

### DESCRIPTION

The EVM3805-QB-00A is used for demonstrating the performance of MPS's MPM3805 a low voltage high switching frequency step-down switcher with built-in power MOSFETs and power inductor. MPM3805 provides up to 0.6A highly efficient output with constant-on-time control for fast loop response.

High power efficiency over a wide load range is achieved by scaling down the switching frequency at light load to reduce the switching related loss by constant on time control. Short circuit and thermal shutdown provides reliable, fault-tolerant operation.

MPM3805 is available in QFN 3.0x2.5x0.9mm package.

### ELECTRICAL SPECIFICATION

Parameter	Symbol	Value	Units
Input Voltage	$V_{IN}$	2.5– 6	V
Output Voltage	$V_{OUT}$	1.2	V
Output Current	$I_{OUT}$	0.6	A

### FEATURES

- Wide 2.5V to 6V Operating Input Range
- Fixed and Adjustable output from 0.6V
- 3mm x 2.5mm x 0.9mm QFN Package
- Total Solution Size 6mm x 3.8mm
- Up to 0.6A Output Current
- 100% Duty Cycle in Dropout
- Ultra Low IQ: 17 $\mu$ A
- EN and Power Good for Power Sequencing
- Cycle-by-Cycle Over-Current Protection
- Short Circuit Protection with Hiccup Mode
- Adjustable Output Only Needs 4 External Components - 2 Ceramic Capacitors and FB Divider Resistors
- Fixed Output only Needs Input and Output Capacitors

### APPLICATIONS

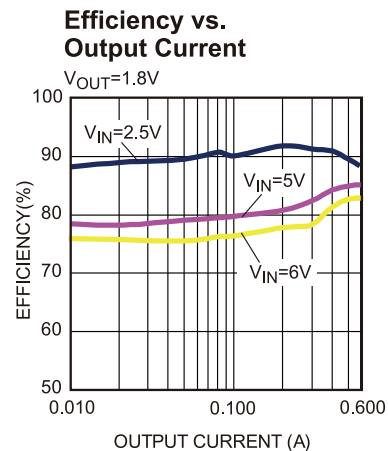
- Low Voltage I/O System Power
- LDO Replacement
- Power for Portable Products
- Storage (SSD/HDD)
- Space-limited Applications

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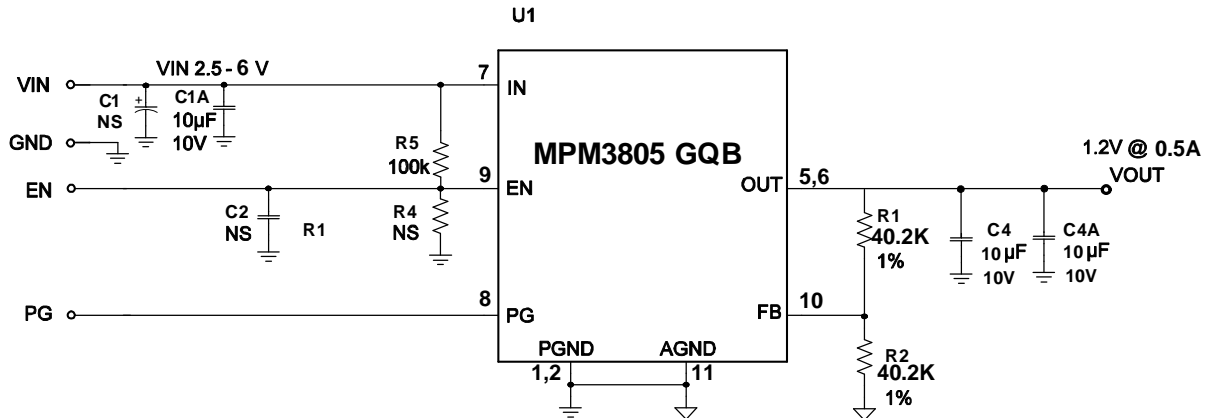
## EVM3805-QB-00A EVALUATION BOARD



Board Number	MPS IC Number
EVM3805-QB-00A	MPM3805GQB



## EVALUATION BOARD SCHEMATIC



## EVM3805-QB-00A BILL OF MATERIALS

Qty	RefDes	Value	Description	Package	Manufacturer	Manufacturer P/N
3	C1A, C4, C4A	10µF	Ceramic Cap., 10V, X5R	SM0805	TDK	C2012X5R1A106K
2	C1, C2	NS				
1	R1	40.2k	Film Res., 5%	SM0603	Any	
1	R2	40.2k	Film Res., 5%	SM0603	Any	
1	R4	NS				
1	R5	100kΩ	Film Res., 1%	SM0603	Yageo	RC0603FR-07100KL
1	U1		COT Buck	QFN3.0*2.5	MPS	MPM3805GQB

## PRINTED CIRCUIT BOARD LAYER

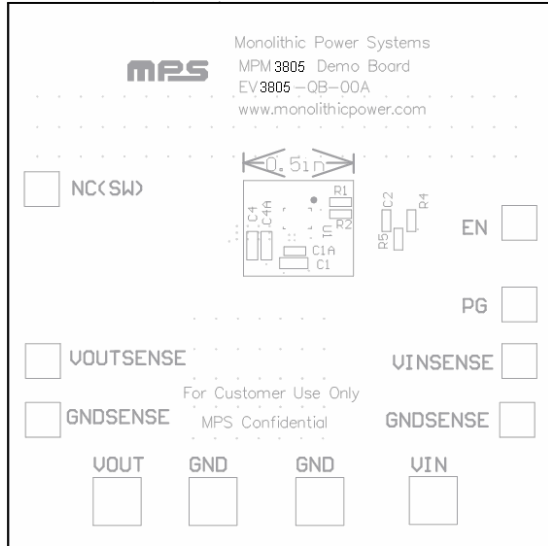


Figure 1: Top Silk Layer

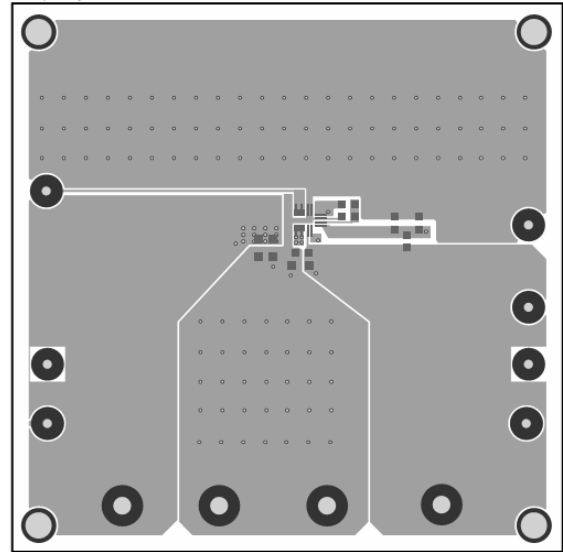


Figure 2: Top Layer

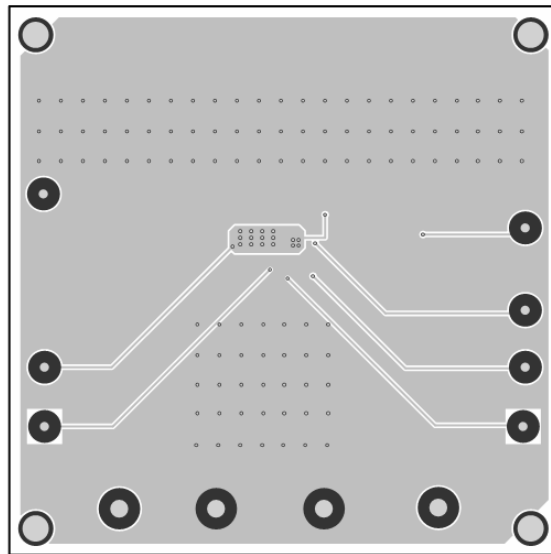


Figure 3: Bottom Layer

## 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 2.5V 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. The board will automatically start up.

## LAYOUT RECOMMENDATION OF MPM3805

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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