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Stocking Distributor

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[ON Semiconductor](#)  
[MBR60L45CTG](#)

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## **MBR60L45CTG, MBR60L45WTG**

### **Switch-mode Power Rectifier 45 V, 60 A**

#### **Features and Benefits**

- Low Forward Voltage
- Low Power Loss/High Efficiency
- High Surge Capacity
- 175°C Operating Junction Temperature
- 60 A Total (30 A Per Diode Leg)
- Guard-Ring for Stress Protection
- These Devices are Pb-Free, Halogen Free/BFR Free and are RoHS Compliant

#### **Applications**

- Power Supply – Output Rectification
- Power Management
- Instrumentation

#### **Mechanical Characteristics:**

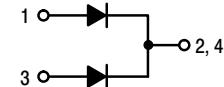
- Case: Epoxy, Molded
- Epoxy Meets UL 94 V-0 @ 0.125 in
- Weight (Approximately): 1.9 Grams (TO-220)  
4.3 Grams (TO-247)
- Finish: All External Surfaces Corrosion Resistant and Terminal Leads are Readily Solderable
- Lead Temperature for Soldering Purposes:  
260°C Max. for 10 Seconds
- Shipped 50 Units Per Plastic Tube for TO-220  
and 30 Units Per Plastic Tube for TO-247



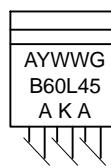
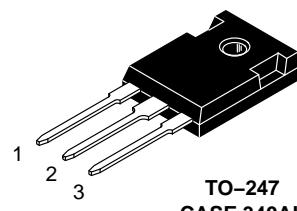
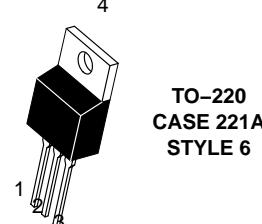
**ON Semiconductor®**

[www.onsemi.com](http://www.onsemi.com)

### **SCHOTTKY BARRIER RECTIFIERS 60 AMPERES, 45 VOLTS**



#### **MARKING DIAGRAMS**



B60L45 = Device Code  
 A = Assembly Location  
 Y = Year  
 WW = Work Week  
 AKA = Polarity Designator  
 G = Pb-Free Device

#### **ORDERING INFORMATION**

Device	Package	Shipping
MBR60L45CTG	TO-220 (Pb-Free)	50 Units/Rail
MBR60L45WTG	TO-247 (Pb-Free)	30 Units/Rail

## MBR60L45CTG, MBR60L45WTG

### MAXIMUM RATINGS (Per Diode Leg)

Rating	Symbol	Value	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	$V_{RRM}$ $V_{RWM}$ $V_R$	45	V
Average Rectified Forward Current (Rated $V_R$ ) $T_C = 145^\circ\text{C}$ for MBR60L45CTG (Rated $V_R$ ) $T_C = 165^\circ\text{C}$ for MBR60L45WTG	$I_{F(AV)}$	30	A
Peak Repetitive Forward Current (Rated $V_R$ , Square Wave, 20 kHz)	$I_{FRM}$	60	A
Nonrepetitive Peak Surge Current (Surge applied at rated load conditions halfwave, single phase, 60 Hz)	$I_{FSM}$	200	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/μs
ESD Ratings: Machine Model = C Human Body Model = 3B		> 400 > 8000	V

Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

1. The heat generated must be less than the thermal conductivity from Junction-to-Ambient:  $dP_D/dT_J < 1/R_{\theta JA}$ .

### THERMAL CHARACTERISTICS

Characteristic	Symbol	Value	Unit
Maximum Thermal Resistance (MBR60L45CTG) (MBR60L45WTG)	$R_{\theta JC}$	1.9	°C/W
	$R_{\theta JC}$	0.59	

### ELECTRICAL CHARACTERISTICS (Per Diode Leg)

Characteristic	Symbol	Value	Unit
Maximum Instantaneous Forward Voltage (Note 2) ( $I_F = 30 \text{ A}$ , $T_C = 25^\circ\text{C}$ ) ( $I_F = 30 \text{ A}$ , $T_C = 125^\circ\text{C}$ ) ( $I_F = 60 \text{ A}$ , $T_C = 25^\circ\text{C}$ ) ( $I_F = 60 \text{ A}$ , $T_C = 125^\circ\text{C}$ )	$V_F$	0.55 0.53 0.73 0.76	V
Maximum Instantaneous Reverse Current (Note 2) (Rated DC Voltage, $T_C = 25^\circ\text{C}$ ) (Rated DC Voltage, $T_C = 125^\circ\text{C}$ )	$i_R$	1.2 275	mA

Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

2. Pulse Test: Pulse Width = 300 μs, Duty Cycle ≤ 2.0%.

## MBR60L45CTG, MBR60L45WTG

### TYPICAL CHARACTERISTICS

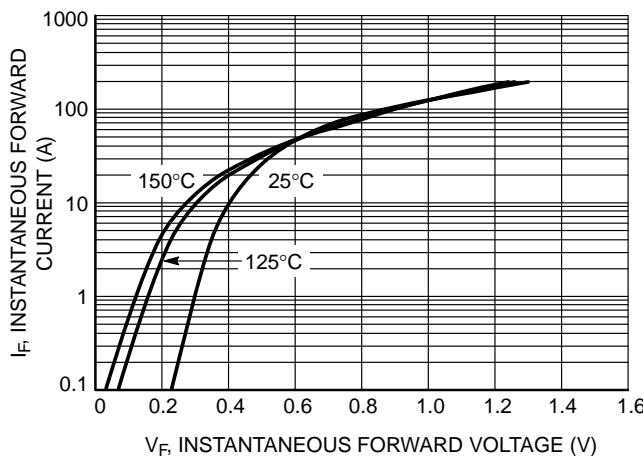


Figure 1. Typical Forward Voltage

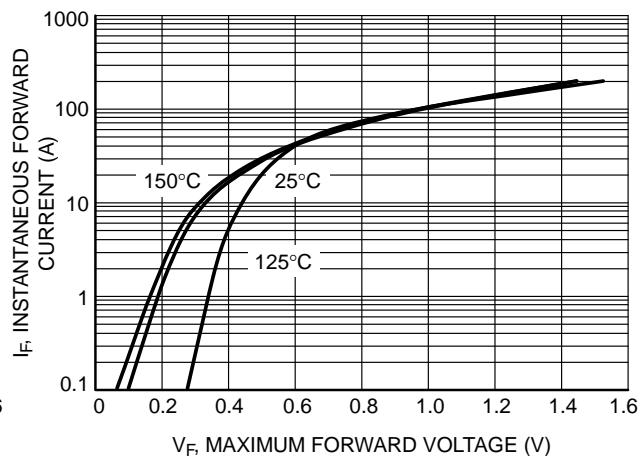


Figure 2. Maximum Forward Voltage

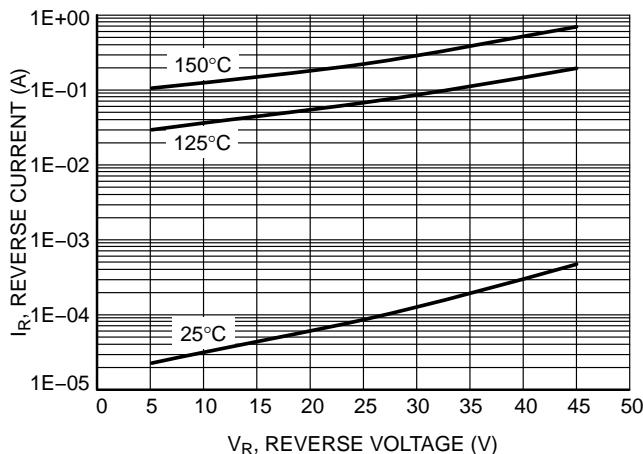


Figure 3. Typical Reverse Current

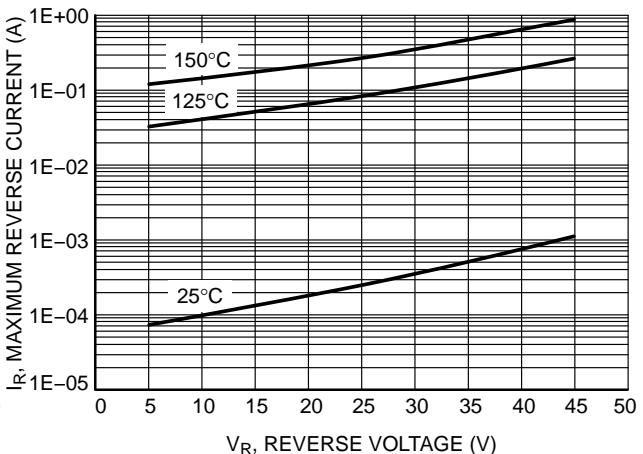


Figure 4. Maximum Reverse Current

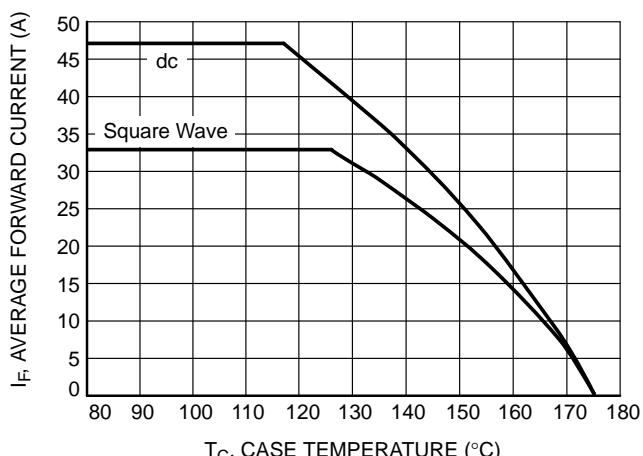


Figure 5. Current Derating for MBR60L45CTG

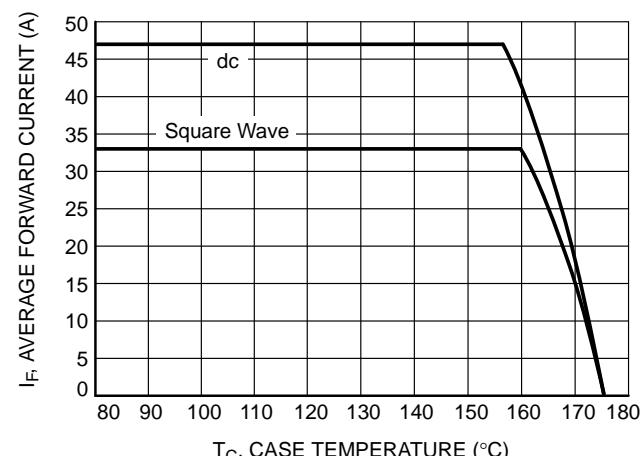


Figure 6. Current Derating for MBR60L45WTG

## MBR60L45CTG, MBR60L45WTG

### TYPICAL CHARACTERISTICS

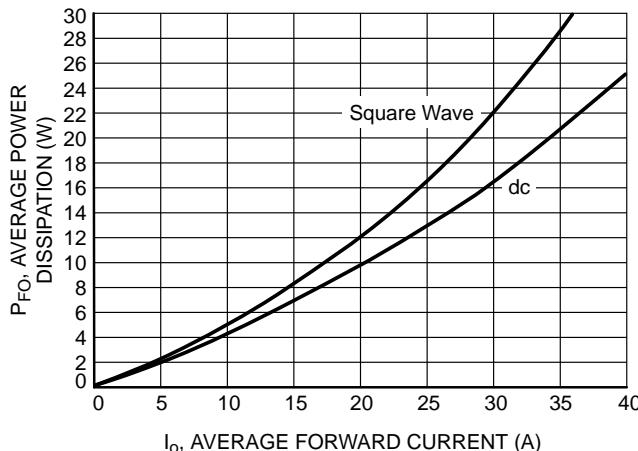


Figure 7. Forward Power Dissipation

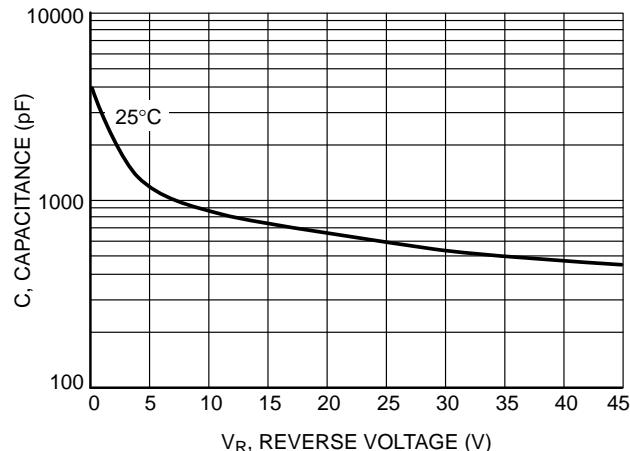


Figure 8. Capacitance

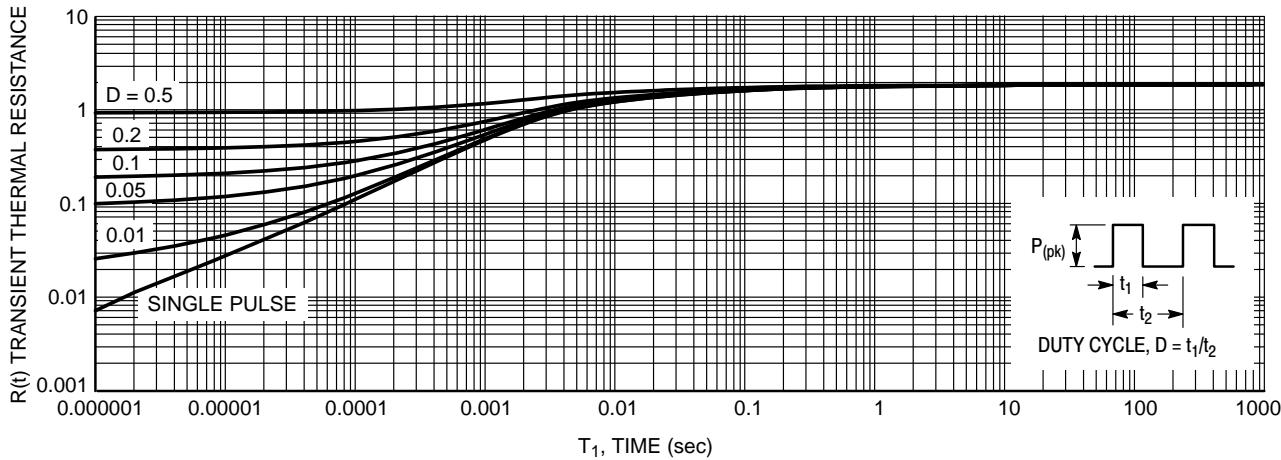


Figure 9. Thermal Response  
Junction-to-Case for MBR60L45CTG

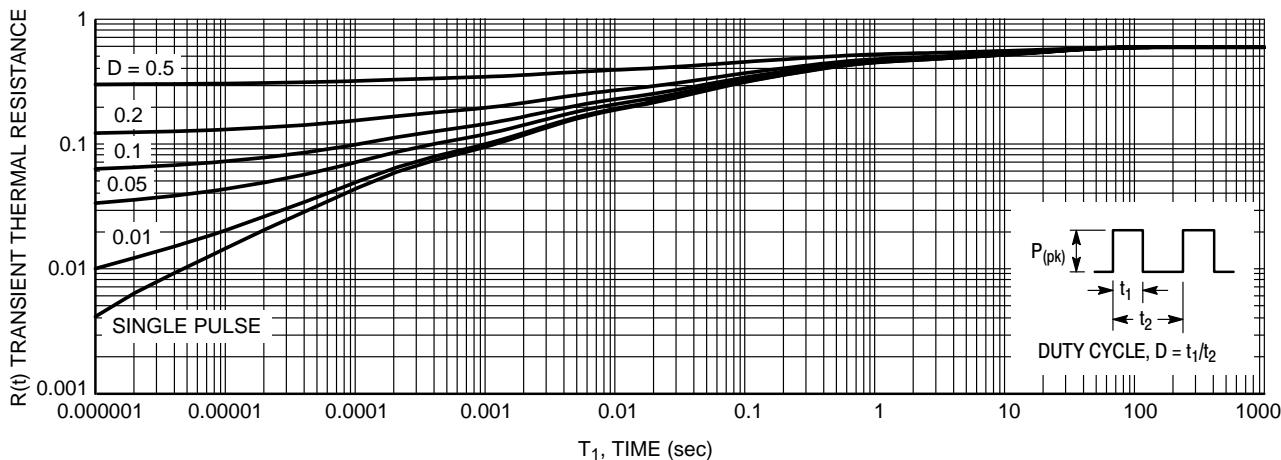
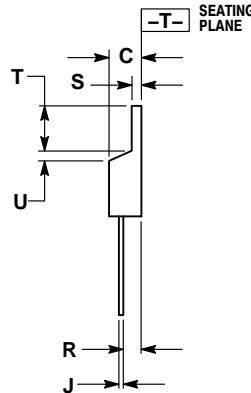
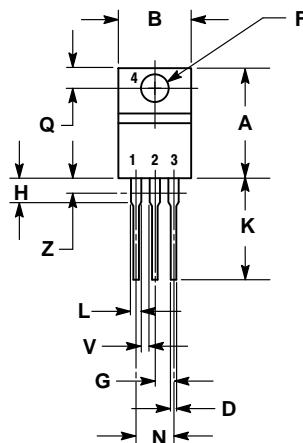


Figure 10. Thermal Response  
Junction-to-Case for MBR60L45WTG

## MBR60L45CTG, MBR60L45WTG

### PACKAGE DIMENSIONS

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



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	0.415	9.66	10.53
C	0.160	0.190	4.07	4.83
D	0.025	0.038	0.64	0.96
F	0.142	0.161	3.61	4.09
G	0.095	0.105	2.42	2.66
H	0.110	0.161	2.80	4.10
J	0.014	0.024	0.36	0.61
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

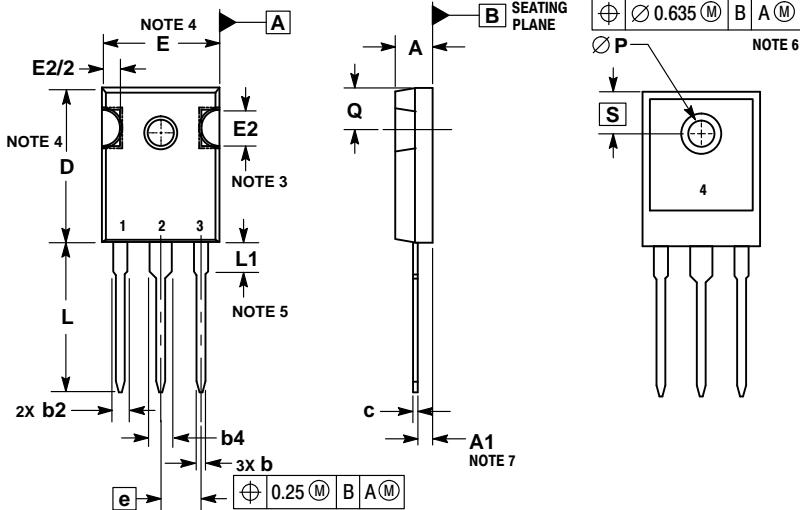
STYLE 6:

1. ANODE
2. CATHODE
3. ANODE
4. CATHODE

## **MBR60L45CTG, MBR60L45WTG**

## PACKAGE DIMENSIONS

**TO-247**  
**CASE 340AL**  
**ISSUE A**



## NOTES

1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 1994.
2. CONTROLLING DIMENSION: MILLIMETERS.
3. SLOT REQUIRED, NOTCH MAY BE ROUNDED.
4. DIMENSIONS D AND E DO NOT INCLUDE MOLD FLASH.  
MOLD FLASH SHALL NOT EXCEED 0.13 PER SIDE. THESE  
DIMENSIONS ARE MEASURED AT THE OUTERMOST  
EXTREME OF THE PLASTIC BODY.
5. LEAD FINISH IS UNCONTROLLED IN THE REGION DEFINED BY  
L1.
6. ØP SHALL HAVE A MAXIMUM DRAFT ANGLE OF 1.5° TO THE  
TOP OF THE PART WITH A MAXIMUM DIAMETER OF 3.91.
7. DIMENSION A1 TO BE MEASURED IN THE REGION DEFINED  
BY L1.

DIM	MILLIMETERS	
	MIN	MAX
A	4.70	5.30
A1	2.20	2.60
b	1.00	1.40
b2	1.65	2.35
b4	2.60	3.40
c	0.40	0.80
D	20.30	21.40
E	15.50	16.25
E2	4.32	5.49
e	5.45	BSC
L	19.80	20.80
L1	3.50	4.50
P	3.55	3.65
Q	5.40	6.20
S	6.15	BSC

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**MBR60L45CT/D**