

MBR3045ST, MBRB3045CT-1

Switch-mode Power Rectifier

Features and Benefits

- Dual Diode Construction – Terminals 1 and 3 May Be Connected for Parallel Operation at Full Rating
- 45 V Blocking Voltage
- Low Forward Voltage Drop
- 175°C Operating Junction Temperature
- These are Pb-Free Devices

Applications

- Power Supply – Output Rectification
- Power Management
- Instrumentation

Mechanical Characteristics

- Case: Epoxy, Molded
- Weight (Approximately): 1.9 Grams (TO–220)
1.5 Grams (TO–262)
- Finish: All External Surfaces Corrosion Resistant and Terminal Leads are Readily Solderable
- Lead Temperature for Soldering Purposes: 260°C Max. for 10 Seconds
- Epoxy Meets UL 94 V–0 @ 0.125 in

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	V_{RRM} V_{RWM} V_R	45	V
Average Rectified Current ($T_C = 130^\circ\text{C}$)	Per Device $I_{F(AV)}$ Per Diode	30 15	A
Peak Repetitive Forward Current, per Diode (Square Wave, $V_R = 45\text{ V}$, 20 kHz)	I_{FRM}	30	A
Non-Repetitive Peak Surge Current (Surge Applied at Rated Load Conditions, Halfwave, Single Phase, 60 Hz)	I_{FSM}	150	A
Peak Repetitive Reverse Current, per Diode (2.0 μs , 1.0 kHz)	I_{RRM}	2.0	A
Storage Temperature Range	T_{stg}	–65 to +175	°C
Operating Junction Temperature (Note 1)	T_J	–65 to +175	°C
Peak Surge Junction Temperature (Forward Current Applied)	$T_{J(pk)}$	175	°C
Voltage Rate of Change (Rated V_R)	dv/dt	10,000	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.

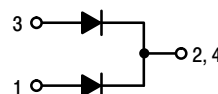
1. The heat generated must be less than the thermal conductivity from Junction-to-Ambient: $dP_D/dT_J < 1/R_{\theta JA}$.



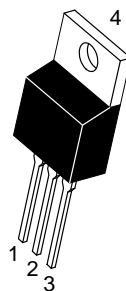
ON Semiconductor™

<http://onsemi.com>

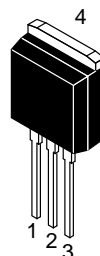
SCHOTTKY BARRIER RECTIFIER 30 AMPERES 45 VOLTS



MARKING DIAGRAMS



TO-220
CASE 221A
STYLE 6



I²PAK (TO-262)
CASE 418D
STYLE 3



A = Assembly Location
Y = Year
WW = Work Week
AKA = Polarity Designator
G = Pb–Free Device

ORDERING INFORMATION

See detailed ordering and shipping information in the package dimensions section on page 3 of this data sheet.

MBR3045ST, MBRB3045CT-1

THERMAL CHARACTERISTICS (Per Diode)

Characteristic	Symbol	Value	Unit
Thermal Resistance, Junction to Case	$R_{\theta JC}$	1.5	$^{\circ}\text{C}/\text{W}$

ELECTRICAL CHARACTERISTICS (Per Diode)

Characteristic	Symbol	Value	Unit
Instantaneous Forward Voltage (Note 2) ($I_F = 15 \text{ Amp}$, $T_C = 25^{\circ}\text{C}$) ($I_F = 15 \text{ Amp}$, $T_C = 125^{\circ}\text{C}$) ($I_F = 30 \text{ Amp}$, $T_C = 25^{\circ}\text{C}$) ($I_F = 30 \text{ Amp}$, $T_C = 125^{\circ}\text{C}$)	V_F	0.62 0.57 0.76 0.72	V
Instantaneous Reverse Current (Note 2) ($V_R = 45 \text{ Volts}$, $T_C = 25^{\circ}\text{C}$) ($V_R = 45 \text{ Volts}$, $T_C = 125^{\circ}\text{C}$)	I_R	0.2 40	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 $\leq 2.0\%$

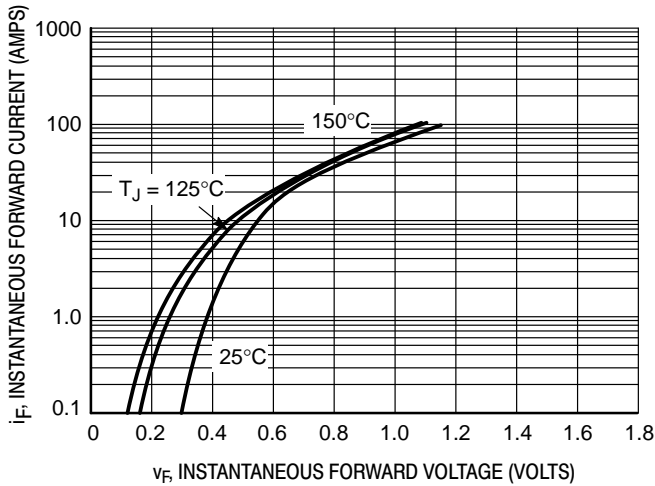


Figure 1. Typical Forward Voltage

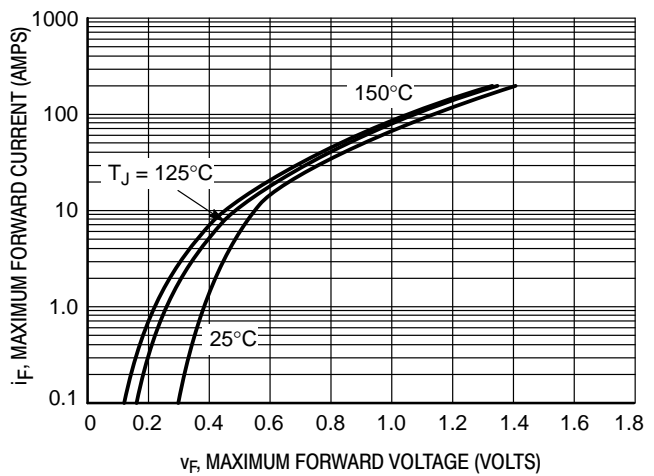


Figure 2. Maximum Reverse Current

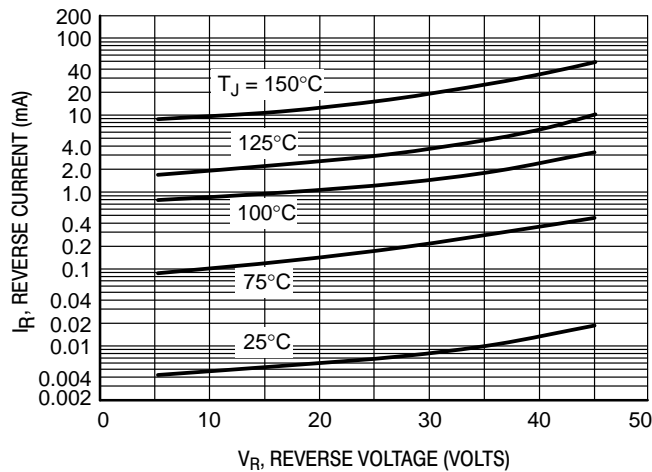


Figure 3. Typical Reverse Current

MBR3045ST, MBRB3045CT-1

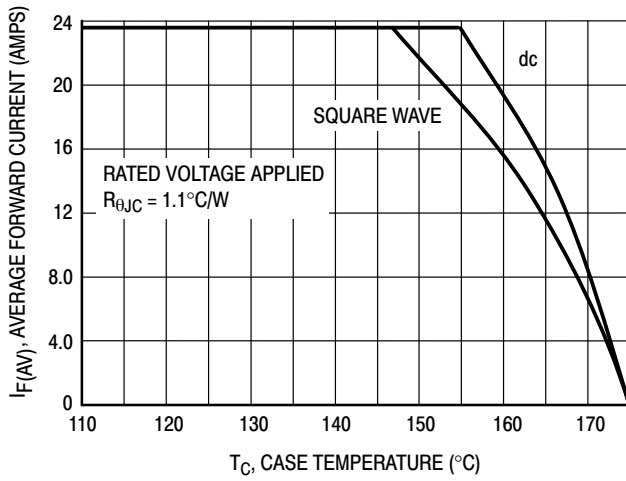


Figure 4. Current Derating, Case

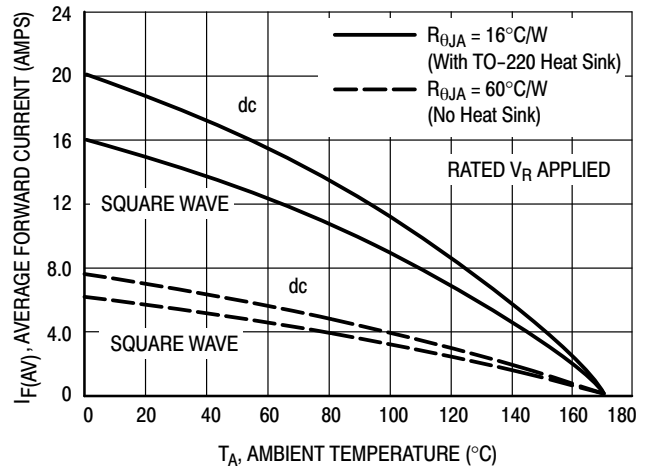


Figure 5. Current Derating, Ambient

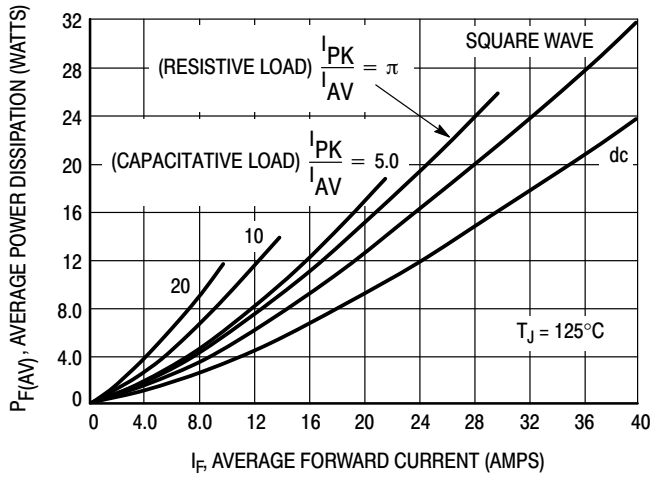


Figure 6. Forward Power Dissipation

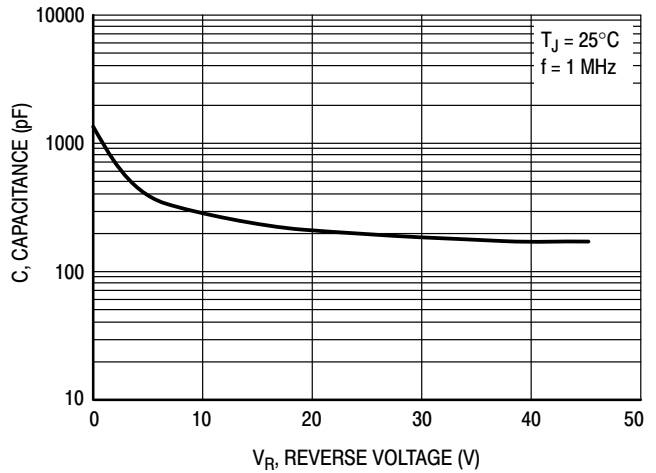


Figure 7. Capacitance

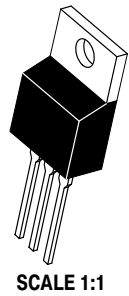
ORDERING INFORMATION

Device	Package	Shipping
MBR3045STG	TO-220 (Pb-Free)	50 Units/Rail
MBRB3045CT-1G	TO-262 (Pb-Free)	50 Units/Rail

MECHANICAL CASE OUTLINE

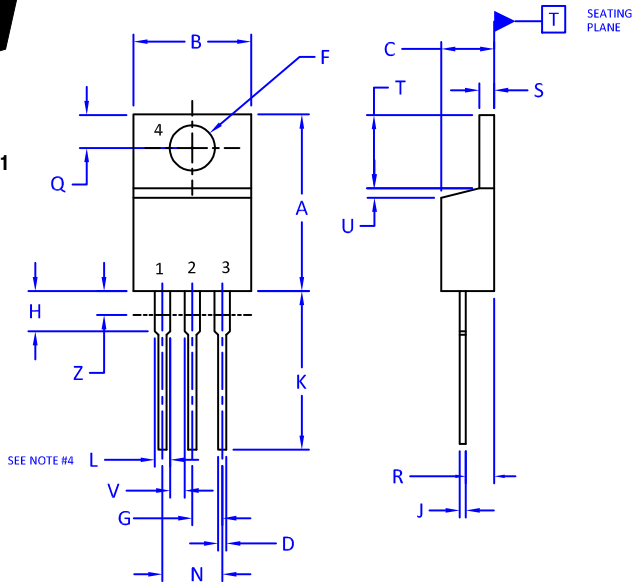
PACKAGE DIMENSIONS

ON Semiconductor®



TO-220 CASE 221A-09 ISSUE AJ

DATE 05 NOV 2019



NOTES:

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 2009.
2. CONTROLLING DIMENSION: INCHES
3. DIMENSION Z DEFINES A ZONE WHERE ALL BODY AND LEAD IRREGULARITIES ARE ALLOWED.
4. MAX WIDTH FOR F102 DEVICE = 1.35MM

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	3.60	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	1.41
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 1:

- PIN 1. BASE
2. COLLECTOR
3. EMITTER
4. COLLECTOR

STYLE 2:

- PIN 1. BASE
2. EMITTER
3. COLLECTOR
4. EMITTER

STYLE 3:

- PIN 1. CATHODE
2. ANODE
3. GATE
4. ANODE

STYLE 4:

- PIN 1. MAIN TERMINAL 1
2. MAIN TERMINAL 2
3. GATE
4. MAIN TERMINAL 2

STYLE 5:

- PIN 1. GATE
2. DRAIN
3. SOURCE
4. DRAIN

STYLE 6:

- PIN 1. ANODE
2. CATHODE
3. ANODE
4. CATHODE

STYLE 7:

- PIN 1. CATHODE
2. ANODE
3. CATHODE
4. ANODE

STYLE 8:

- PIN 1. CATHODE
2. ANODE
3. EXTERNAL TRIP/DELAY
4. ANODE

STYLE 9:

- PIN 1. GATE
2. COLLECTOR
3. EMITTER
4. COLLECTOR

STYLE 10:

- PIN 1. GATE
2. SOURCE
3. DRAIN
4. SOURCE

STYLE 11:

- PIN 1. DRAIN
2. SOURCE
3. GATE
4. SOURCE

STYLE 12:

- PIN 1. MAIN TERMINAL 1
2. MAIN TERMINAL 2
3. GATE
4. NOT CONNECTED

DOCUMENT NUMBER: 98ASB42148B

Electronic versions are uncontrolled except when accessed directly from the Document Repository.
Printed versions are uncontrolled except when stamped "CONTROLLED COPY" in red.

DESCRIPTION: TO-220

PAGE 1 OF 1

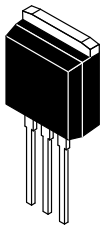
ON Semiconductor and are trademarks of Semiconductor Components Industries, LLC dba ON Semiconductor or its subsidiaries in the United States and/or other countries. ON Semiconductor reserves the right to make changes without further notice to any products herein. ON Semiconductor makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does ON Semiconductor 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. ON Semiconductor does not convey any license under its patent rights nor the rights of others.

MECHANICAL CASE OUTLINE

PACKAGE DIMENSIONS

ON Semiconductor®

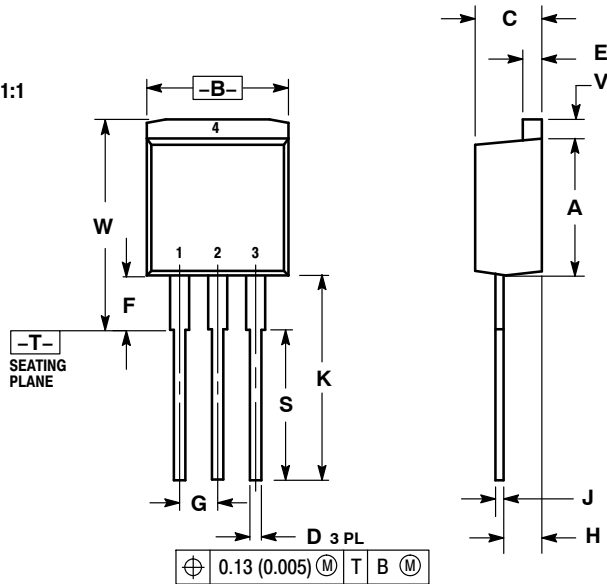
ON



SCALE 1:1

I²PAK (TO-262) CASE 418D-01 ISSUE D

DATE 16 OCT 2007



NOTES:

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

DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.335	0.380	8.51	9.65
B	0.380	0.406	9.65	10.31
C	0.160	0.185	4.06	4.70
D	0.026	0.035	0.66	0.89
E	0.045	0.055	1.14	1.40
F	0.122 REF		3.10 REF	
G	0.100 BSC		2.54 BSC	
H	0.094	0.110	2.39	2.79
J	0.013	0.025	0.33	0.64
K	0.500	0.562	12.70	14.27
S	0.390 REF		9.90 REF	
V	0.045	0.070	1.14	1.78
W	0.522	0.551	13.25	14.00

STYLE 1:

- PIN 1. BASE
2. COLLECTOR
3. EMITTER
4. COLLECTOR

STYLE 2:

- PIN 1. GATE
2. DRAIN
3. SOURCE
4. DRAIN

STYLE 3:

- PIN 1. ANODE
2. CATHODE
3. ANODE
4. CATHODE

STYLE 4:


- PIN 1. GATE
2. COLLECTOR
3. EMITTER
4. COLLECTOR

DOCUMENT NUMBER: 98ASB16716C

Electronic versions are uncontrolled except when accessed directly from the Document Repository.
Printed versions are uncontrolled except when stamped "CONTROLLED COPY" in red.

DESCRIPTION: I²PAK (TO-262)

PAGE 1 OF 1

ON Semiconductor and  are trademarks of Semiconductor Components Industries, LLC dba ON Semiconductor or its subsidiaries in the United States and/or other countries. ON Semiconductor reserves the right to make changes without further notice to any products herein. ON Semiconductor makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does ON Semiconductor 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. ON Semiconductor does not convey any license under its patent rights nor the rights of others.

ON Semiconductor and  are trademarks of Semiconductor Components Industries, LLC dba ON Semiconductor or its subsidiaries in the United States and/or other countries. ON Semiconductor owns the rights to a number of patents, trademarks, copyrights, trade secrets, and other intellectual property. A listing of ON Semiconductor's product/patent coverage may be accessed at www.onsemi.com/site/pdf/Patent-Marking.pdf. ON Semiconductor reserves the right to make changes without further notice to any products herein. ON Semiconductor makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does ON Semiconductor 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. Buyer is responsible for its products and applications using ON Semiconductor products, including compliance with all laws, regulations and safety requirements or standards, regardless of any support or applications information provided by ON Semiconductor. "Typical" parameters which may be provided in ON Semiconductor 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. ON Semiconductor does not convey any license under its patent rights nor the rights of others. ON Semiconductor products are not designed, intended, or authorized for use as a critical component in life support systems or any FDA Class 3 medical devices or medical devices with a same or similar classification in a foreign jurisdiction or any devices intended for implantation in the human body. Should Buyer purchase or use ON Semiconductor products for any such unintended or unauthorized application, Buyer shall indemnify and hold ON Semiconductor 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 ON Semiconductor was negligent regarding the design or manufacture of the part. ON Semiconductor 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:

Email Requests to: orderlit@onsemi.com

ON Semiconductor Website: www.onsemi.com

TECHNICAL SUPPORT

North American Technical Support:

Voice Mail: 1 800-282-9855 Toll Free USA/Canada

Phone: 011 421 33 790 2910

Europe, Middle East and Africa Technical Support:

Phone: 00421 33 790 2910

For additional information, please contact your local Sales Representative

Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

[ON Semiconductor:](#)

[MBR3045STG](#) [MBRB3045CT-1G](#) [MBR3045ST](#)