

# MBR2535CTG, MBR2545CTG

## Switch-mode Power Rectifiers

The MBR2535CTG/45CTG series uses the Schottky Barrier principle with a platinum barrier metal. These state-of-the-art devices have the following features:

### Features

- Guardring for Stress Protection
- Low Forward Voltage
- 175°C Operating Junction Temperature
- These are Pb-Free Devices\*

### Mechanical Characteristics

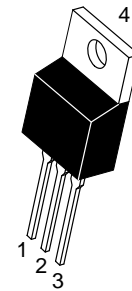
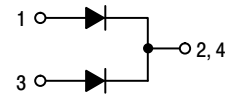
- Case: Epoxy, Molded
- Epoxy Meets UL 94 V-0 @ 0.125 in
- Weight: 1.9 Grams (Approximately)
- Finish: All External Surfaces Corrosion Resistant and Terminal Leads are Readily Solderable
- Lead Temperature for Soldering Purposes: 260°C Max. for 10 Seconds



**ON Semiconductor®**

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### SCHOTTKY BARRIER RECTIFIERS 30 AMPERES 35 and 45 VOLTS



**TO-220  
CASE 221A  
STYLE 6**

### MARKING DIAGRAM



A = Assembly Location  
Y = Year  
WW = Work Week  
B25x5 = Device Code  
x = 3 or 4  
G = Pb-Free Package  
AKA = Diode Polarity

### ORDERING INFORMATION

Device	Package	Shipping
MBR2535CTG	TO-220 (Pb-Free)	50 Units/Rail
MBR2545CTG	TO-220 (Pb-Free)	50 Units/Rail

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

# MBR2535CTG, MBR2545CTG

## MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage MBR2535CTG MBR2545CTG	$V_{RRM}$ $V_{RWM}$ $V_R$	35 45	V
Average Rectified Forward Current (Rated $V_R$ , $T_C = 160^\circ\text{C}$ ) Per Device Per Diode	$I_{F(AV)}$	30 15	A
Peak Repetitive Forward Current per Diode Leg (Rated $V_R$ , Square Wave, 20 kHz, $T_C = 150^\circ\text{C}$ )	$I_{FRM}$	30	A
Non-Repetitive Peak Surge Current per Diode Leg (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	10,000	V/ $\mu\text{s}$
ESD Ratings: Machine Model = C Human Body Model = 3B	ESD	> 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 (Per Leg)

Characteristic	Symbol	Value	Unit
Thermal Resistance, Junction-to-Case Junction-to-Ambient (Note 2)	$R_{\theta JC}$ $R_{\theta JA}$	1.5 50	$^\circ\text{C/W}$

2. When mounted using minimum recommended pad size on FR-4 board.

## ELECTRICAL CHARACTERISTICS (Per Diode)

Symbol	Characteristic	Condition	Min	Typ	Max	Unit
$V_F$	Instantaneous Forward Voltage (Note 3)	$I_F = 15 \text{ Amp}$ , $T_J = 25^\circ\text{C}$ $I_F = 15 \text{ Amp}$ , $T_J = 125^\circ\text{C}$ $I_F = 30 \text{ Amp}$ , $T_J = 25^\circ\text{C}$ $I_F = 30 \text{ Amp}$ , $T_J = 125^\circ\text{C}$	- - - -	- 0.50 - 0.65	0.62 0.57 0.82 0.72	V
$I_R$	Instantaneous Reverse Current (Note 3)	Rated dc Voltage, $T_J = 25^\circ\text{C}$ Rated dc Voltage, $T_J = 125^\circ\text{C}$	- -	- 9.0	0.2 25	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.

3. Pulse Test: Pulse Width = 300  $\mu\text{s}$ , Duty Cycle  $\leq 2.0\%$ .

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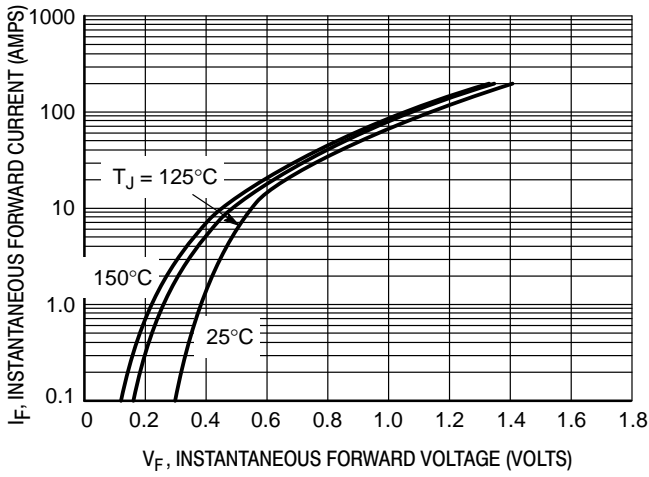


Figure 1. Typical Forward Voltage, Per Leg

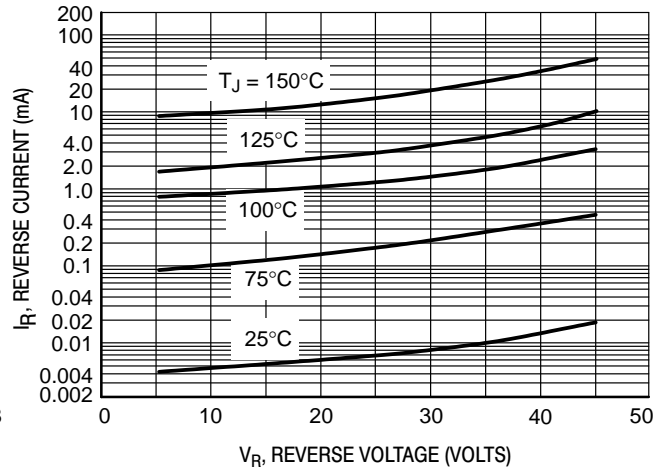


Figure 2. Typical Reverse Current, Per Leg

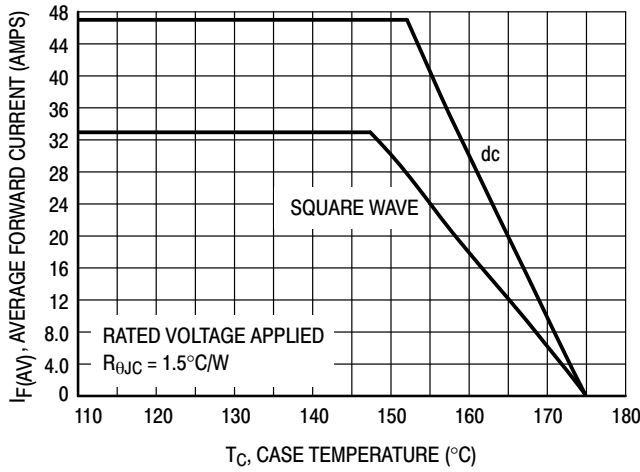


Figure 3. Current Derating, Per Device

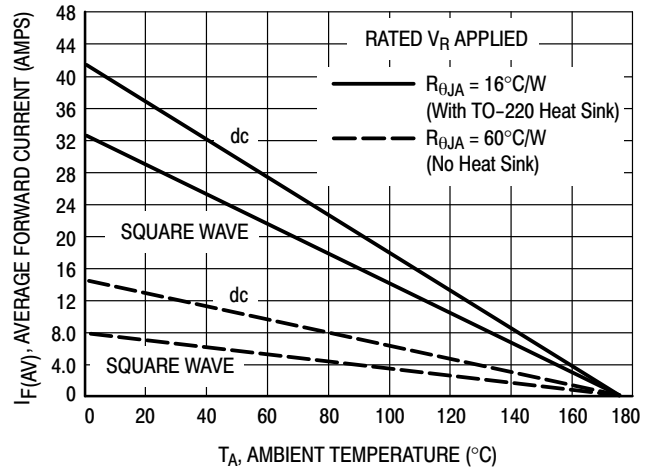


Figure 4. Current Derating, Per Device

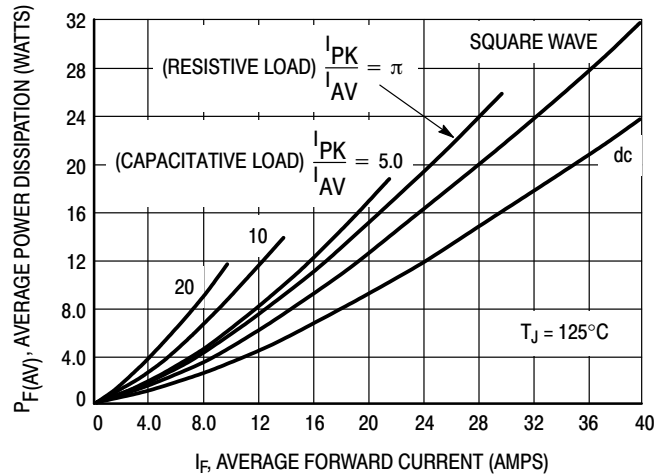
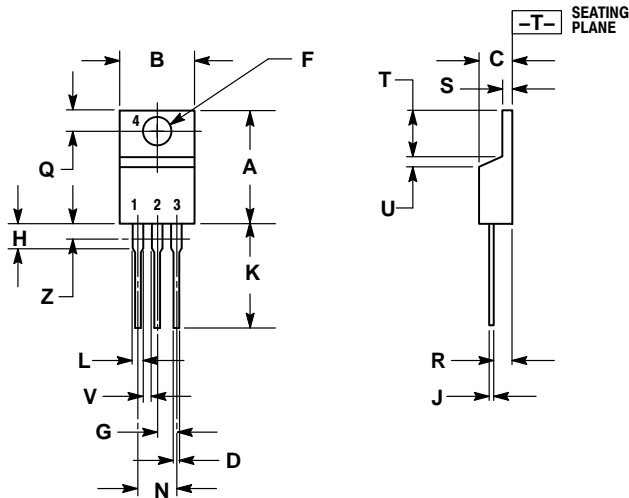


Figure 5. Forward Power Dissipation

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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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