POWERTAP II Switch-mode Power Rectifier

This state-of-the-art SWITCHMODE Power Rectifier uses the Schottky Barrier principle with a platinum barrier metal.

Features

- Dual Diode Construction; May Be Paralleled for Higher Current Output
- Guard–Ring for Stress Protection
- Low Forward Voltage Drop
- 150°C Operating Junction Temperature
- Recyclable Epoxy
- Improved Mechanical Ratings
- Pb-Free Package is Available*

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

MAXIMUM RATINGS

V _{RRM} V _{RWM} V _R	30	V
	- 30	
I _{F(AV)}	200 400	A
IFRM	200	A
IFSM	1500	A
I _{RRM}	2.0	А
T _{stg}	–55 to +150	°C
TJ	–55 to +150	°C
dv/dt	10,000	V/μs
	IFRM IFSM IRRM Tstg TJ dv/dt	IF(AV) 200 400 IFRM 200 IFSM 1500 IRRM 2.0 Tstg -55 to +150 TJ -55 to +150

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.

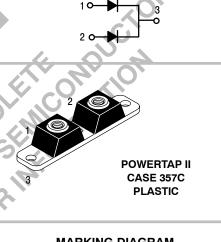
*For additional information on our Pb-Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.



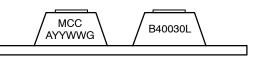
ON Semiconductor®

www.onsemi.com

LOW V_F SCHOTTKY BARRIER RECTIFIER 400 AMPERES, 30 VOLTS



MARKING DIAGRAM



B40030L MCC	= Specific Device Code = Mold Compound Code
А	= Assembly Location
YY	= Year
WW	= Work Week
G	= Pb-Free Package

ORDERING INFORMATION

Device	Package	Shipping
MBRP40030CTL	POWERTAP II	25 Units/Tray
MBRP40030CTLG	POWERTAP II (Pb-Free)	25 Units/Tray

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THERMAL CHARACTERISTICS

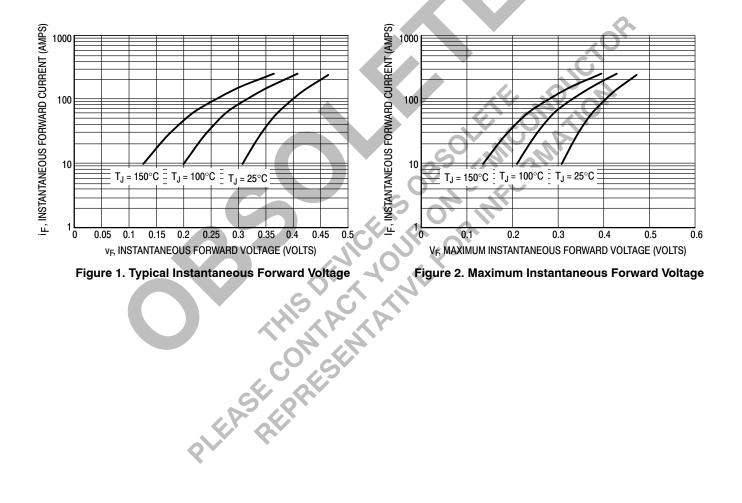
Characteristic	Symbol	Value	Unit
Thermal Resistance, Junction-to-Case (Note 1)	$R_{\theta JC}$	0.4	°C/W

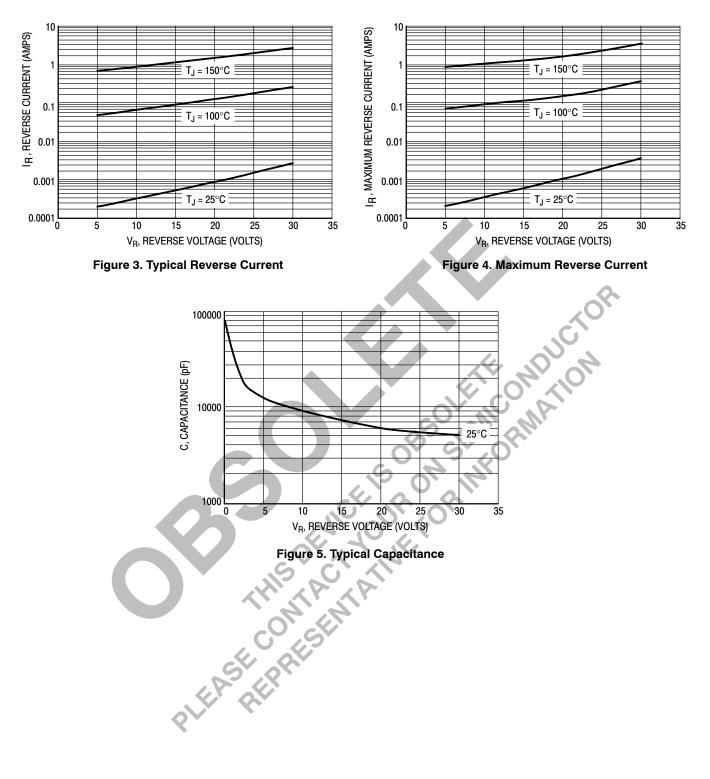
Maximum Instantaneous Forward Voltage (Note 2)	V _F		V
(i _F = 200 Amps, T _C = +25°C)		0.5	
(i _F = 200 Amps, T _C = +100°C)		0.41	
Maximum Instantaneous Reverse Current (Note 2)	I _R		mA
(Rated dc Voltage, $T_C = +25^{\circ}C$)		20	
(Rated dc Voltage, T _C = +100°C)		1000	

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.

1. Rating applies when surface mounted on the minimum pad size recommended.

2. Pulse Test: Pulse Width = 300 μ s, Duty Cycle \leq 2%.

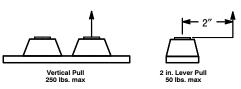




MAXIMUM MECHANICAL RATINGS

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

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.

2-3 TURNS

2-3 TURNS

5-10 IN-LB

POWER

HEAT

POWER

HEAT

POWER

HEAT

STEP 1:

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

STEP 2:

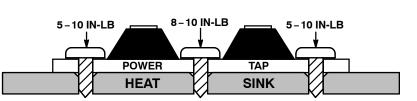
Finger tighten the center bolt. The bolt may catch on the threads of the heat sink so it is important to make sure the face of the bolt or washer is in contact with the surface of the POWERTAP.

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.



2-3 TURNS

FINGER-TIGHT

FINGER-TIGHT

TAP

SINK

TAP

SINK

TAP

SINK

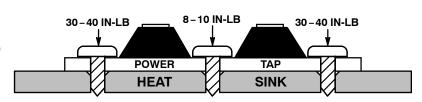
TURNS

2-3 TURNS

5-10 IN-LB

STEP 5:

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



PACKAGE DIMENSIONS

CASE 357C-03 POWERTAP PLASTIC PACKAGE ISSUE E



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