

# Switch-mode Power Rectifier

## MBR1535CTG, MBR1545CTG

### 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\*

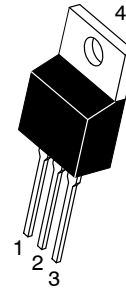
### Applications

- Power Supply – Output Rectification
- Power Management
- Instrumentation

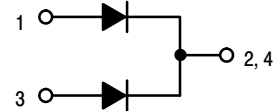
### Mechanical Characteristics

- 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

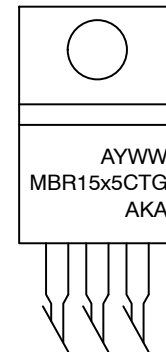
## SCHOTTKY BARRIER RECTIFIERS 15 AMPERES 35 and 45 VOLTS



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 4 of this data sheet.

NOTE: Some of the devices on this data sheet have been **DISCONTINUED**. Please refer to the table on page 4.

\*For additional information on our Pb-Free strategy and soldering details, please download the **onsemi** Soldering and Mounting Techniques Reference Manual, [SOLDERRM/D](http://www.onsemi.com/SOLDERRM/D).

# MBR1535CTG, MBR1545CTG

## MAXIMUM RATINGS

Symbol	Rating	Value	Unit
V <sub>RRM</sub> V <sub>RWM</sub> V <sub>R</sub>	Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage MBR1535CT MBR1545CT	35 45	V
I <sub>F(AV)</sub>	Average Rectified Forward Current (T <sub>C</sub> = 163°C) Per Diode Per Device	7.5 15	A
I <sub>FRM</sub>	Peak Repetitive Forward Current (Square Wave, 20 kHz, T <sub>C</sub> = 161°C) Per Diode	15	A
I <sub>FSM</sub>	Non-Repetitive Peak Surge Current (Surge Applied at Rated Load Conditions Halfwave, Single Phase, 60 Hz)	150	A
I <sub>R</sub>	Peak Repetitive Reverse Surge Current (2.0 μs, 1.0 kHz)	1.0	A
T <sub>stg</sub>	Storage Temperature Range	-65 to +175	°C
T <sub>J</sub>	Operating Junction Temperature (Note 1)	-65 to +175	°C
dv/dt	Voltage Rate of Change (Rated V <sub>R</sub> )	1000	V/μs

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

Symbol	Characteristic	Value	Unit
R <sub>θJC</sub>	Maximum Thermal Resistance, Junction-to-Case (Min. Pad)	3.0	°C/W
R <sub>θJA</sub>	Maximum Thermal Resistance, Junction-to-Ambient (Min. Pad)	60	°C/W

## ELECTRICAL CHARACTERISTICS PER DIODE

Symbol	Characteristic	Min	Typ	Max	Unit
v <sub>F</sub>	Maximum Instantaneous Forward Voltage (Note 2) (i <sub>F</sub> = 7.5 Amps, T <sub>J</sub> = 125°C) (i <sub>F</sub> = 15 Amps, T <sub>J</sub> = 125°C) (i <sub>F</sub> = 15 Amps, T <sub>J</sub> = 25°C)	- - -	0.47 0.63 0.66	0.57 0.72 0.84	V
i <sub>R</sub>	Maximum Instantaneous Reverse Current (Note 2) (Rated DC Voltage, T <sub>J</sub> = 125°C) (Rated DC Voltage, T <sub>J</sub> = 25°C)	- -	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 μs, Duty Cycle ≤ 2.0%.

# MBR1535CTG, MBR1545CTG

## TYPICAL CHARACTERISTICS

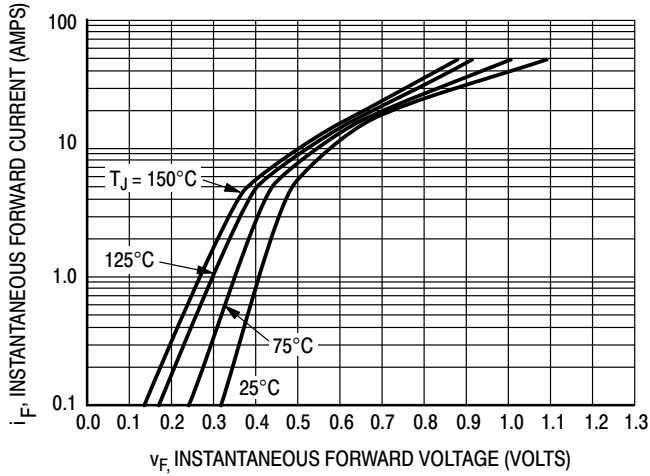


Figure 1. Typical Forward Voltage

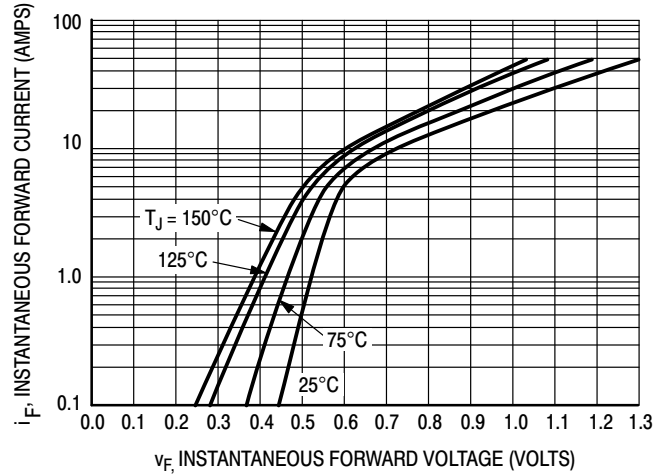


Figure 2. Maximum Forward Voltage

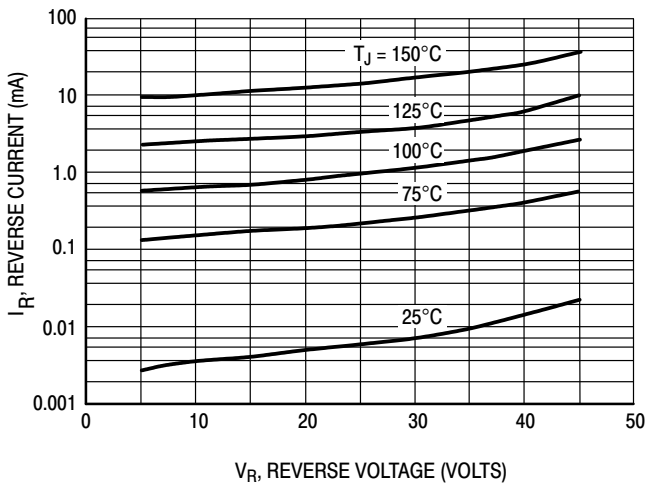


Figure 3. Typical Reverse Current

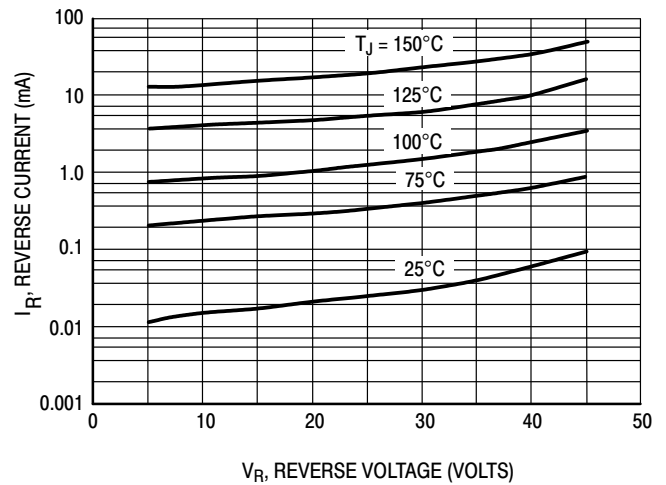


Figure 4. Maximum Reverse Current

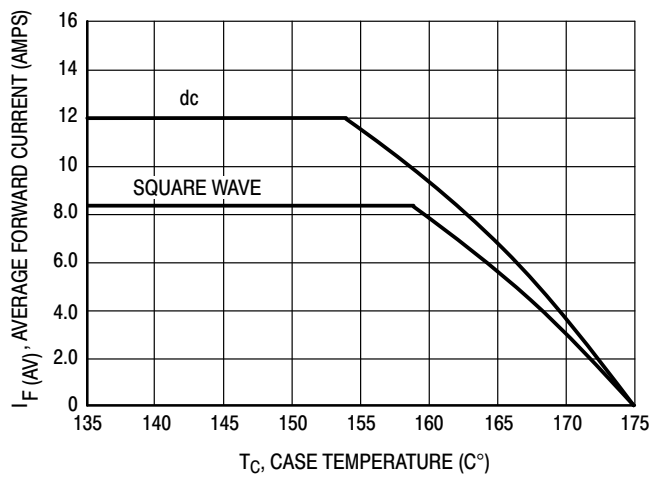


Figure 5. Current Derating, Case Per Leg

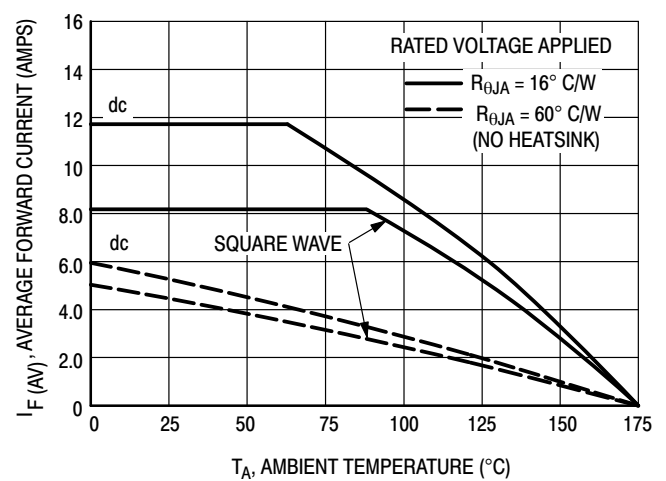


Figure 6. Current Derating, Ambient Per Leg

# MBR1535CTG, MBR1545CTG

## TYPICAL CHARACTERISTICS (continued)

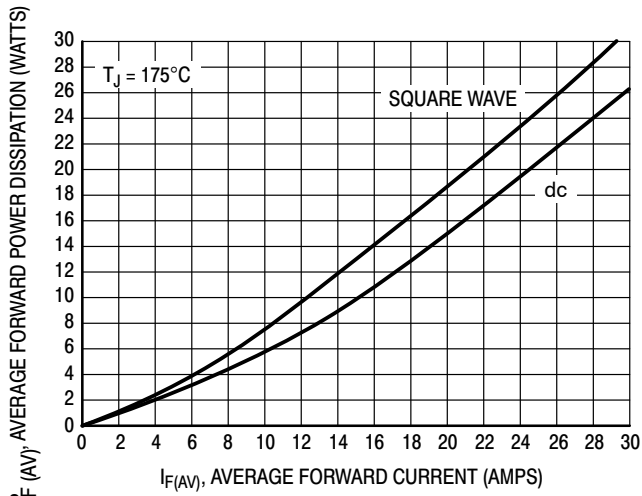


Figure 7. Forward Power Dissipation

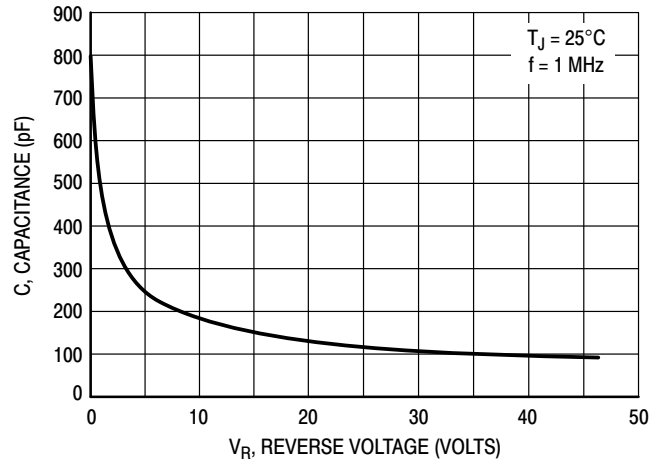


Figure 8. Typical Capacitance

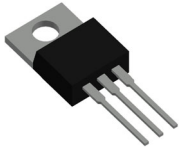
### ORDERING INFORMATION

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

### DISCONTINUED (Note 3)

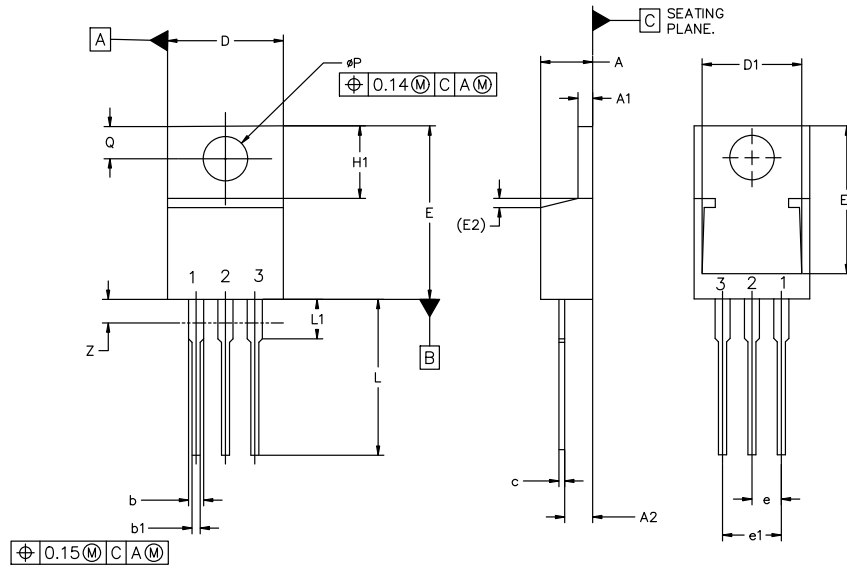
MBR1535CTG	TO-220 (Pb-Free)	50 Units / Rail
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3. **DISCONTINUED:** This device is not recommended for new design. Please contact your **onsemi** representative for information. The most current information on this device may be available on [www.onsemi.com](http://www.onsemi.com).



TO-220-3 10.10x15.12x4.45, 2.54P  
CASE 221A  
ISSUE AL

DATE 05 FEB 2025



MILLIMETERS			
DIM	MIN	NOM	MAX
A	4.07	4.45	4.83
A1	1.15	1.28	1.41
A2	2.04	2.42	2.79
b	1.15	1.34	1.52
b1	0.64	0.80	0.96
c	0.36	0.49	0.61
D	9.66	10.10	10.53
D1	8.43	8.63	8.83
E	14.48	15.12	15.75
E1	12.58	12.78	12.98
E2	1.27 REF		

MILLIMETERS			
DIM	MIN	NOM	MAX
e	2.42	2.54	2.66
e1	4.83	5.08	5.33
H1	5.97	6.22	6.47
L	12.70	13.49	14.27
L1	2.80	3.45	4.10
Q	2.54	2.79	3.04
φP	3.60	3.85	4.09
Z	---	---	3.48

- NOTES:
1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 2018.
  2. CONTROLLING DIMENSION: MILLIMETERS.
  3. DIMENSION Z DEFINES A ZONE WHERE ALL BODY AND LEAD IRREGULARITIES ARE ALLOWED.

- |  |  |   |  |
|--|--|---|--|
| <p>STYLE 1:<br/>PIN 1. BASE<br/>2. COLLECTOR<br/>3. EMITTER<br/>4. COLLECTOR</p> | <p>STYLE 2:<br/>PIN 1. BASE<br/>2. EMITTER<br/>3. COLLECTOR<br/>4. EMITTER</p> | <p>STYLE 3:<br/>PIN 1. CATHODE<br/>2. ANODE<br/>3. GATE<br/>4. ANODE</p>    | <p>STYLE 4:<br/>PIN 1. MAIN TERMINAL 1<br/>2. MAIN TERMINAL 2<br/>3. GATE<br/>4. MAIN TERMINAL 2</p> |
| <p>STYLE 5:<br/>PIN 1. GATE<br/>2. DRAIN<br/>3. SOURCE<br/>4. DRAIN</p>          | <p>STYLE 6:<br/>PIN 1. ANODE<br/>2. CATHODE<br/>3. ANODE<br/>4. CATHODE</p>    | <p>STYLE 7:<br/>PIN 1. CATHODE<br/>2. ANODE<br/>3. CATHODE<br/>4. ANODE</p> | <p>STYLE 8:<br/>PIN 1. CATHODE<br/>2. ANODE<br/>3. EXTERNAL TRIP/DELAY<br/>4. ANODE</p>              |
| <p>STYLE 9:<br/>PIN 1. GATE<br/>2. COLLECTOR<br/>3. EMITTER<br/>4. COLLECTOR</p> | <p>STYLE 10:<br/>PIN 1. GATE<br/>2. SOURCE<br/>3. DRAIN<br/>4. SOURCE</p>      | <p>STYLE 11:<br/>PIN 1. DRAIN<br/>2. SOURCE<br/>3. GATE<br/>4. SOURCE</p>   | <p>STYLE 12:<br/>PIN 1. MAIN TERMINAL 1<br/>2. MAIN TERMINAL 2<br/>3. GATE<br/>4. NOT CONNECTED</p>  |

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DESCRIPTION:	TO-220-3 10.10x15.12x4.45, 2.54P	PAGE 1 OF 1

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