

MBR2535CT, MBR2545CT

MBR2545CT is a Preferred Device

SWITCHMODE™ 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
- Pb-Free Packages are Available*

Mechanical Characteristics

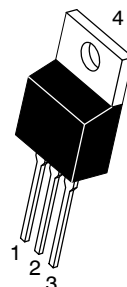
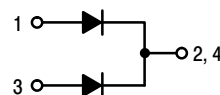
- Case: Epoxy, Molded
- Epoxy Meets UL 94 V-0 @ 0.125 in
- Weight: 1.9 grams (approximately)
- Finish: All External Surfaces Corrosion Resistant and Terminal Leads are Readily Solderable
- Lead Temperature for Soldering Purposes: 260°C Max. for 10 Seconds



ON Semiconductor®

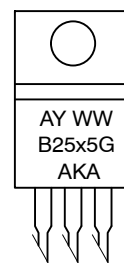
<http://onsemi.com>

SCHOTTKY BARRIER RECTIFIERS 30 AMPERES 35 and 45 VOLTS



TO-220AB
CASE 221A
PLASTIC

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
MBR2535CT	TO-220	50 Units/Rail
MBR2535CTG	TO-220 (Pb-Free)	50 Units/Rail
MBR2545CT	TO-220	50 Units/Rail
MBR2545CTG	TO-220 (Pb-Free)	50 Units/Rail

Preferred devices are recommended choices for future use and best overall value.

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

MBR2535CT, MBR2545CT

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	V_{RRM} V_{RWM} V_R	35 45	V
Average Rectified Forward Current (Rated V_R , $T_C = 160^\circ\text{C}$)	$I_{F(AV)}$	30	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 μs , 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/ 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)	$R_{\theta JC}$ $R_{\theta JA}$	1.5 50	$^\circ\text{C}/\text{W}$

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

3. Pulse Test: Pulse Width = 300 μs , Duty Cycle $\leq 2.0\%$.

MBR2535CT, MBR2545CT

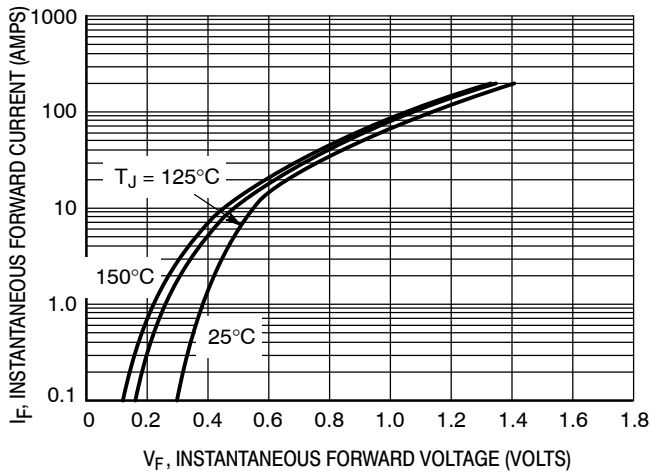


Figure 1. Typical Forward Voltage, Per Leg

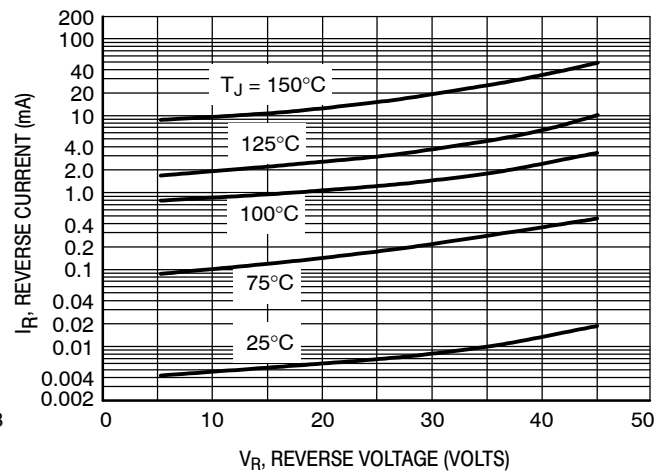


Figure 2. Typical Reverse Current, Per Leg

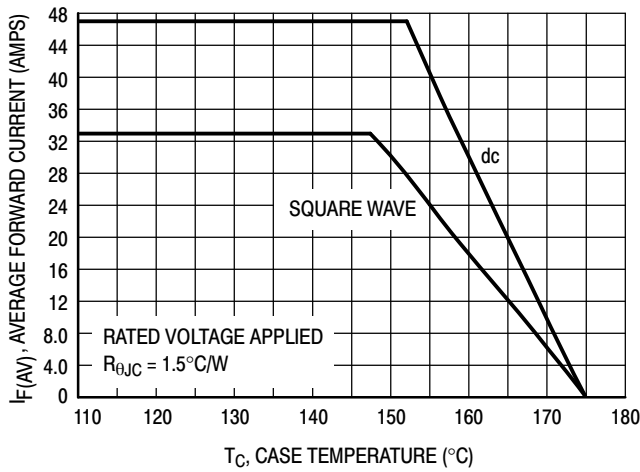


Figure 3. Current Derating, Per Device

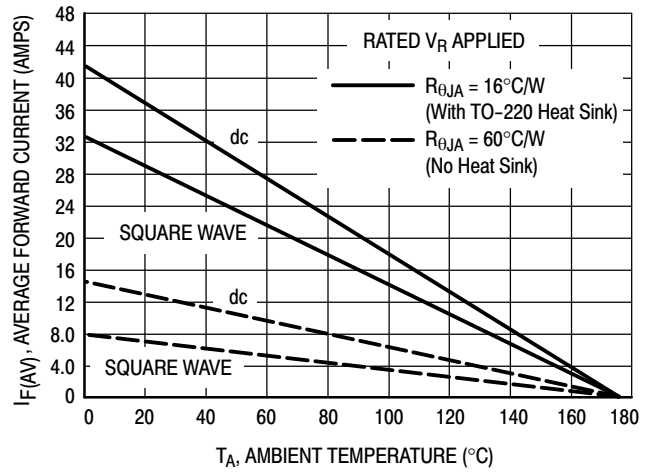


Figure 4. Current Derating, Per Device

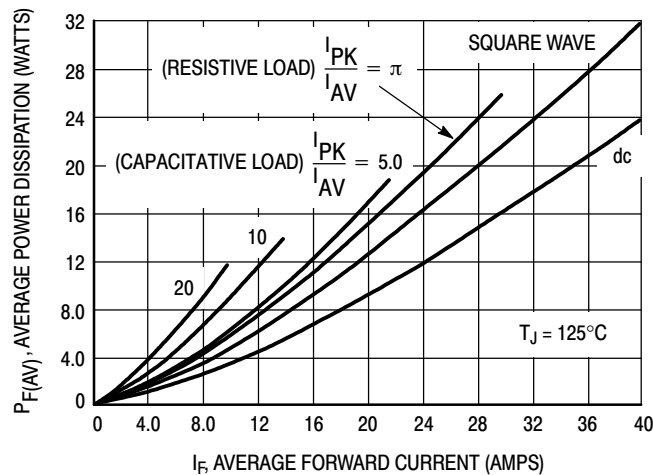
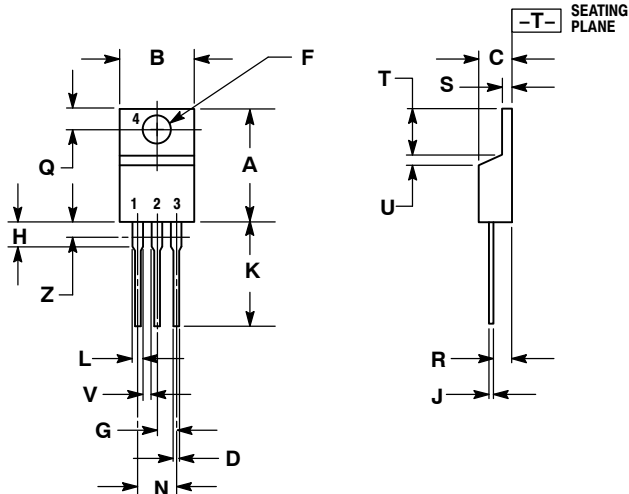


Figure 5. Forward Power Dissipation

MBR2535CT, MBR2545CT

PACKAGE DIMENSIONS

TO-220
CASE 221A-09
ISSUE AF



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	0.405	9.66	10.28
C	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
H	0.110	0.155	2.80	3.93
J	0.014	0.025	0.36	0.64
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

SWITCHMODE is a trademark of Semiconductor Components Industries, LLC.

ON Semiconductor and  are registered trademarks of Semiconductor Components Industries, LLC (SCILLC). SCILLC reserves the right to make changes without further notice to any products herein. SCILLC makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does SCILLC assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation special, consequential or incidental damages. "Typical" parameters which may be provided in SCILLC data sheets and/or specifications can and do vary in different applications and actual performance may vary over time. All operating parameters, including "Typicals" must be validated for each customer application by customer's technical experts. SCILLC does not convey any license under its patent rights nor the rights of others. SCILLC products are not designed, intended, or authorized for use as components in systems intended for surgical implant into the body, or other applications intended to support or sustain life, or for any other application in which the failure of the SCILLC product could create a situation where personal injury or death may occur. Should Buyer purchase or use SCILLC products for any such unintended or unauthorized application, Buyer shall indemnify and hold SCILLC and its officers, employees, subsidiaries, affiliates, and distributors harmless against all claims, costs, damages, and expenses, and reasonable attorney fees arising out of, directly or indirectly, any claim of personal injury or death associated with such unintended or unauthorized use, even if such claim alleges that SCILLC was negligent regarding the design or manufacture of the part. SCILLC is an Equal Opportunity/Affirmative Action Employer. This literature is subject to all applicable copyright laws and is not for resale in any manner.

PUBLICATION ORDERING INFORMATION

LITERATURE FULFILLMENT:
Literature Distribution Center for ON Semiconductor
P.O. Box 5163, Denver, Colorado 80217 USA
Phone: 303-675-2175 or 800-344-3860 Toll Free USA/Canada
Fax: 303-675-2176 or 800-344-3867 Toll Free USA/Canada
Email: orderlit@onsemi.com

N. American Technical Support: 800-282-9855 Toll Free
USA/Canada
Europe, Middle East and Africa Technical Support:
Phone: 421 33 790 2910
Japan Customer Focus Center
Phone: 81-3-5773-3850

ON Semiconductor Website: www.onsemi.com
Order Literature: <http://www.onsemi.com/orderlit>
For additional information, please contact your local Sales Representative

MBR2535CT/D