

MBRP30060CT

Preferred Device

POWERTAP™ II 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 —
May Be Paralleled for Higher Current Output
- Guardring for Stress Protection
- Low Forward Voltage
- 150°C Operating Junction Temperature

Mechanical Characteristics:

- Case: Epoxy, Molded with metal heatsink base
- Weight: 80 grams (approximately)
- Finish: All External Surfaces Corrosion Resistant
- Top Terminal Torque: 25-40 lb-in max
- Base Plate Torques:
See procedure given in the Package Outline Section
- Shipped 25 units per foam
- Marking: B30060T

MAXIMUM RATINGS

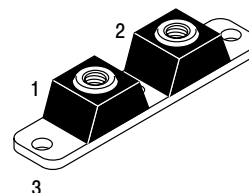
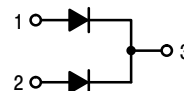
| Rating | Symbol | Max | Unit |
|---|-------------|-----------------------|------------------------|
| Peak Repetitive Reverse Voltage | V_{RRM} | 60 | V |
| Working Peak Reverse Voltage | V_{RWM} | | |
| DC Blocking Voltage | V_R | | |
| Average Rectified Forward Current (Rated V_R , $T_C = 140^\circ\text{C}$) | $I_{F(AV)}$ | 150 300 | A |
| | | Per Leg Per Device | |
| Peak Repetitive Forward Current, (Rated V_R , Square Wave, 20 kHz, $T_C = 140^\circ\text{C}$) | I_{FRM} | 300 | A |
| | | Per Leg | |
| Non-Repetitive Peak Surge Current (Surge Applied at Rated Load Conditions Halfwave, Single Phase, 60 Hz) | I_{FSM} | 2500 | A |
| | | Per Leg | |
| Peak Repetitive Reverse Current (2.0 μs , 1.0 kHz) | I_{RRM} | 2.0 | A |
| | | Per Leg | |
| Storage Temperature Range | T_{stg} | -55 to +150 | $^\circ\text{C}$ |
| Operating Junction Temperature | T_J | -55 to +150 | $^\circ\text{C}$ |
| Voltage Rate of Change (Rated V_R) | dv/dt | 10,000 | $\text{V}/\mu\text{s}$ |



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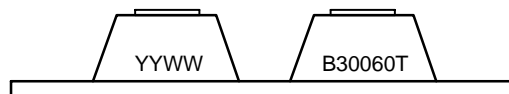
<http://onsemi.com>

SCHOTTKY BARRIER RECTIFIER 300 AMPERES 60 VOLTS



POWERTAP II
CASE 357C
PLASTIC

MARKING DIAGRAM



B30060T = Device Code
YY = Year
WW = Work Week

ORDERING INFORMATION

| Device | Package | Shipping |
|-------------|-------------|---------------|
| MBRP30060CT | POWERTAP II | 25 Units/Tray |

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

MBRP30060CT

THERMAL CHARACTERISTICS (Per Leg)

| Rating | Symbol | Value | Unit |
|--------------------------------------|-----------------|-------|------|
| Thermal Resistance, Junction to Case | $R_{\theta JC}$ | 0.45 | °C/W |

ELECTRICAL CHARACTERISTICS (Per Leg)

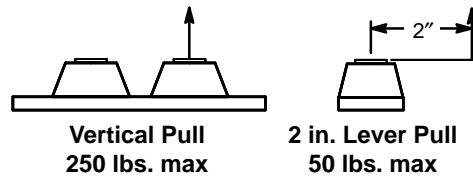
| | | | |
|--|-------|--------------|-------|
| Instantaneous Forward Voltage (Note 1) ($i_F = 150$ Amps, $T_J = 25^\circ\text{C}$) ($i_F = 300$ Amps, $T_J = 25^\circ\text{C}$) | V_F | 0.79 0.89 | Volts |
| Instantaneous Reverse Current (Note 1) (Rated dc Voltage, $T_J = 125^\circ\text{C}$) (Rated dc Voltage, $T_J = 25^\circ\text{C}$) | i_R | 75 0.8 | mA |

1. Pulse Test: Pulse Width = 300 μs , Duty Cycle $\leq 2.0\%$.

MAXIMUM MECHANICAL RATINGS

| | |
|-------------------------------------|---|
| Terminal Penetration: | 0.235 max |
| Terminal Torque: | 25-40 in-lb max |
| Mounting Torque — Outside Holes: | 30-40 in-lb max |
| Mounting Torque — Center Hole: | 8-10 in-lb max |
| Seating Plane Flatness | 1 mil per in. (between mounting holes) |

POWERTAP MECHANICAL DATA APPLIES OVER OPERATING TEMPERATURE



Note: While the POWERTAP is capable of sustaining these vertical and levered tensions, the intimate contact between POWERTAP and heat sink may be lost. This could lead to thermal runaway. The use of very flexible leads is recommended for the anode connections. Use of thermal grease is highly recommended.

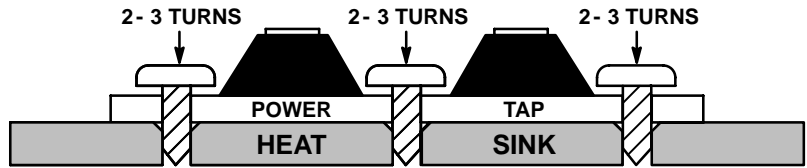
MBRP30060CT

MOUNTING PROCEDURE

The POWERTAP package requires special mounting considerations because of the long longitudinal axis of the copper heat sink. It is important to follow the proper tightening sequence to avoid warping the heat sink, which can reduce thermal contact between the POWERTAP and heat sink.

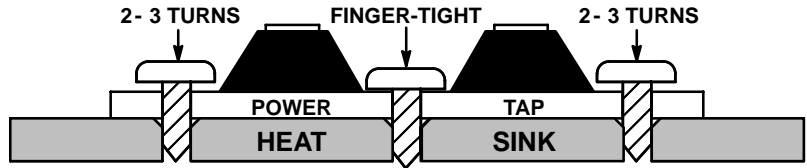
STEP 1:

Locate the POWERTAP on the heat sink and start mounting bolts into the threads by hand (2 or 3 turns).



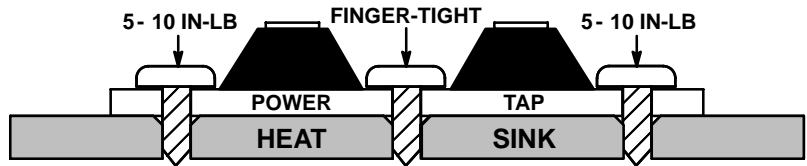
STEP 2:

Finger tighten the center bolt. The bolt may catch on the threads of the heat sink so it is important to make sure the face of the bolt or washer is in contact with the surface of the POWERTAP.



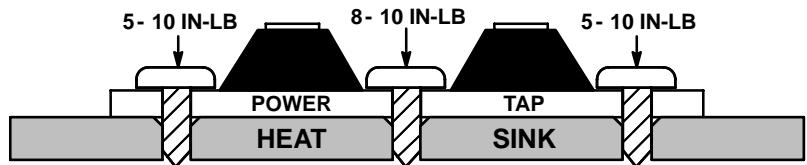
STEP 3:

Tighten each of the end bolts between 5 to 10 in-lb.



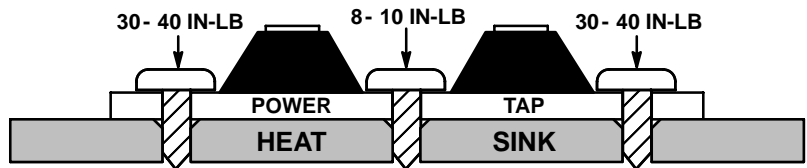
STEP 4:

Tighten the center bolt between 8 to 10 in-lb.



STEP 5:

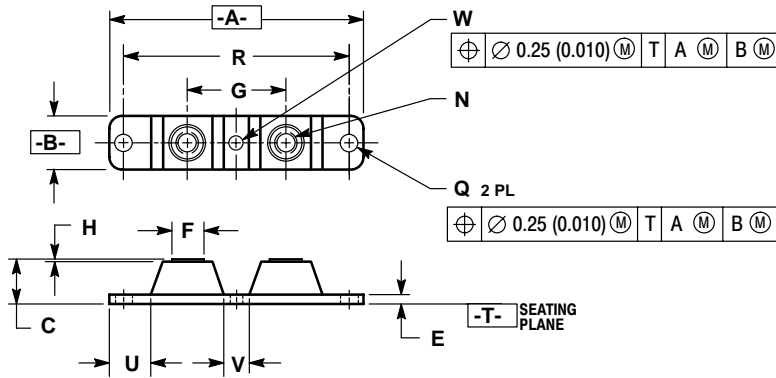
Finally, tighten the end bolts between 30 to 40 in-lb.



MBRP30060CT

PACKAGE DIMENSIONS

CASE 357C-03
 POWERTAP
 PLASTIC PACKAGE
 ISSUE E




NOTES:

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.
3. TERMINAL PENETRATION: 5.97 (0.235) MAXIMUM.

| DIM | INCHES | | MILLIMETERS | |
|-----|--------------|-------|--------------|-------|
| | MIN | MAX | MIN | MAX |
| A | 3.450 | 3.635 | 87.63 | 92.33 |
| B | 0.700 | 0.810 | 17.78 | 20.57 |
| C | 0.615 | 0.640 | 15.63 | 16.26 |
| E | 0.120 | 0.130 | 3.05 | 3.30 |
| F | 0.435 | 0.445 | 11.05 | 11.30 |
| G | 1.370 | 1.380 | 34.80 | 35.05 |
| H | 0.007 | 0.030 | 0.18 | 0.76 |
| N | 1/4-20UNC-2B | | 1/4-20UNC-2B | |
| Q | 0.270 | 0.285 | 6.86 | 7.23 |
| R | .3150 BSC | | .8001 BSC | |
| U | 0.600 | 0.630 | 15.24 | 16.00 |
| V | 0.330 | 0.375 | 8.39 | 9.52 |
| W | 0.170 | 0.190 | 4.32 | 4.82 |

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