

# Advance Information

## SWITCHMODE™ Power Rectifier

**MBR4045WT**

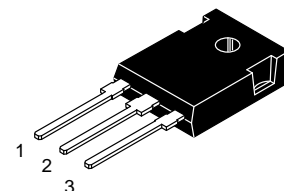
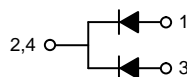
The SWITCHMODE power rectifier employs the use of the Schottky Barrier principle with a Platinum barrier metal. This state-of-the-art device has the following features:

- 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)
- Guaranteed Reverse Avalanche
- 150°C Operating Junction Temperature

**SCHOTTKY BARRIER  
RECTIFIER  
40 AMPERES  
45 VOLTS**

### 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



**CASE 340K-01  
TO-247AC**

### MAXIMUM RATINGS

Rating	Symbol	Max	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	$V_{RRM}$ $V_{RWM}$ $V_R$	45	Volt
Average Rectified Forward Current — Per Diode (Rated $V_R$ ) @ $T_C = 125^\circ\text{C}$ — Per Device	$I_{F(AV)}$	20 40	Amp
Peak Repetitive Forward Current, Per Diode (Rated $V_R$ , Square Wave, 20 kHz) @ $T_C = 90^\circ\text{C}$	$I_{FRM}$	40	Amp
Non Repetitive Peak Surge Current (Surge applied at rated load conditions halfwave, single phase, 60 Hz)	$I_{FSM}$	400	Amp
Peak Repetitive Reverse Current (2.0 $\mu\text{s}$ , 1.0 kHz)	$I_{RRM}$	2.0	Amp
Operating Junction Temperature	$T_J$	-65 to +150	$^\circ\text{C}$
Storage Temperature	$T_{stg}$	-65 to +175	$^\circ\text{C}$
Peak Surge Junction Temperature (Forward Current Applied)	$T_{J(pk)}$	175	$^\circ\text{C}$
Voltage Rate of Change	dv/dt	10,000	V/ $\mu\text{s}$

### THERMAL CHARACTERISTICS

Thermal Resistance — Junction to Case	$R_{\theta JC}$	1.4	$^\circ\text{C}/\text{W}$
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This document contains information on a new product. Specifications and information herein are subject to change without notice.

Rev 3

# MBR4045WT

## ELECTRICAL CHARACTERISTICS

Rating	Symbol	Max	Unit
Instantaneous Forward Voltage (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 (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  $\mu\text{s}$ , Duty Cycle < 2.0%

## TYPICAL ELECTRICAL CHARACTERISTICS

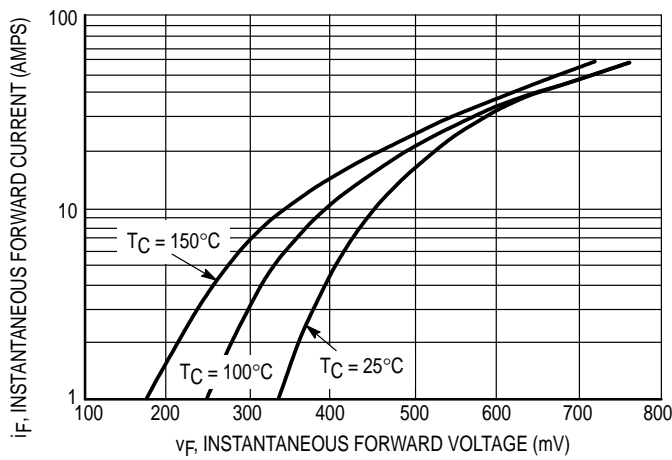


Figure 1. Typical Forward Voltage

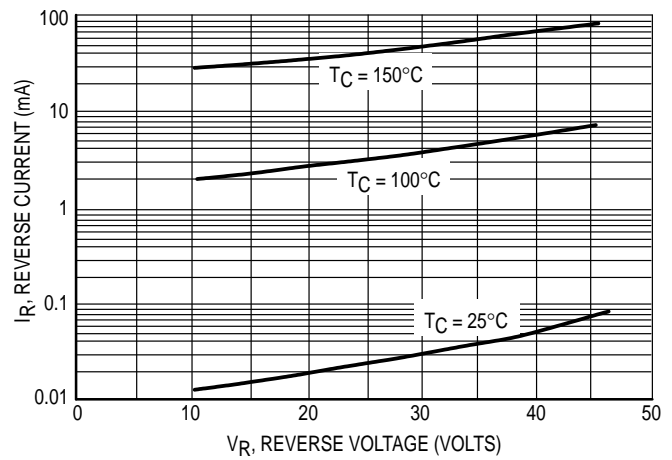


Figure 2. Typical Reverse Current

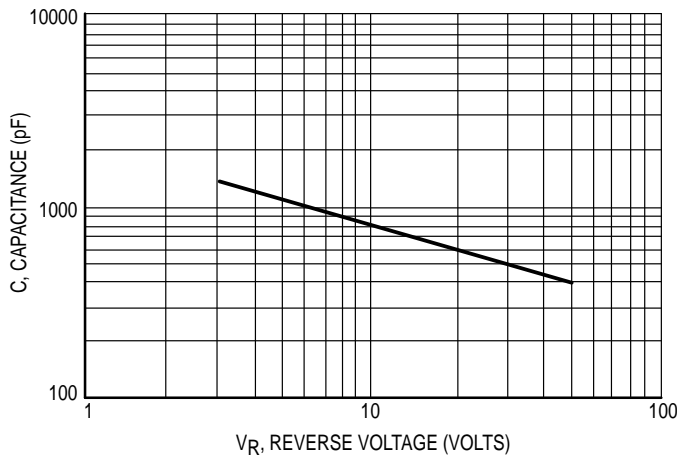


Figure 3. Typical Capacitance Per Leg

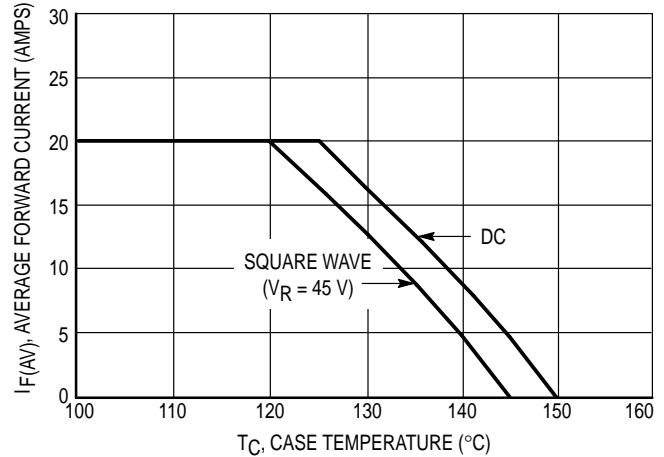
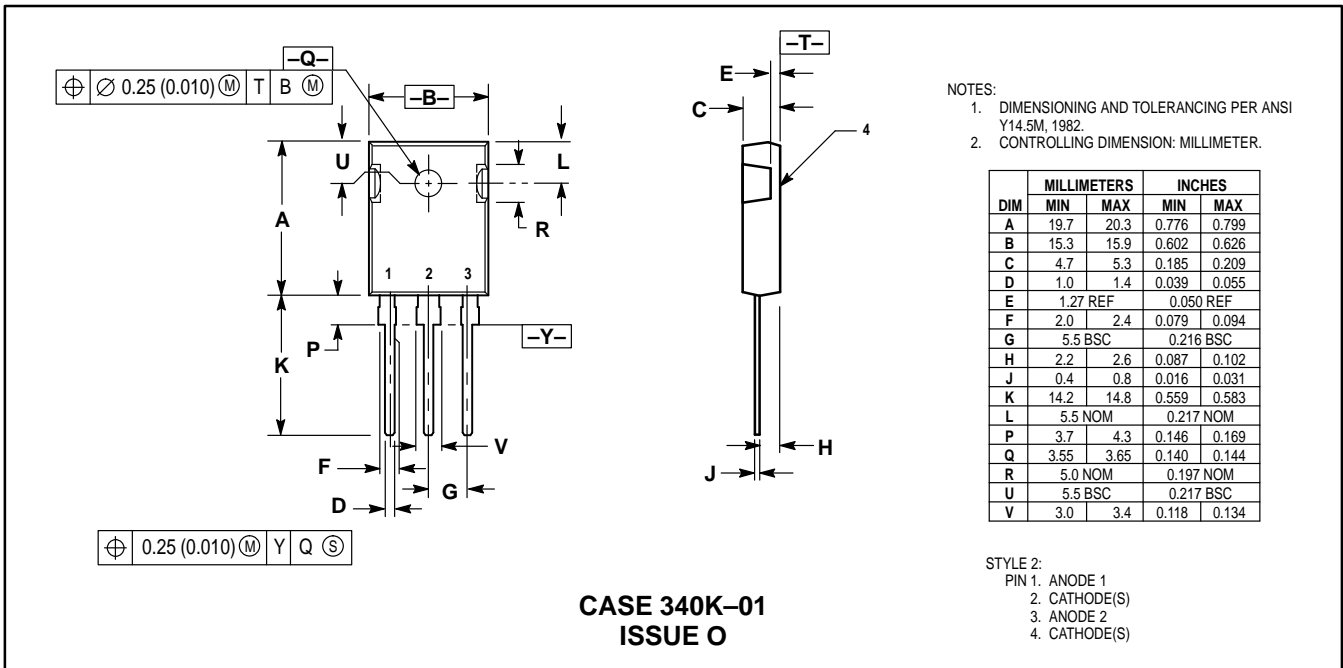



Figure 4. Current Derating Per Leg

PACKAGE DIMENSIONS



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