MBR2535CTG, MBR2545CTG

SWITCHMODETM Power Rectifiers

The MBR2535CT/45CT 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*

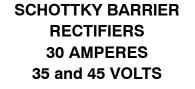
Mechanical Characteristics

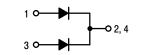
- Case: Epoxy, Molded
- Epoxy Meets UL 94 V-0 @ 0.125 in
- Weight: 1.9 grams (approximately)
- Finish: All External Surfaces Corrosion Resistant and Terminal Leads are Readily Solderable
- Lead Temperature for Soldering Purposes: 260°C Max. for 10 Seconds



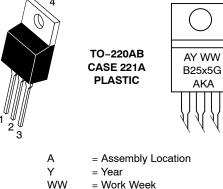
ON Semiconductor®

http://onsemi.com





MARKING DIAGRAM



B25x5	= Device Code

= 3 or 4

х

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.

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MAXIMUM RATINGS

Rating		Symbol	Value	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	MBR2535CT MBR2545CT	V _{RRM} V _{RWM} V _R	35 45	V
Average Rectified Forward Current (Rated V_R , T_C = 160°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 = 15	50°C)	I _{FRM}	30	A
Non-Repetitive Peak Surge Current per Diode Leg (Surge Applied at Rated Load Conditions, Halfwave, Sing	gle Phase, 60 Hz)	I _{FSM}	150	A
Peak Repetitive Reverse Surge Current (2.0 μ s, 1.0 kHz)		I _{RRM}	1.0	A
Storage Temperature Range		T _{stg}	-65 to +175	°C
Operating Junction Temperature (Note 1)		TJ	-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		ESD	>400 >8000	V

Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

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)	$R_{ heta JC}$ $R_{ heta JA}$	1.5 50	°C/W

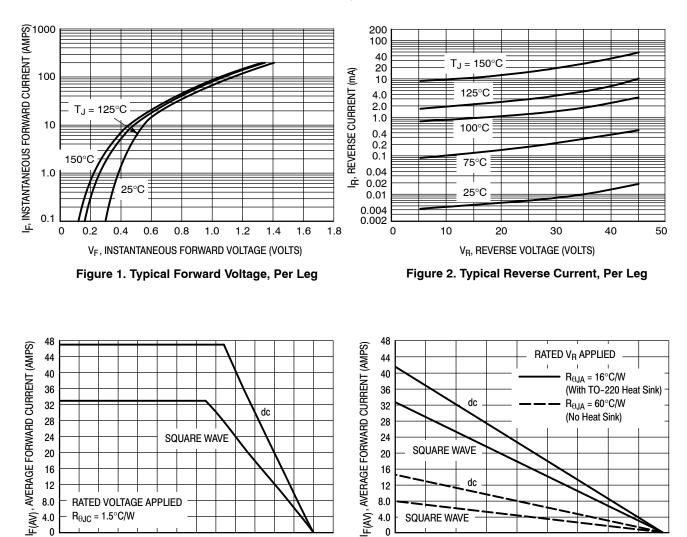
2. When mounted using minimum recommended pad size on FR-4 board.

ELECTRICAL CHARACTERISTICS (Per Diode)

Symbol	Characteristic	Condition	Min	Тур	Max	Unit
V _F	Instantaneous Forward Voltage (Note 3)	$ \begin{array}{l} I_F = 15 \; Amp, \; T_J = 25^\circ C \\ I_F = 15 \; Amp, \; T_J = 125^\circ C \\ I_F = 30 \; Amp, \; T_J = 25^\circ C \\ I_F = 30 \; Amp, \; T_J = 125^\circ C \end{array} $		- 0.50 - 0.65	0.62 0.57 0.82 0.72	V
I _R	Instantaneous Reverse Current (Note 3)	Rated dc Voltage, $T_J = 25^{\circ}C$ Rated dc Voltage, $T_J = 125^{\circ}C$	-	_ 9.0	0.2 25	mA

3. Pulse Test: Pulse Width = 300 μ s, Duty Cycle \leq 2.0%.

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dc

60

80

T_A, AMBIENT TEMPERATURE (°C)

Figure 4. Current Derating, Per Device

100

120

140

160 180

SQUARE WAVE

40

20

12

8.0

4.0

0

0

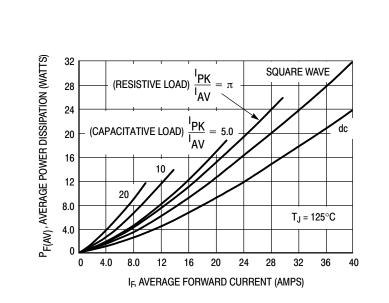


Figure 5. Forward Power Dissipation

12

8.0

4.0

0

110

RATED VOLTAGE APPLIED

130

140

T_C, CASE TEMPERATURE (°C) Figure 3. Current Derating, Per Device

150

160

170

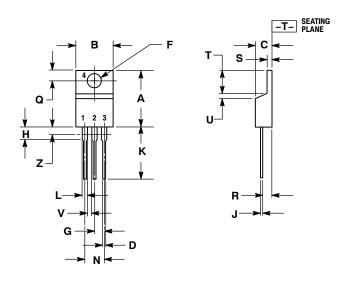
180

 $R_{\theta JC}$ = 1.5°C/W

120

PACKAGE DIMENSIONS

TO-220 CASE 221A-09 ISSUE AF



	INC	HES	MILLIN	IETERS	
DIM	MIN	MAX	MIN MAX		
Α	0.570	0.620	14.48	15.75	
В	0.380	0.405	9.66	10.28	
С	0.160	0.190	4.07	4.82	
D	0.025	0.035	0.64	0.88	
F	0.142	0.161	3.61	4.09	
G	0.095	0.105	2.42	2.66	
Н	0.110	0.155	2.80	3.93	
J	0.014	0.025	0.36	0.64	
Κ	0.500	0.562	12.70	14.27	
L	0.045	0.060	1.15	1.52	
Ν	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	
Т	0.235	0.255	5.97	6.47	
U	0.000	0.050	0.00	1.27	
۷	0.045		1.15		
Ζ		0.080		2.04	
PIN	1. ANO	HODE			

DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982. CONTROLLING DIMENSION: INCH.

DIMENSION Z DEFINES A ZONE WHERE ALL

NOTES:

1.

2

3.

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