

DESCRIPTION

The MP8848 is a highly integrated and high frequency synchronous step-down switcher with I²C control interface. It is optimized to support up to 6A load current over an input supply range from 2.7V to 6V with excellent load and line regulation.

Constant frequency hysteretic mode provides extremely fast transient response without loop compensation and easily achieves high efficiency under light load condition.

The output voltage level can be controlled, on-the fly through a 3.4Mbps I²C serial interface. Voltage range can be adjusted from 0.6V to 1.235V in 5mV steps.

Voltage slew rate, switching frequency and power savings mode are also selectable through the I²C interface.

The MP8848 requires a minimum number of readily available standard external components and is available in the compact QFN 2mmx3mm package.

ELECTRICAL SPECIFICATION

Parameter	Symbol	Value	Units
Input Voltage	V _{IN}	2.7– 6	V
Output Voltage	V _{OUT}	0.94	V
Output Current	I _{OUT}	6	A

FEATURES

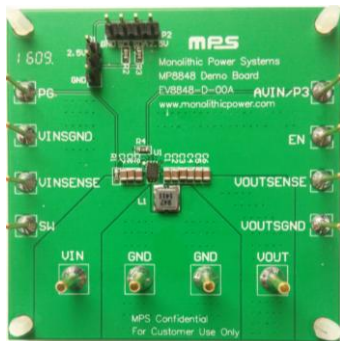
- 2.7V to 6V Input Voltage Range
- Up to 6A Load Current
- Internal 32mΩ High-Side, 15mΩ Low-Side Power MOSFETs
- I²C Compatible Interface up to 3.4Mbps
- I²C Programmable Output Range from 0.6V to 1.235V in 5mV Steps
- Factory Adjustable Switching Frequency from 0.85MHz to 2.2MHz
- Power Saving Mode Selectable via I²C
- Internal 1ms Soft-Start
- Power Good Indicator
- Current Overload and Thermal Shutdown Protection
- Available in QFN 2mmx3mm package

APPLICATIONS

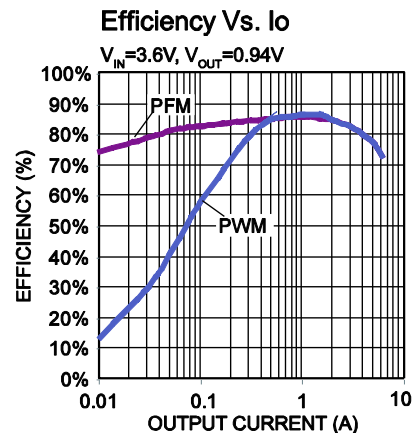
- Processor Core Supply
- Micro Converter

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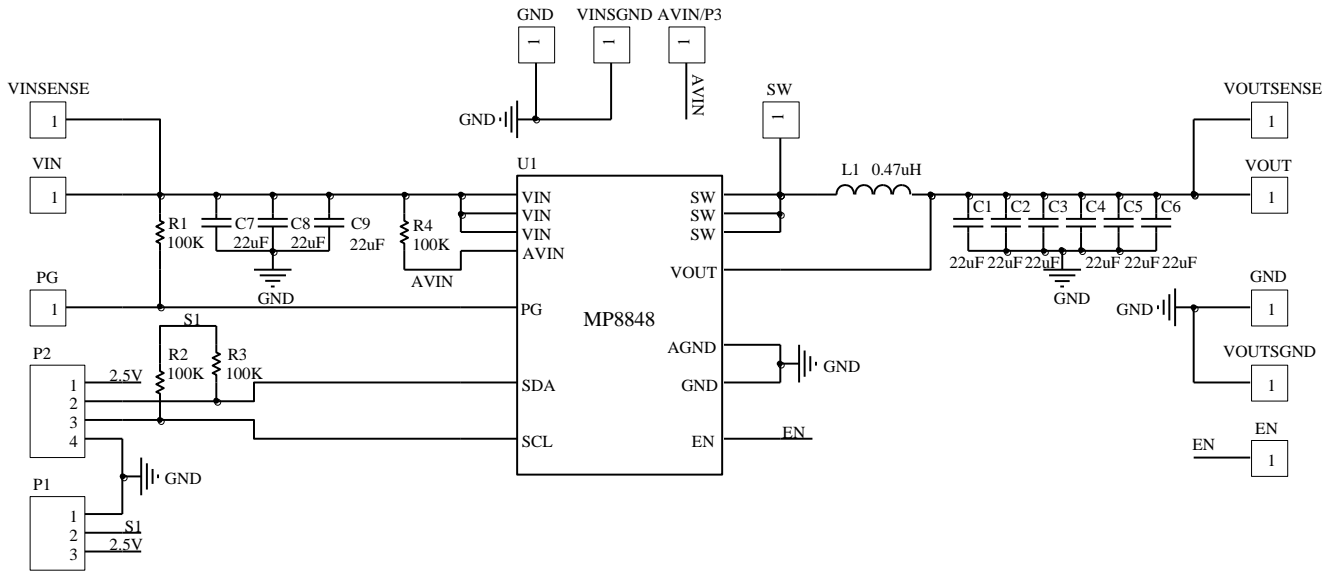
EV8848-D-00A EVALUATION BOARD



Board Number	MPS IC Number
EV8848-D-00A	MP8848GD



EVALUATION BOARD SCHEMATIC



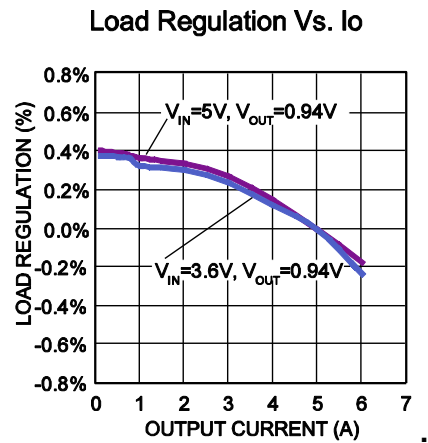
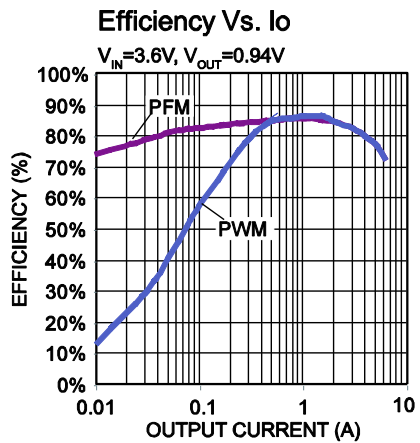
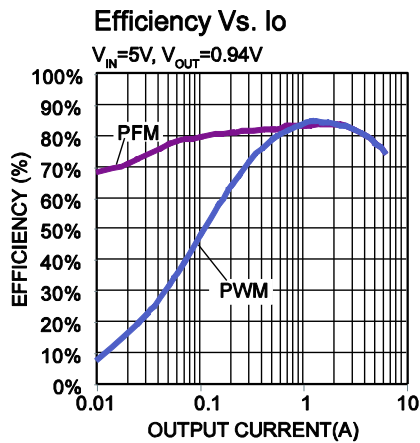
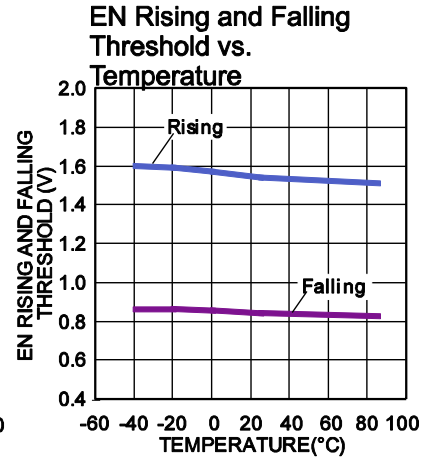
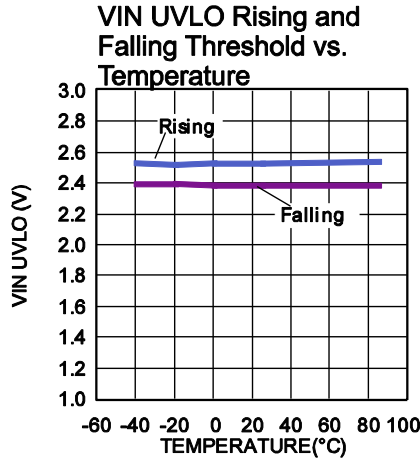
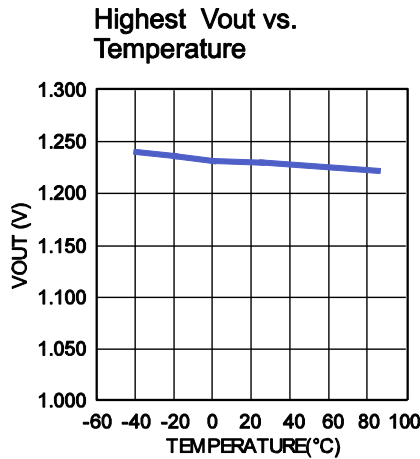
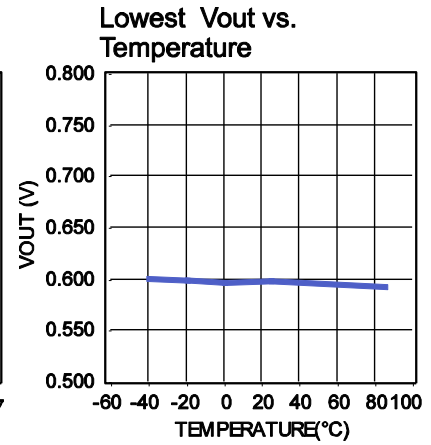
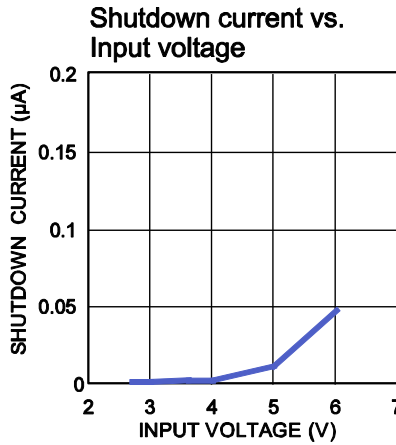
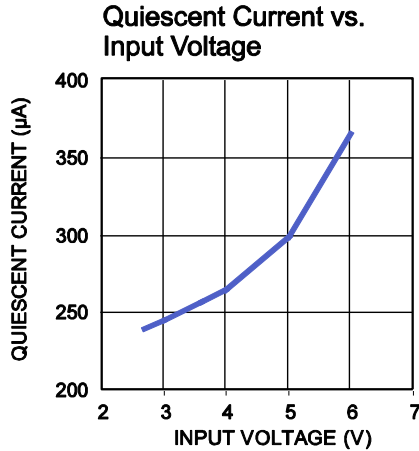
EV8848-D-00A BILL OF MATERIALS

Qty	RefDes	Value	Description	Package	Manufacturer	Manufacturer P/N
6	C1, C2, C3, C4, C5, C6	22μF	Ceramic Cap, 6.3V, X5R	SM0805	muRata	GRM21BR60J226ME39L
3	C7, C8, C9	22μF	Ceramic Cap, 10V, X5R	SM0805	muRata	GRM21BR61A226ME51L
4	R1, R2, R3, R4	100k	Film Res., 5%	SM0603	Any	
1	L1	0.47μH	Inductor IR=6.8A, Isat=14.5A	SM 4.0X4.0mm	Würth	744 373 240 047
1	U1	MP8848	Step Down Switcher With I2C	QFN-2mmx3mm	MPS	MP8848GD

EVB TEST RESULTS

Performance waveforms are tested on the evaluation board.

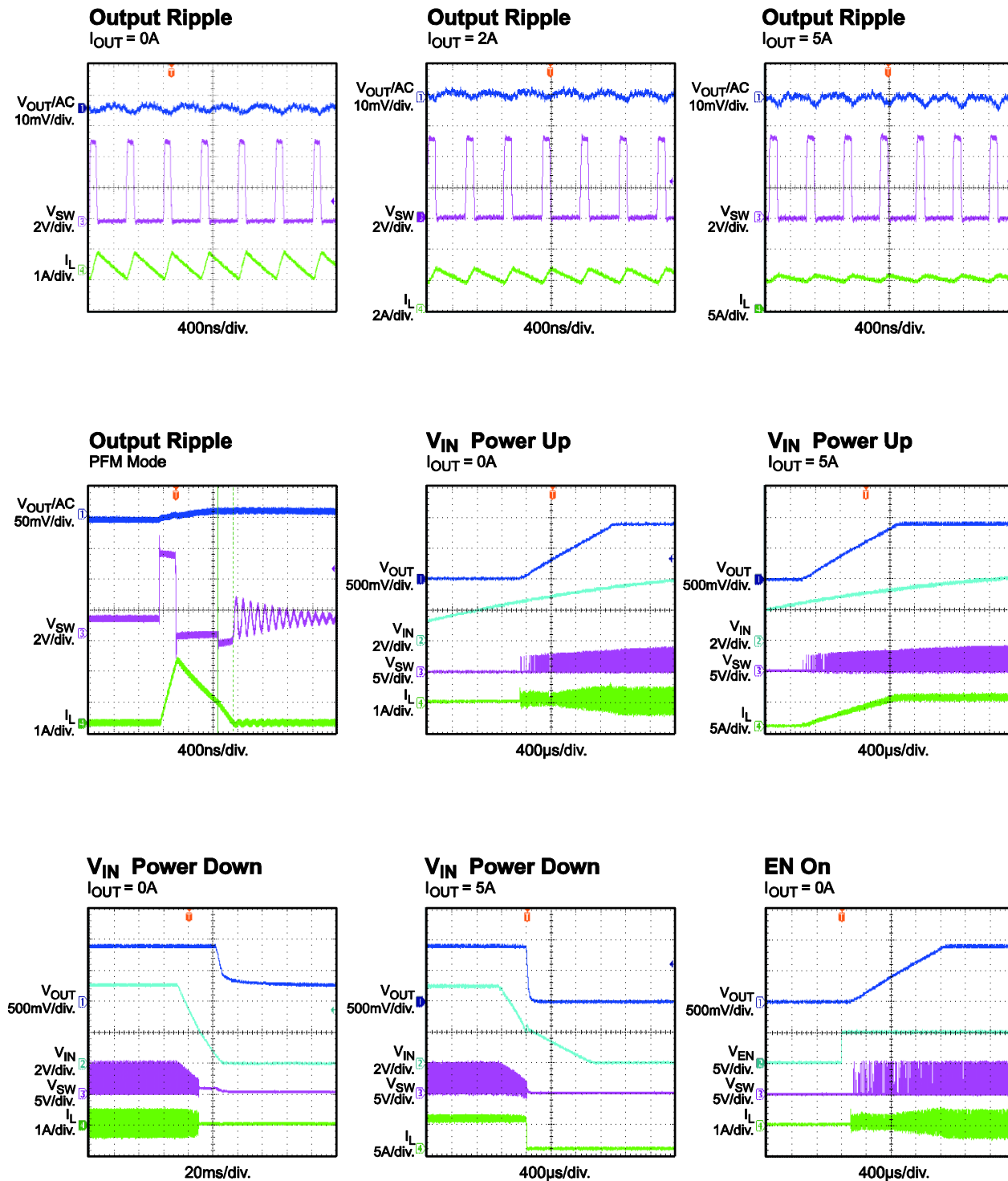
$V_{IN} = 5V$, $V_{OUT} = 0.94V$, $L = 0.47\mu H$, $T_A = 25^\circ C$, unless otherwise noted.



EVB TEST RESULTS *(continued)*

Performance waveforms are tested on the evaluation board.

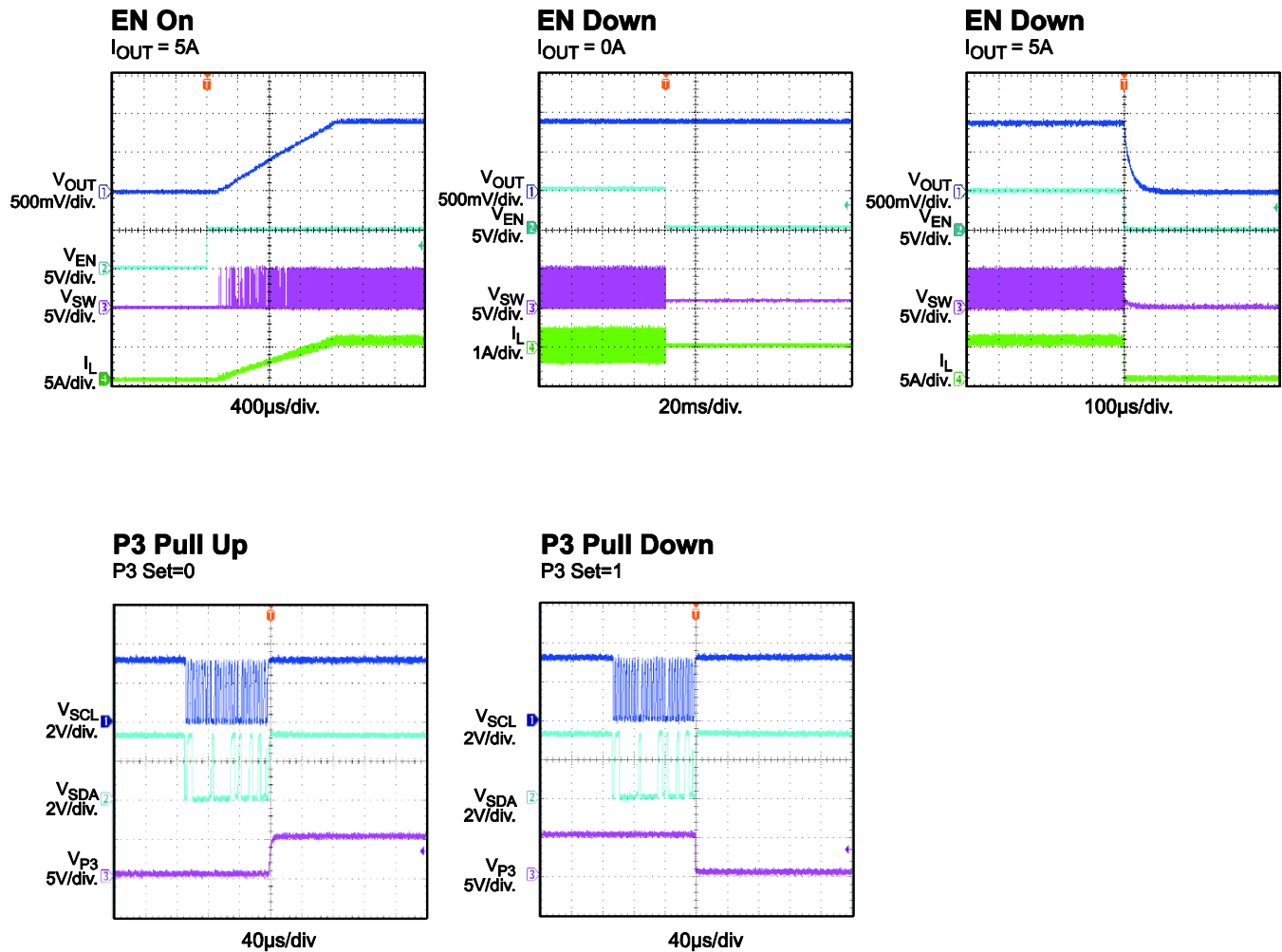
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EVB TEST RESULTS *(continued)*

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PRINTED CIRCUIT BOARD LAYER

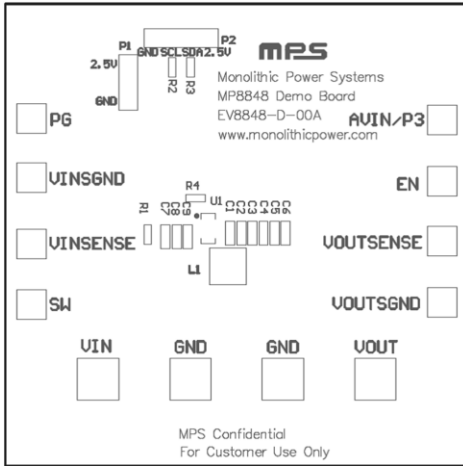


Figure 1: Top Silk Layer

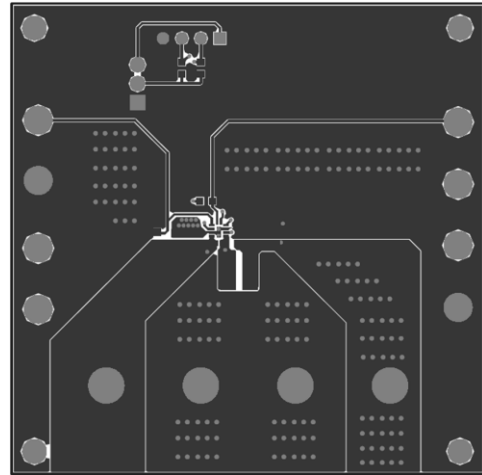


Figure 2: Top Layer

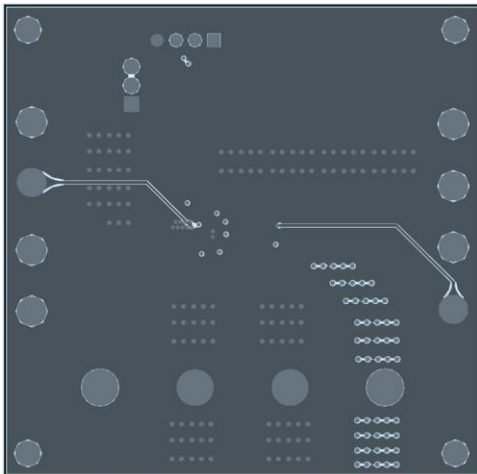


Figure 3: Internal Layer1

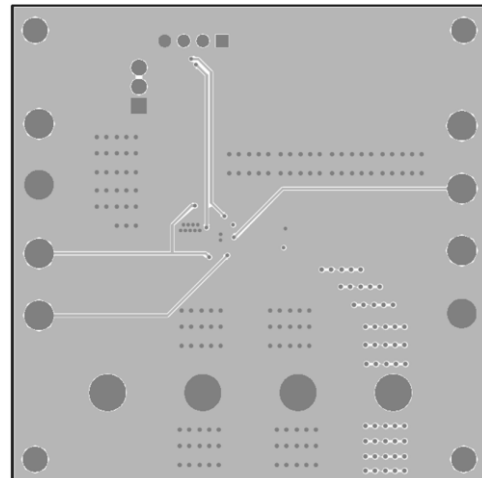


Figure 4: Internal Layer2

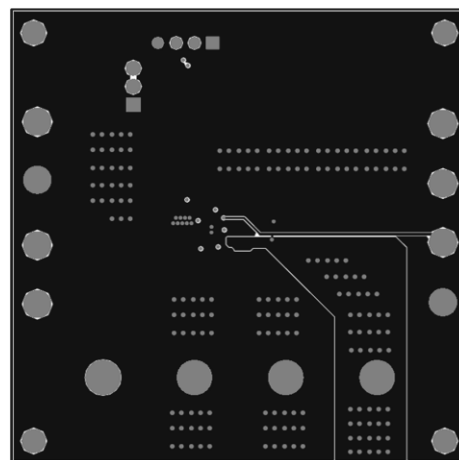


Figure 5: Bottom Layer

QUICK START GUIDE

1. Connect the positive and negative terminals of the load to the VOUT and GND pins, respectively.
2. Preset the power supply output between 2.7V and 6V, and then turn off the power supply.
3. Connect the positive and negative terminals of the power supply output to the VIN and GND pins, respectively.
4. Turn the power supply on and make EN voltage more than threshold. The board will automatically start up.
5. Refer to MPS IIC Interface System user manual for I²C application.

LAYOUT RECOMMENDATION OF MP8848

Proper layout of the switching power supplies is very important, and sometimes critical to make it work properly. Especially, for the high switching frequency converter, if the layout is not carefully done, the regulator could show poor line or load regulation, stability issues.

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