

MBR4045WT

SWITCHMODE™ Power Rectifier

The SWITCHMODE power rectifier employs the use of the Schottky Barrier principle with a Platinum barrier metal. This state-of-the-art device has the following features:

- Dual Diode Construction — Terminals 1 and 3 May Be Connected for Parallel Operation at Full Rating
- 45 Volt Blocking Voltage
- Low Forward Voltage Drop
- Guardring for Stress Protection and High dv/dt Capability (> 10 V/ns)
- 150°C Operating Junction Temperature

Mechanical Characteristics

- Case: Epoxy, Molded
- Weight: 4.3 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
- Shipped 30 Units Per Plastic Tube
- Marking: B4045

MAXIMUM RATINGS

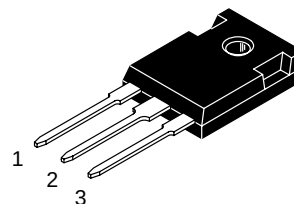
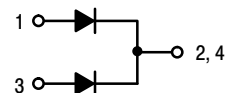
Rating	Symbol	Max	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	V_{RRM} V_{RWM} V_R	45	V
Average Rectified Forward Current (Rated V_R , $T_C = 125^\circ\text{C}$) Per Diode Per Device	$I_{F(AV)}$	20 40	A
Peak Repetitive Forward Current, (Rated V_R , Square Wave, 20 kHz, $T_C = 90^\circ\text{C}$) Per Diode	I_{FRM}	40	A
Non-Repetitive Peak Surge Current (Surge Applied at Rated Load Conditions Halfwave, Single Phase, 60 Hz)	I_{FSM}	400	A
Peak Repetitive Reverse Current (2.0 μs , 1.0 kHz)	I_{RRM}	2.0	A
Storage Temperature Range	T_{stg}	-65 to +175	°C
Operating Junction Temperature	T_J	-65 to +150	°C
Peak Surge Junction Temperature (Forward Current Applied)	$T_{J(pk)}$	175	°C
Voltage Rate of Change	dv/dt	10,000	V/ μs



ON Semiconductor™

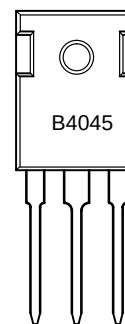
<http://onsemi.com>

SCHOTTKY BARRIER RECTIFIER 40 AMPERES 45 VOLTS



TO-247AC
CASE 340L
STYLE 2

MARKING DIAGRAM



B4045 = Device Code

ORDERING INFORMATION

Device	Package	Shipping
MBR4045WT	TO-247	30 Units/Rail

MBR4045WT

THERMAL CHARACTERISTICS (Per Diode)

Rating	Symbol	Max	Unit
Thermal Resistance — Junction to Case	$R_{\theta JC}$	1.4	$^{\circ}\text{C}/\text{W}$

ELECTRICAL CHARACTERISTICS (Per Diode)

Instantaneous Forward Voltage (Note 1.) @ $I_F = 20$ Amps, $T_C = 25^{\circ}\text{C}$ @ $I_F = 20$ Amps, $T_C = 125^{\circ}\text{C}$ @ $I_F = 40$ Amps, $T_C = 25^{\circ}\text{C}$ @ $I_F = 40$ Amps, $T_C = 125^{\circ}\text{C}$	V_F	0.70 0.60 0.80 0.75	Volts
Instantaneous Reverse Current (Note 1.) @ Rated DC Voltage, $T_C = 25^{\circ}\text{C}$ @ Rated DC Voltage, $T_C = 100^{\circ}\text{C}$	I_R	1.0 50	mA

1. Pulse Test: Pulse Width = 300 μs , Duty Cycle < 2.0%

TYPICAL ELECTRICAL CHARACTERISTICS

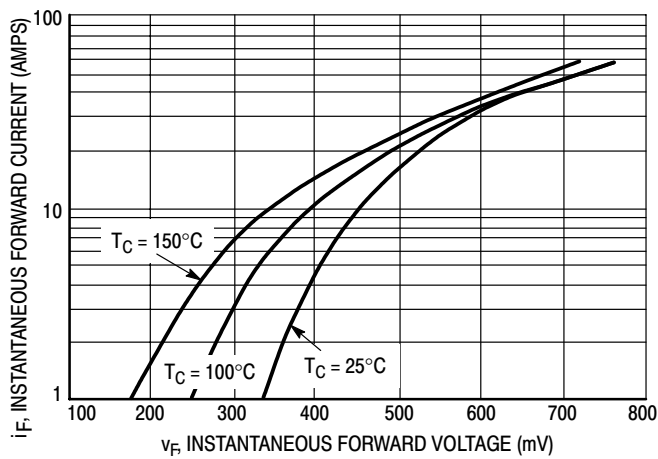


Figure 1. Typical Forward Voltage

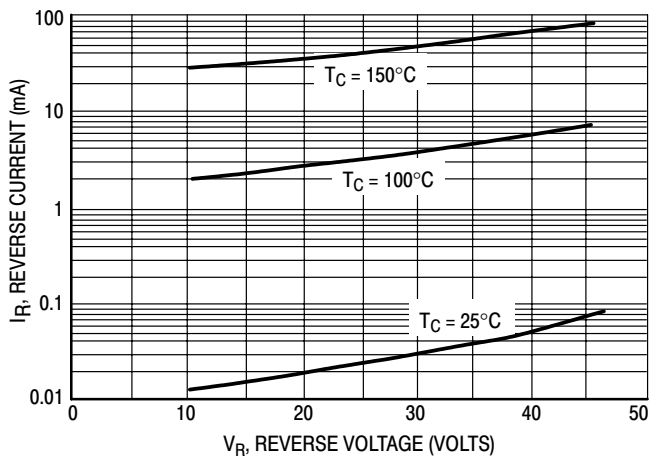


Figure 2. Typical Reverse Current

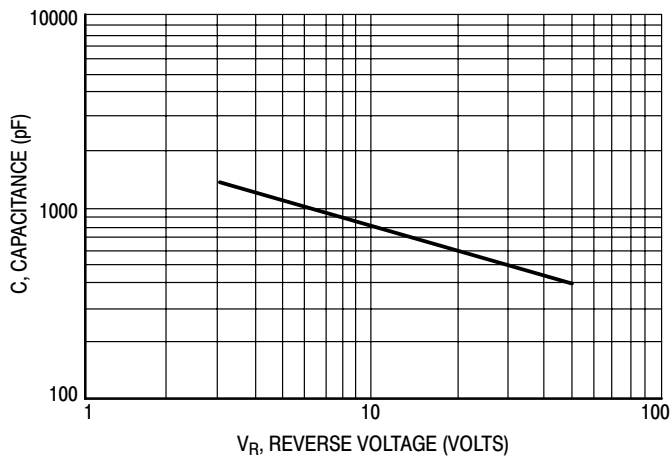


Figure 3. Typical Capacitance Per Leg

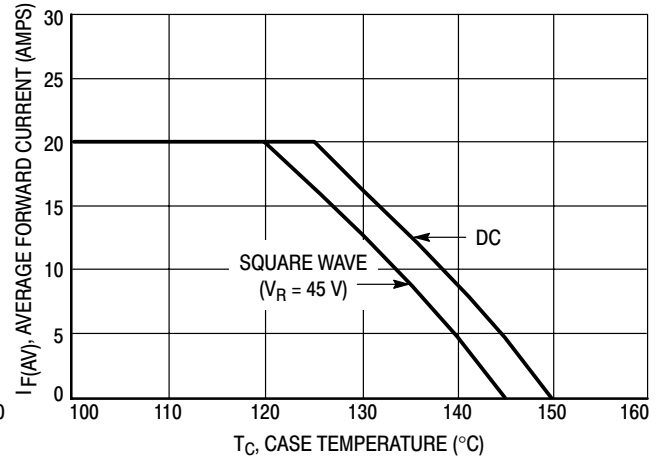
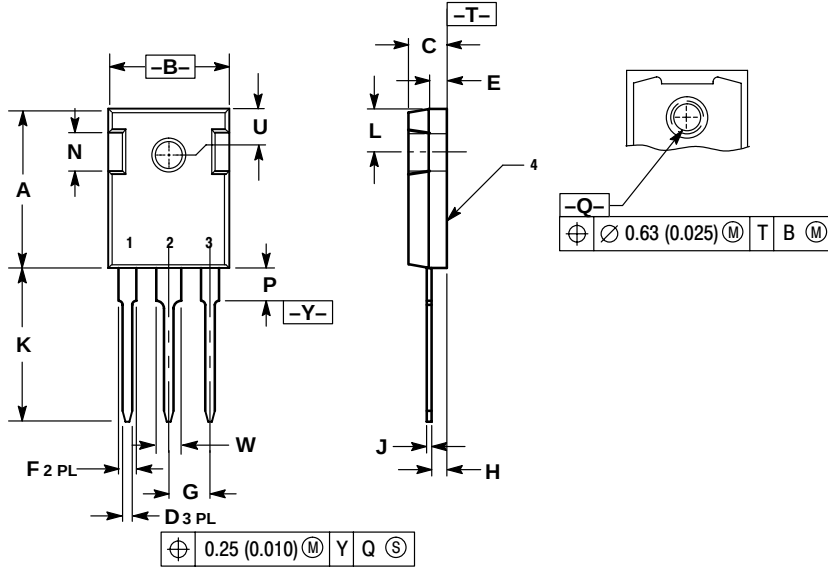


Figure 4. Current Derating Per Leg

MBR4045WT

PACKAGE DIMENSIONS

TO-247 PSI
PLASTIC
CASE 340L-02
ISSUE D



- NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
 2. CONTROLLING DIMENSION: MILLIMETER.

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	20.32	21.08	0.800	0.830
B	15.75	16.26	0.620	0.640
C	4.70	5.30	0.185	0.209
D	1.00	1.40	0.040	0.055
E	2.20	2.60	0.087	0.102
F	1.65	2.13	0.065	0.084
G	5.45 BSC		0.215 BSC	
H	1.50	2.49	0.059	0.098
J	0.40	0.80	0.016	0.031
K	20.06	20.83	0.790	0.820
L	5.40	6.20	0.212	0.244
N	4.32	5.49	0.170	0.216
P	---	4.50	---	0.177
Q	3.55	3.65	0.140	0.144
U	6.15 BSC		0.242 BSC	
W	2.87	3.12	0.113	0.123

- STYLE 2:
1. ANODE
 2. CATHODE (S)
 3. ANODE 2
 4. CATHODES (S)

SWITCHMODE is a trademark of Semiconductor Components Industries, LLC.

ON Semiconductor and  are 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.

PUBLICATION ORDERING INFORMATION

NORTH AMERICA 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: ONlit@hibbertco.com
Fax Response Line: 303-675-2167 or 800-344-3810 Toll Free USA/Canada

N. American Technical Support: 800-282-9855 Toll Free USA/Canada

EUROPE: LDC for ON Semiconductor – European Support

German Phone: (+1) 303-308-7140 (Mon-Fri 2:30pm to 7:00pm CET)
Email: ONlit-german@hibbertco.com

French Phone: (+1) 303-308-7141 (Mon-Fri 2:00pm to 7:00pm CET)
Email: ONlit-french@hibbertco.com

English Phone: (+1) 303-308-7142 (Mon-Fri 12:00pm to 5:00pm GMT)
Email: ONlit@hibbertco.com

EUROPEAN TOLL-FREE ACCESS*: 00-800-4422-3781

*Available from Germany, France, Italy, UK, Ireland

CENTRAL/SOUTH AMERICA:

Spanish Phone: 303-308-7143 (Mon-Fri 8:00am to 5:00pm MST)

Email: ONlit-spanish@hibbertco.com

Toll-Free from Mexico: Dial 01-800-288-2872 for Access –
then Dial 866-297-9322

ASIA/PACIFIC: LDC for ON Semiconductor – Asia Support

Phone: 303-675-2121 (Tue-Fri 9:00am to 1:00pm, Hong Kong Time)

Toll Free from Hong Kong & Singapore:

001-800-4422-3781

Email: ONlit-asia@hibbertco.com

JAPAN: ON Semiconductor, Japan Customer Focus Center

4-32-1 Nishi-Gotanda, Shinagawa-ku, Tokyo, Japan 141-0031

Phone: 81-3-5740-2700

Email: r14525@onsemi.com

ON Semiconductor Website: <http://onsemi.com>

For additional information, please contact your local
Sales Representative.