**Preferred Device** 

# **SWITCHMODE™ Power Rectifier**

... using the Schottky Barrier principle with a platinum barrier metal. These state-of-the-art devices have the following features:

- Dual Diode Construction Terminals 1 and 3 may be Connected for Parallel Operation at Full Rating
- Guardring for Stress Protection
- Low Forward Voltage
- 150°C Operating Junction Temperature
- Popular TO-247 Package

# **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: B3045

## **MAXIMUM RATINGS**

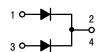
Rating	Symbol	Max	Unit	
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	V <sub>RRM</sub> V <sub>RWM</sub> V <sub>R</sub>	45	V	
Average Rectified Forward Current (Rated V <sub>R</sub> , T <sub>C</sub> = 105°C) Per Device Per Diode	I <sub>F(AV)</sub>	30 15	A	
Peak Repetitive Forward Current, (Rated V <sub>R</sub> , Square Wave, 20 kHz) Per Diode	I <sub>FRM</sub>	30	А	
Non–Repetitive Peak Surge Current (Surge Applied at Rated Load Conditions Halfwave, Single Phase, 60 Hz)	I <sub>FSM</sub>	200	A	
Peak Repetitive Reverse Current (2.0 μs, 1.0 kHz) Per Diode See Figure 6.	I <sub>RRM</sub>	2.0	A	
Storage Temperature Range	T <sub>stg</sub>	-65 to +175	°C	
Operating Junction Temperature	TJ	-65 to +150	°C	
Peak Surge Junction Temperature (Forward Current Applied)	T <sub>J(pk)</sub>	175	°C	
Voltage Rate of Change (Rated V <sub>R</sub> )	dv/dt	10,000	V/μs	

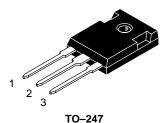


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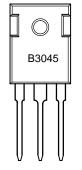
# SCHOTTKY BARRIER RECTIFIER 30 AMPERES 45 VOLTS





CASE 340L PLASTIC

# MARKING DIAGRAM



B3045 = Device Code

## **ORDERING INFORMATION**

Device	Package	Shipping
MBR3045WT	TO-247	30 Units/Rail

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

# THERMAL CHARACTERISTICS (Per Diode)

Rating	Symbol	Max	Unit
Thermal Resistance — Junction to Case	$R_{\theta JC}$	1.4	°C/W
Junction to Ambient	$R_{\theta JA}$	40	

# **ELECTRICAL CHARACTERISTICS** (Per Diode)

Instantaneous Forward Voltage (Note 1.) $ (i_F = 20 \text{ Amps, } T_C = 125^{\circ}\text{C}) \\ (i_F = 30 \text{ Amps, } T_C = 125^{\circ}\text{C}) \\ (i_F = 30 \text{ Amps, } T_C = 25^{\circ}\text{C}) $	V <sub>F</sub>	0.6 0.72 0.76	Volts
Instantaneous Reverse Current (Note 1.) (Rated dc Voltage, $T_C = 125$ °C) (Rated dc Voltage, $T_C = 25$ °C)	İR	100 1.0	mA

<sup>1.</sup> Pulse Test: Pulse Width = 300  $\mu$ s, Duty Cycle  $\leq$  2.0%.

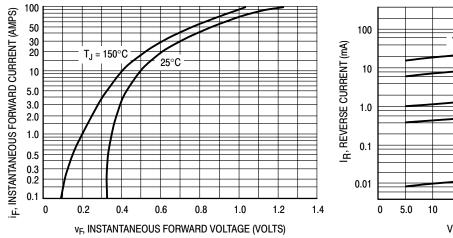


Figure 1. Typical Forward Voltage

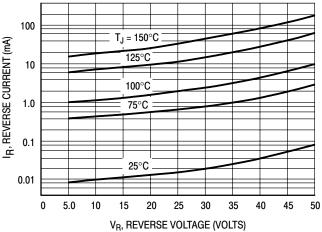
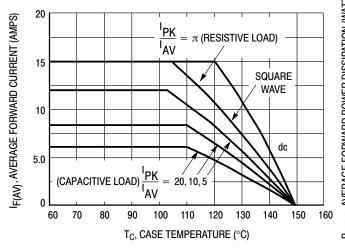


Figure 2. Typical Reverse Current



| CAPACITIVE LOAD| | PK | 20, 10, 5 | SINE WAVE | RESISTIVE LOAD | SQUARE | WAVE | WAVE | SQUARE | WAVE | SQUA

Figure 3. Current Derating (Per Leg)

Figure 4. Forward Power Dissipation (Per Leg)

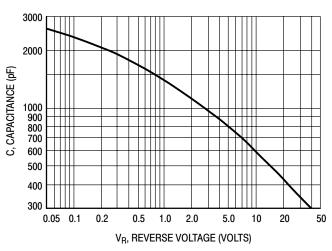


Figure 5. Capacitance

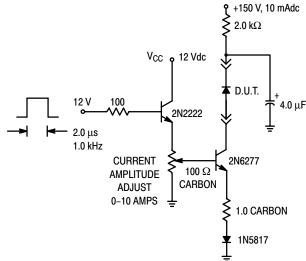
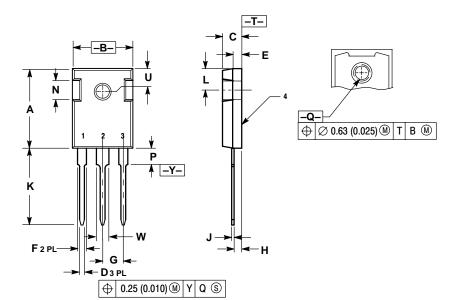


Figure 6. Test Circuit for Repetitive Reverse Current

#### PACKAGE DIMENSIONS

# **TO-247 PSI**

PLASTIC CASE 340L-02 ISSUE D



#### NOTES

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

	MILLIMETERS		INCHES		
DIM	MIN	MAX	MIN	MAX	
Α	20.32	21.08	0.800	8.30	
В	15.75	16.26	0.620	0.640	
С	4.70	5.30	0.185	0.209	
D	1.00	1.40	0.040	0.055	
Е	2.20	2.60	0.087	0.102	
F	1.65	2.13	0.065	0.084	
G	5.45 BSC		0.215 BSC		
Н	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	6.15 BSC		0.242 BSC	
W	2.87	3.12	0.113	0.123	

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