

# MBR7030WT

## SWITCHMODE™ Power Rectifier

The SWITCHMODE power rectifier, a state-of-the-art device, employs the use of the Schottky Barrier principle with a Platinum barrier metal.

### Features

- Dual Diode Construction; Terminals 1 and 3 May Be Connected for Parallel Operation at Full Rating
- 30 V Blocking Voltage
- Low Forward Voltage Drop
- Guardring for Stress Protection and High dv/dt Capability
- 175°C Operating Junction Temperature
- Pb-Free Package is Available\*

### Mechanical Characteristics

- Case: Epoxy, Molded. Epoxy Meets UL 94 V-0 @ 0.125 in
- 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
- 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 +175	°C
Operating Junction Temperature (Note 1)	$T_J$	-55 to +175	°C
Voltage Rate of Change (Rated $V_R$ )	dv/dt	10,000	V/ $\mu\text{s}$

Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

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

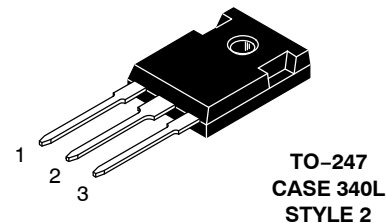
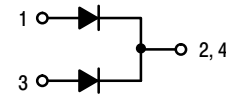
\*For additional information on our Pb-Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.



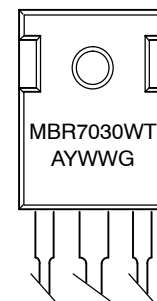
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## SCHOTTKY BARRIER RECTIFIER 70 AMPERES, 30 VOLTS



### MARKING DIAGRAM



A = Assembly Location  
Y = Year  
WW = Work Week  
G = Pb-Free Package

### ORDERING INFORMATION

Device	Package	Shipping
MBR7030WT	TO-247	30 Units/Rail
MBR7030WTG	TO-247 (Pb-Free)	30 Units/Rail

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## THERMAL CHARACTERISTICS (Per Diode)

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

## ELECTRICAL CHARACTERISTICS (Per Diode)

Instantaneous Forward Voltage (Note 2) @ $I_F = 35$ Amps, $T_C = 25^{\circ}\text{C}$ @ $I_F = 70$ Amps, $T_C = 25^{\circ}\text{C}$ @ $I_F = 35$ Amps, $T_C = 100^{\circ}\text{C}$	$V_F$	0.55 0.72 0.52	V
Instantaneous Reverse Current (Note 2) @ Rated DC Voltage, $T_C = 25^{\circ}\text{C}$ @ Rated DC Voltage, $T_C = 100^{\circ}\text{C}$	$I_R$	5.0 250	mA

2. Pulse Test: Pulse Width = 300  $\mu\text{s}$ , Duty Cycle < 2.0%

## TYPICAL CHARACTERISTICS

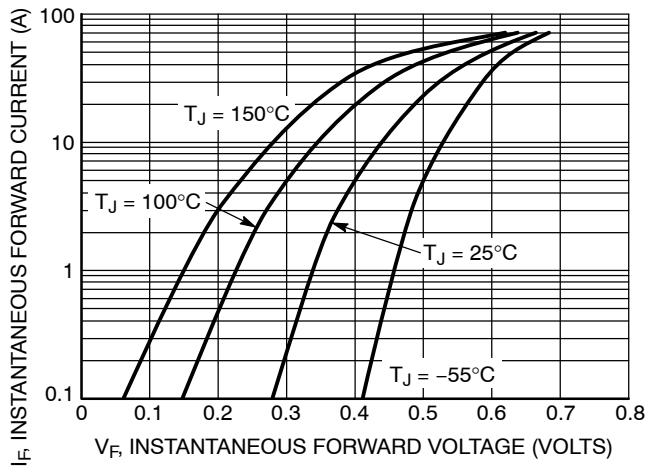


Figure 1. Typical Forward Voltage

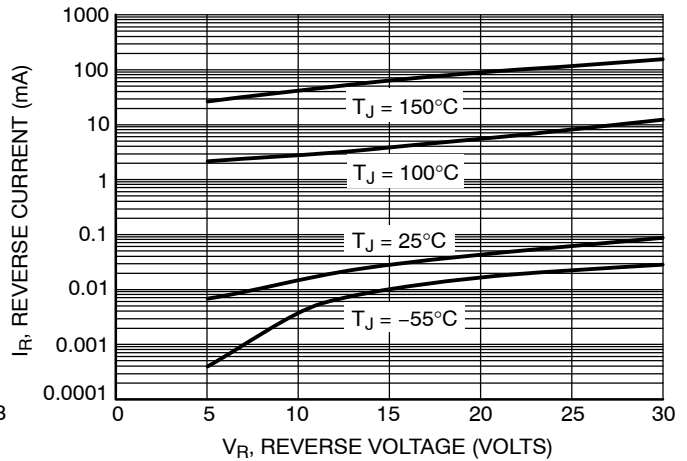


Figure 2. Typical Reverse Current

# MBR7030WT

## TYPICAL CHARACTERISTICS

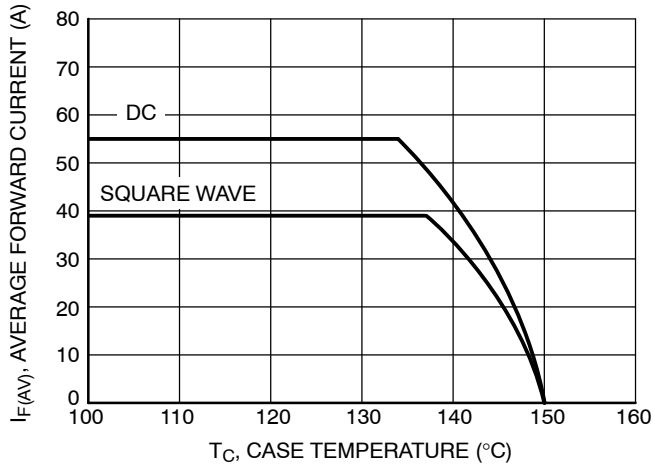


Figure 3. Current Derating (Case)

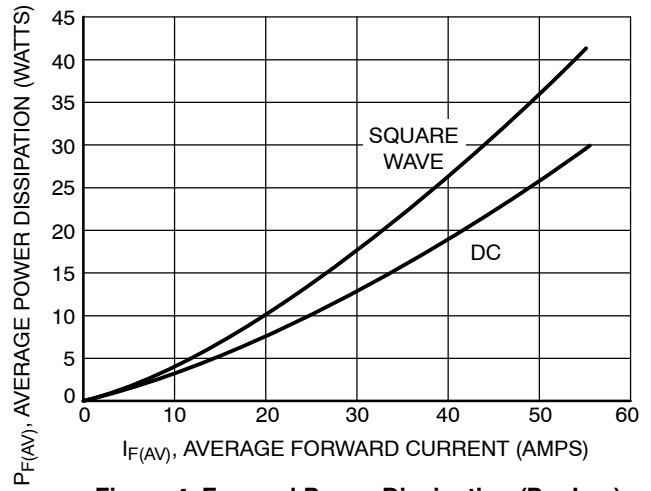


Figure 4. Forward Power Dissipation (Per Leg)

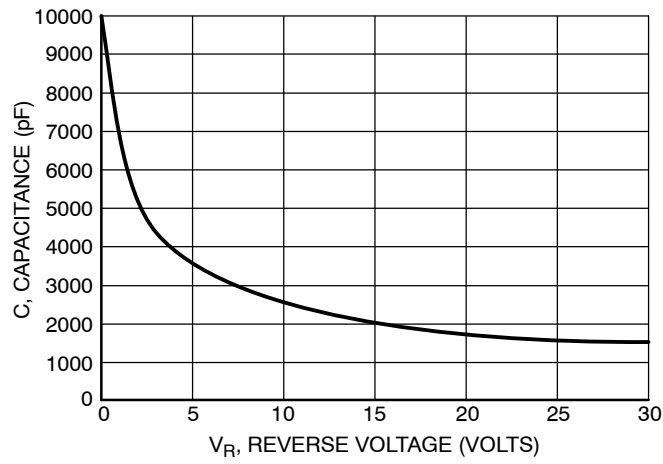
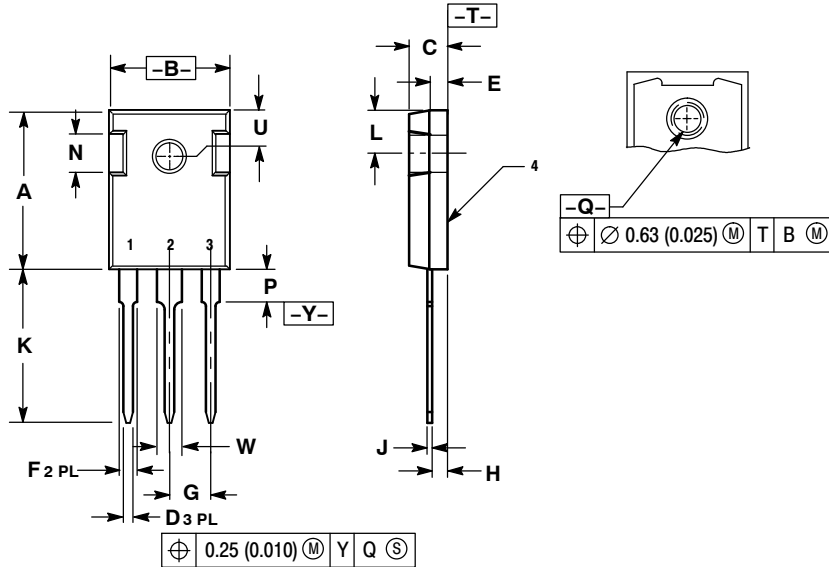


Figure 5. Typical Capacitance

# MBR7030WT

## PACKAGE DIMENSIONS

TO-247  
CASE 340L-02  
ISSUE E



- 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	1.90	2.60	0.075	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	19.81	20.83	0.780	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  
2. CATHODE (S)  
3. ANODE 2  
4. CATHODES (S)

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