

# MBR1535CTG, MBR1545CTG

## Switch-mode Power Rectifier

### Features and Benefits

- Center-Tap Configuration
- Low Forward Voltage
- Low Power Loss / High Efficiency
- High Surge Capacity
- 175°C Operating Junction Temperature
- 15 A Total (7.5 A Per Diode Leg)
- These Devices are Pb-Free and are RoHS Compliant\*

### Applications

- Power Supply – Output Rectification
- Power Management
- Instrumentation

### Mechanical Characteristics

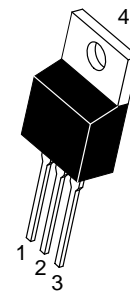
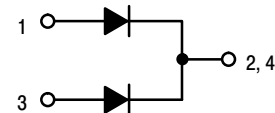
- Case: Epoxy, Molded
- Epoxy Meets UL 94, V-0 @ 0.125 in
- Weight: 1.9 Grams (Approximately)
- Finish: All External Surfaces Corrosion Resistant and Terminal Leads are Readily Solderable
- Lead Temperature for Soldering Purposes: 260°C Max. for 10 Seconds
- ESD Rating: Human Body Model = 3B  
Machine Model = C



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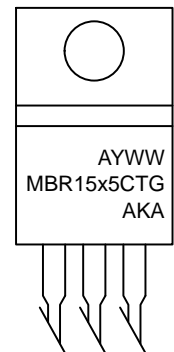
[www.onsemi.com](http://www.onsemi.com)

## SCHOTTKY BARRIER RECTIFIERS 15 AMPERES 35 and 45 VOLTS



TO-220  
CASE 221A  
STYLE 6

### MARKING DIAGRAM



A = Assembly Location  
Y = Year  
WW = Work Week  
x = 3 or 4  
G = Pb-Free Package  
AKA = Diode Polarity

### ORDERING INFORMATION

See detailed ordering and shipping information in the package dimensions section on page 2 of this data sheet.

\*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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## MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage MBR1535CT MBR1545CT	$V_{RRM}$ $V_{RWM}$ $V_R$	35 45	V
Average Rectified Forward Current ( $T_C = 163^\circ\text{C}$ ) Per Diode Per Device	$I_{F(AV)}$	7.5 15	A
Peak Repetitive Forward Current (Square Wave, 20 kHz, $T_C = 161^\circ\text{C}$ ) Per Diode	$I_{FRM}$	15	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 $\mu\text{s}$ , 1.0 kHz)	$I_{RRM}$	1.0	A
Storage Temperature Range	$T_{stg}$	-65 to +175	$^\circ\text{C}$
Operating Junction Temperature (Note 1)	$T_J$	-65 to +175	$^\circ\text{C}$
Voltage Rate of Change (Rated $V_R$ )	dv/dt	1000	V/ $\mu\text{s}$

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 PER DIODE

Characteristic	Symbol	Value	Unit
Maximum Thermal Resistance, Junction-to-Case (Min. Pad)	$R_{\theta JC}$	3.0	$^\circ\text{C/W}$
Maximum Thermal Resistance, Junction-to-Ambient (Min. Pad)	$R_{\theta JA}$	60	$^\circ\text{C/W}$

## ELECTRICAL CHARACTERISTICS PER DIODE

Characteristic	Symbol	Min	Typ	Max	Unit
Maximum Instantaneous Forward Voltage (Note 2) ( $i_F = 7.5$ Amps, $T_J = 125^\circ\text{C}$ ) ( $i_F = 15$ Amps, $T_J = 125^\circ\text{C}$ ) ( $i_F = 15$ Amps, $T_J = 25^\circ\text{C}$ )	$V_F$	- - -	0.47 0.63 0.66	0.57 0.72 0.84	V
Maximum Instantaneous Reverse Current (Note 2) (Rated DC Voltage, $T_J = 125^\circ\text{C}$ ) (Rated DC Voltage, $T_J = 25^\circ\text{C}$ )	$i_R$	- -	10 0.025	15 0.1	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  $\mu\text{s}$ , Duty Cycle  $\leq 2.0\%$

## ORDERING INFORMATION

Device	Package	Shipping
MBR1535CTG	TO-220 (Pb-Free)	50 Units / Rail
MBR1545CTG	TO-220 (Pb-Free)	50 Units / Rail

# MBR1535CTG, MBR1545CTG

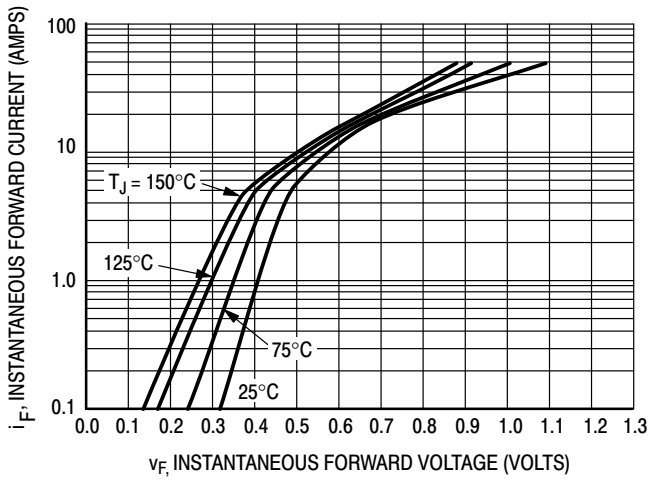


Figure 1. Typical Forward Voltage

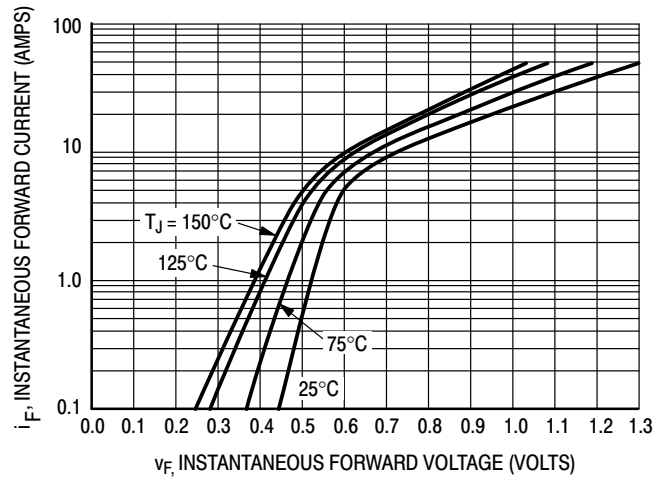


Figure 2. Maximum Forward Voltage

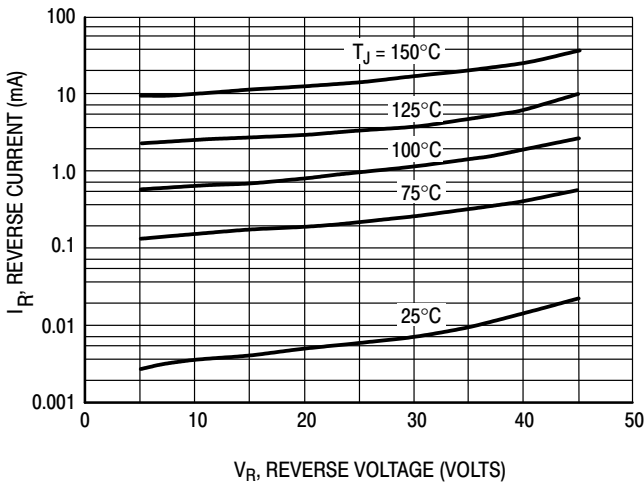


Figure 3. Typical Reverse Current

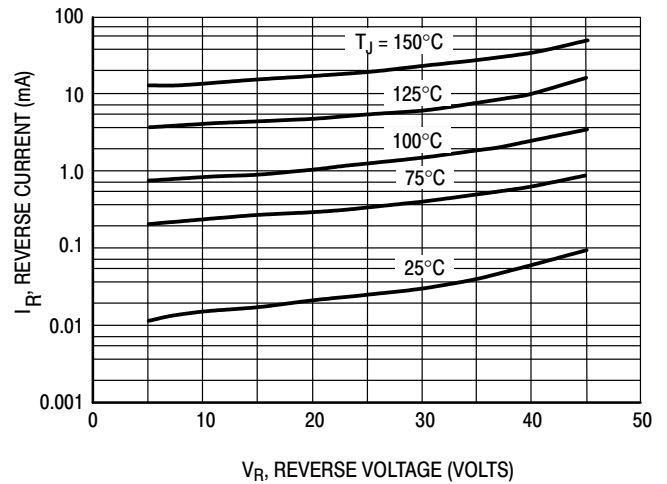


Figure 4. Maximum Reverse Current

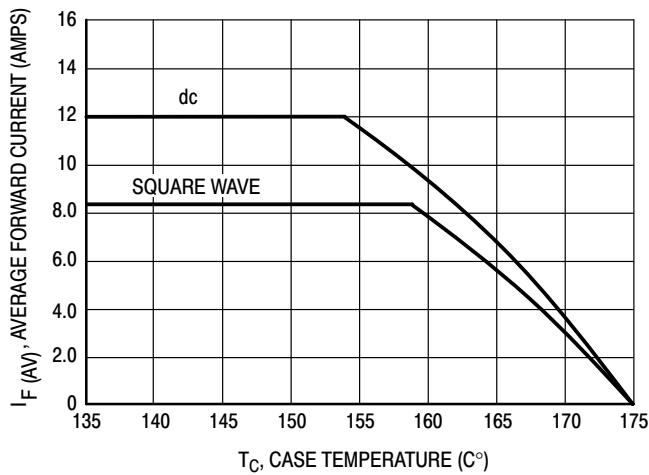


Figure 5. Current Derating, Case Per Leg

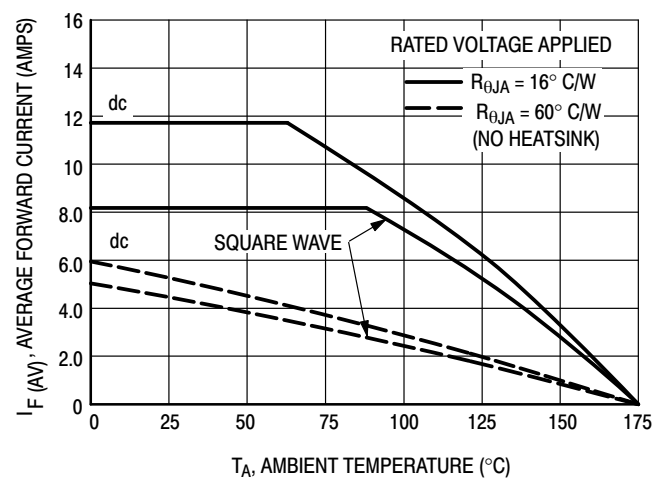


Figure 6. Current Derating, Ambient Per Leg

# MBR1535CTG, MBR1545CTG

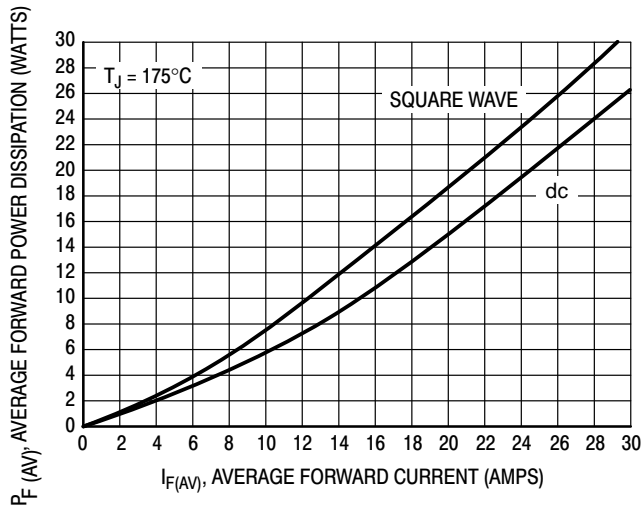


Figure 7. Forward Power Dissipation

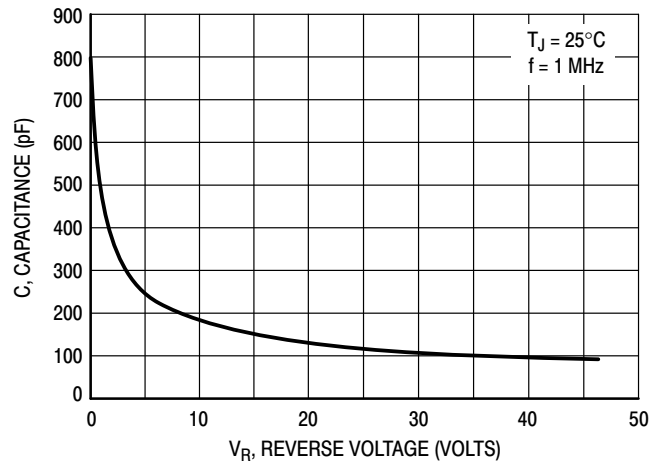
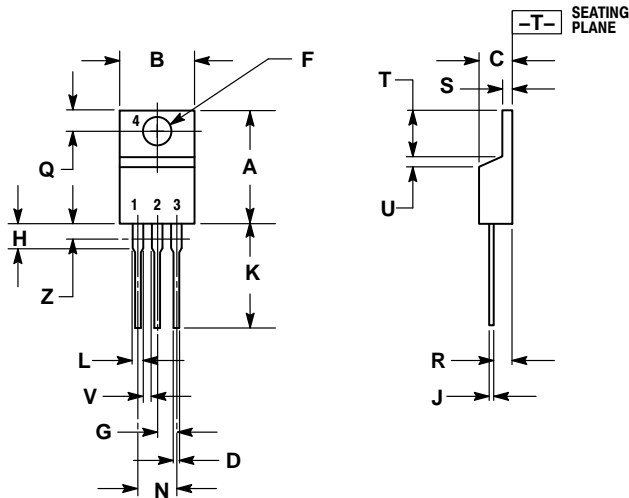


Figure 8. Typical Capacitance

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## 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:

- PIN 1. ANODE
- CATHODE
- ANODE
- CATHODE

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