



**THE DATASHEET OF
MBR7030WTG**



MBR7030WTG

Switch Mode Power Rectifier

The Switch Mode 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
- These Devices are Pb-Free, Halogen Free/BFR Free and are RoHS Compliant*

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 | V_{RRM} | 30 | V |
| Working Peak Reverse Voltage | V_{RWM} | | |
| DC Blocking Voltage | V_R | | |
| Average Rectified Forward Current (Rated V_R , $T_C = 100^\circ\text{C}$) | $I_{F(AV)}$ | 35 70 | A Per Leg Per Device |
| Peak Repetitive Forward Current, (Rated V_R , Square Wave, 20 kHz, $T_C = 100^\circ\text{C}$) | I_{FRM} | 70 | A |
| Non-Repititive Peak Surge Current (Surge Applied at Rated Load Conditions Halfwave, Single Phase, 60 Hz) | I_{FSM} | 500 | A |
| Peak Repetitive Reverse Current (2.0 μs , 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/ 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: $dP_J/dT_J < 1/R_{\theta JA}$.

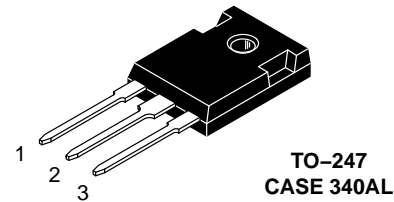
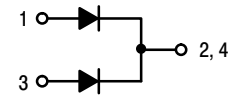
*For additional information on our Pb-Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.



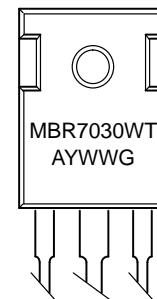
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SCHOTTKY BARRIER RECTIFIER 70 AMPERES, 30 VOLTS



MARKING DIAGRAM



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

ORDERING INFORMATION

| Device | Package | Shipping |
|------------|------------------|---------------|
| 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 | $^{\circ}C/W$ |

ELECTRICAL CHARACTERISTICS (Per Diode)

| | | | |
|---|-------|----------------------|----|
| Instantaneous Forward Voltage (Note 2) @ $I_F = 35$ 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 | V |
| Instantaneous Reverse Current (Note 2) @ Rated DC Voltage, $T_C = 25^{\circ}C$ @ Rated DC Voltage, $T_C = 100^{\circ}C$ | I_R | 5.0 250 | 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 < 2.0%

TYPICAL CHARACTERISTICS

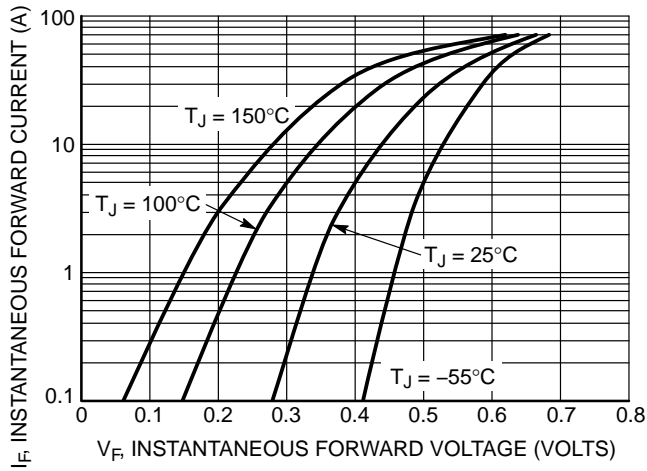


Figure 1. Typical Forward Voltage

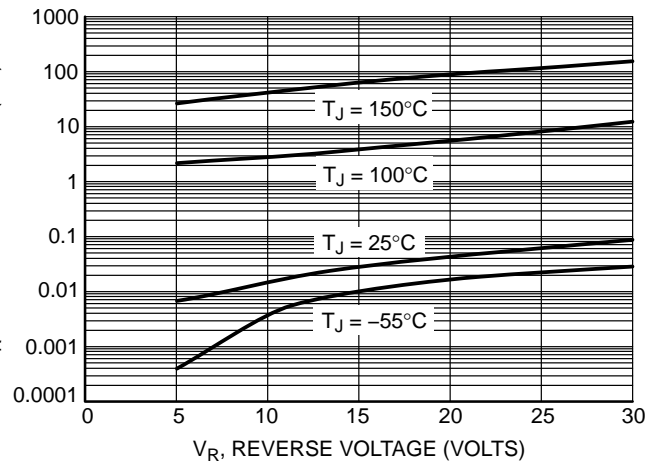


Figure 2. Typical Reverse Current

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TYPICAL CHARACTERISTICS

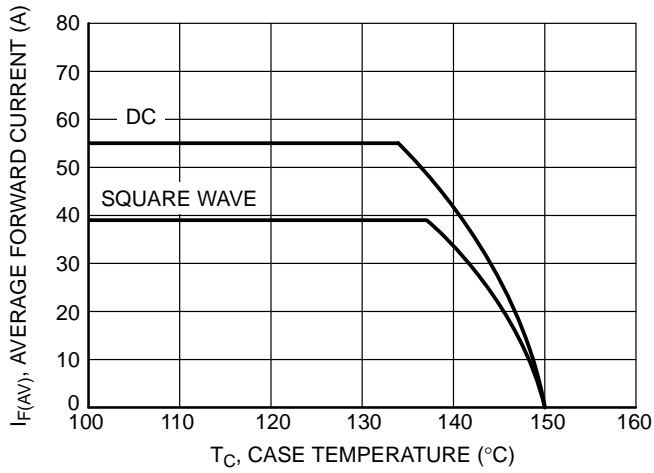


Figure 3. Current Derating (Case)

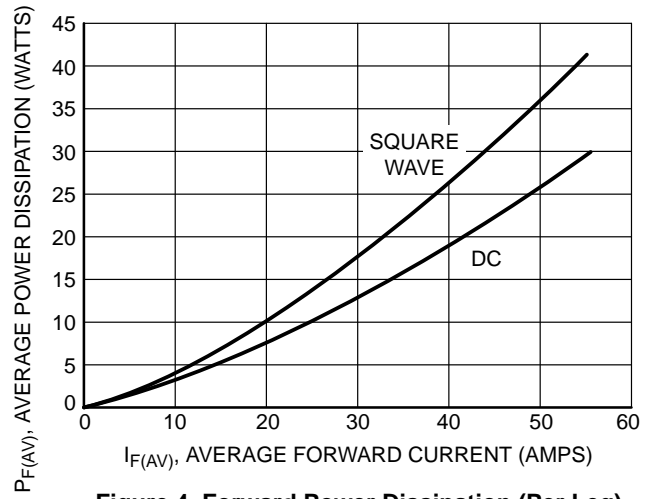


Figure 4. Forward Power Dissipation (Per Leg)

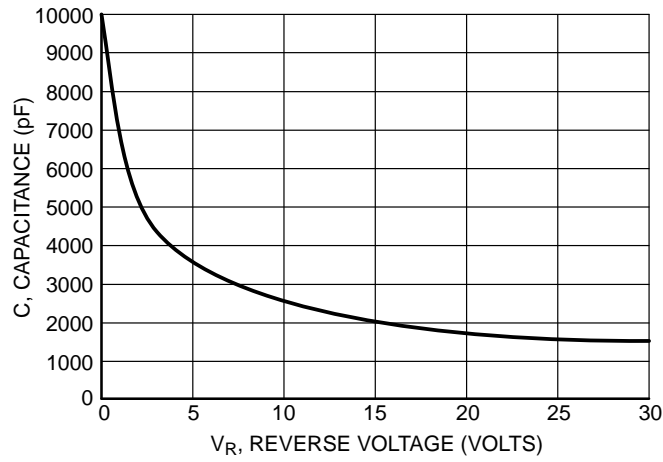
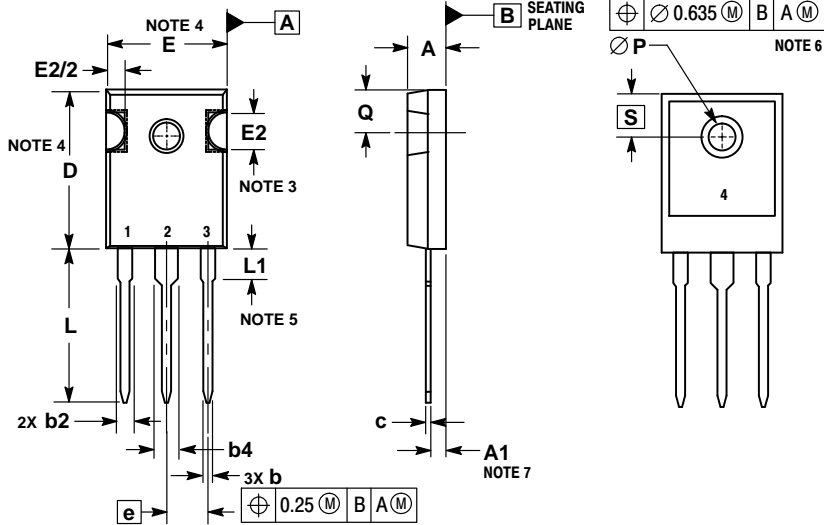


Figure 5. Typical Capacitance

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PACKAGE DIMENSIONS


TO-247 CASE 340AL ISSUE A



NOTES:

1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 1994.
2. CONTROLLING DIMENSION: MILLIMETERS.
3. SLOT REQUIRED, NOTCH MAY BE ROUNDED.
4. DIMENSIONS D AND E DO NOT INCLUDE MOLD FLASH. MOLD FLASH SHALL NOT EXCEED 0.13 PER SIDE. THESE DIMENSIONS ARE MEASURED AT THE OUTERMOST EXTREME OF THE PLASTIC BODY.
5. LEAD FINISH IS UNCONTROLLED IN THE REGION DEFINED BY L1.
6. $\varnothing P$ SHALL HAVE A MAXIMUM DRAFT ANGLE OF 1.5° TO THE TOP OF THE PART WITH A MAXIMUM DIAMETER OF 3.91.
7. DIMENSION A1 TO BE MEASURED IN THE REGION DEFINED BY L1.

| DIM | MILLIMETERS | |
|-----|-------------|-------|
| | MIN | MAX |
| A | 4.70 | 5.30 |
| A1 | 2.20 | 2.60 |
| b | 1.00 | 1.40 |
| b2 | 1.65 | 2.35 |
| b4 | 2.60 | 3.40 |
| c | 0.40 | 0.80 |
| D | 20.30 | 21.40 |
| E | 15.50 | 16.25 |
| E2 | 4.32 | 5.49 |
| e | 5.45 BSC | |
| L | 19.80 | 20.80 |
| L1 | 3.50 | 4.50 |
| P | 3.55 | 3.65 |
| Q | 5.40 | 6.20 |
| S | 6.15 BSC | |

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