

# 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
- 30 Volt Blocking Voltage
- Low Forward Voltage Drop
- Guardring for Stress Protection and High dv/dt Capability
- 150°C Operating Junction Temperature

### Mechanical Characteristics

- Case: Epoxy, Molded. Epoxy Meets UL 94 V-0 @ 0.125"
- 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: MBR7030WT
- ESD Ratings: Machine Model, B (< 400 V)  
Human Body Model, 3B (> 8000 V)

### MAXIMUM RATINGS

Rating	Symbol	Max	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	$V_{RRM}$ $V_{RWM}$ $V_R$	30	V
Average Rectified Forward Current (Rated $V_R$ , $T_C = 100^\circ\text{C}$ ) Per Leg Per Device	$I_{F(AV)}$	35 70	A
Peak Repetitive Forward Current, (Rated $V_R$ , Square Wave, 20 kHz, $T_C = 100^\circ\text{C}$ )	$I_{FRM}$	70	A
Non-Repetitive Peak Surge Current (Surge Applied at Rated Load Conditions Halfwave, Single Phase, 60 Hz)	$I_{FSM}$	500	A
Peak Repetitive Reverse Current (2.0 $\mu\text{s}$ , 1.0 kHz)	$I_{RRM}$	2.0	A
Storage Temperature Range	$T_{stg}$	-55 to +150	°C
Operating Junction Temperature	$T_J$	-55 to +150	°C
Voltage Rate of Change (Rated $V_R$ )	dv/dt	10,000	V/ $\mu\text{s}$

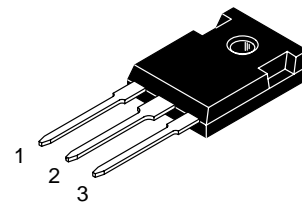
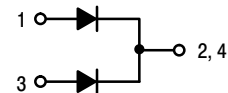
Maximum ratings are those values beyond which device damage can occur. Maximum ratings applied to the device are individual stress limit values (not normal operating conditions) and are not valid simultaneously. If these limits are exceeded, device functional operation is not implied, damage may occur and reliability may be affected.



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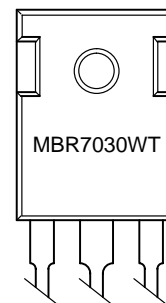
<http://onsemi.com>

## SCHOTTKY BARRIER RECTIFIER 70 AMPERES 30 VOLTS



TO-247AC  
CASE 340L  
STYLE 2

### MARKING DIAGRAM



MBR7030WT = Device Code

### ORDERING INFORMATION

Device	Package	Shipping
MBR7030WT	TO-247	30 Units/Rail

# MBR7030WT

## THEMAL CHARACTERISTICS (Per Diode)

Rating	Symbol	Max	Unit
Thermal Resistance – Junction to Case	$R_{\theta JC}$	0.55	$^{\circ}C/W$

## ELECTRICAL CHARACTERISTICS (Per Diode)

Instantaneous Forward Voltage (Note 1.) @ $I_F = 35$ Amps, $T_C = 25^{\circ}C$ @ $I_F = 70$ Amps, $T_C = 25^{\circ}C$ @ $I_F = 35$ Amps, $T_C = 100^{\circ}C$	$V_F$	0.55 0.72 0.52	Volts
Instantaneous Reverse Current (Note 1.) @ Rated DC Voltage, $T_C = 25^{\circ}C$ @ Rated DC Voltage, $T_C = 100^{\circ}C$	$I_R$	5.0 250	mA

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

## TYPICAL CHARACTERISTICS

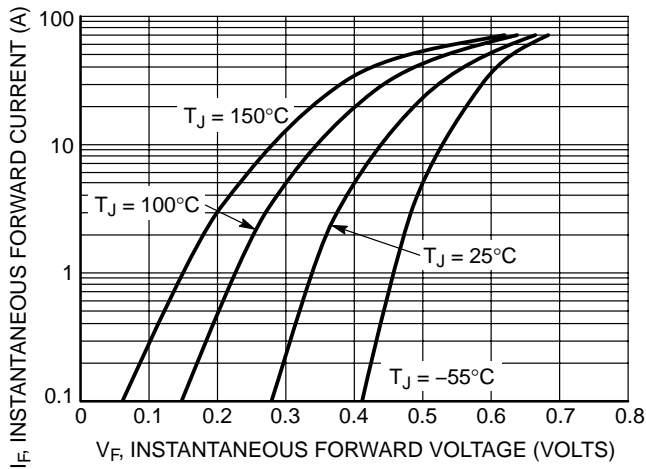


Figure 1. Typical Forward Voltage

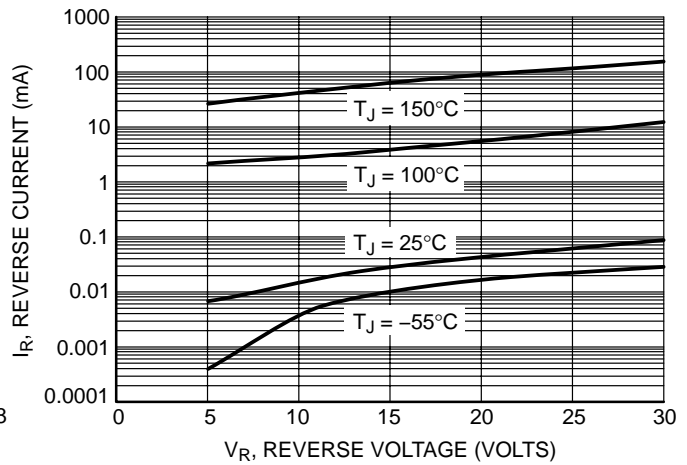


Figure 2. Typical Reverse Current

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## TYPICAL CHARACTERISTICS

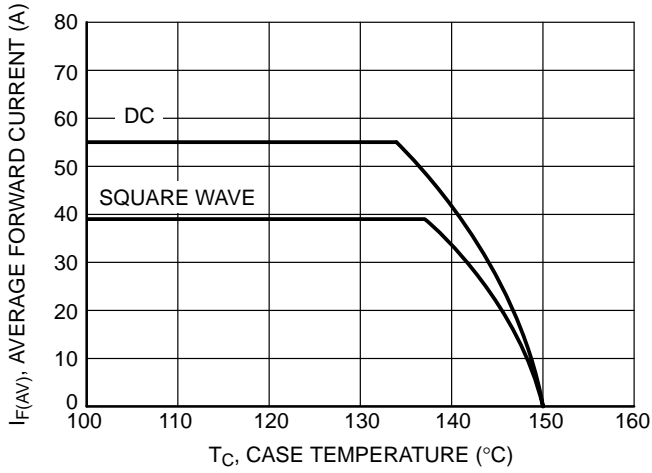


Figure 3. Current Derating (Case)

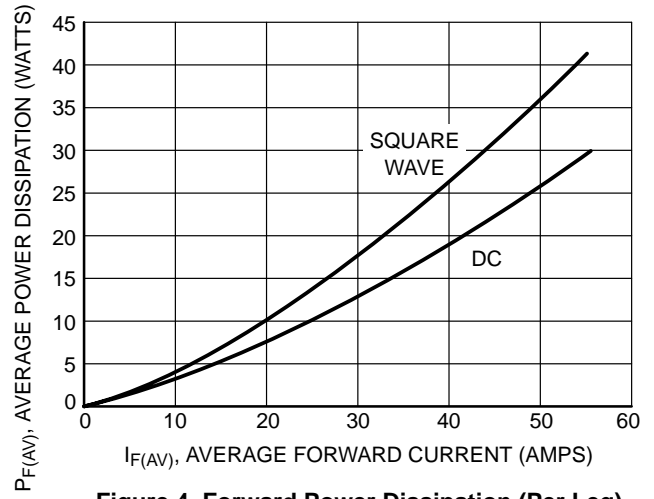


Figure 4. Forward Power Dissipation (Per Leg)

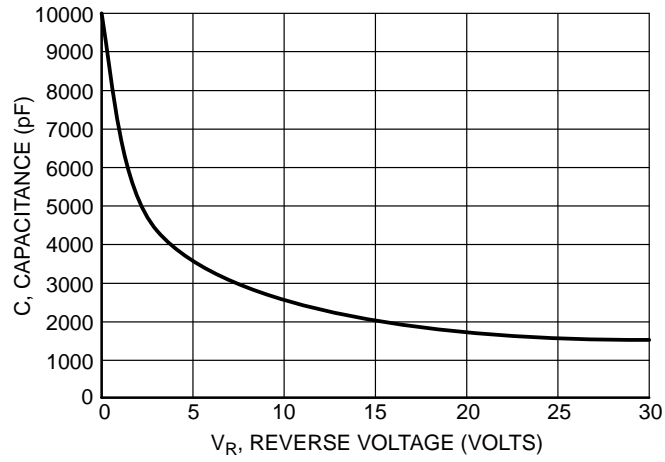


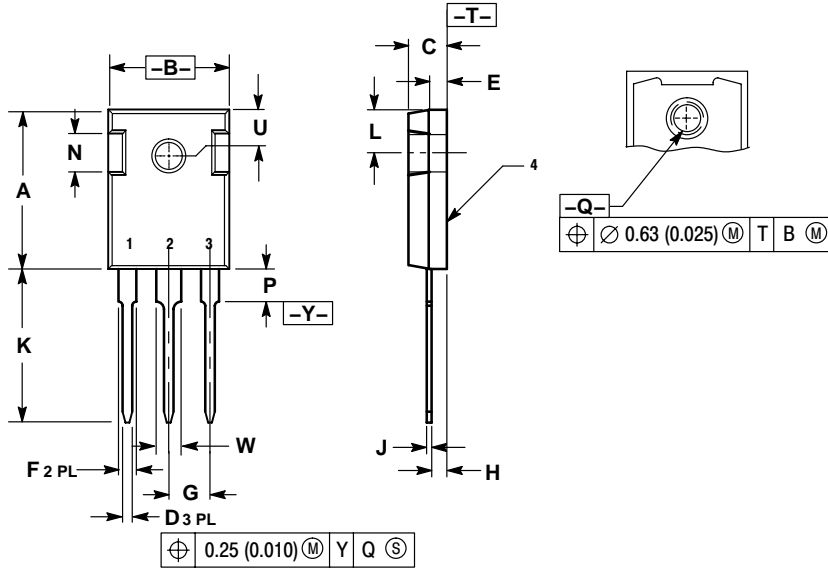
Figure 5. Typical Capacitance

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## PACKAGE DIMENSIONS

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



- NOTES:
- DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
  - 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:
- PIN 1. ANODE
  - CATHODE (S)
  - ANODE 2
  - CATHODES (S)

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