NOTES:  
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.  
2. CONTROLLING DIMENSION: INCH.  
3. DIMENSION Z DEFINES A ZONE WHERE ALL BODY AND LEAD IRREGULARITIES ARE ALLOWED.

Dim	Min	Max
A	14.9	15.8
B	—	10.5
C	2.62	2.87
D	3.56	4.06
E	13.0	14.3
F	0.68	0.94
G	3.74	3.91
H	5.84	6.86
I	4.44	4.86
J	2.54	2.79
K	0.35	0.64
L	1.14	1.40
P	2.41	2.67

- STYLE 6:  
PIN 1. ANODE  
2. CATHODE  
3. ANODE  
4. CATHODE

## Marking and packaging illustration

### 1、Packaging



类别	A (mm)	B (mm)	C (mm)
ITO-220 Tube (50EA per tube )	510±5	7±0.8	33±1
ITO-220 Inside Box (1K per box)	542±5	82±2	78±1
ITO-220 outside Box (10K per box)	555±5	165±5	385±5