



The Future of Analog IC Technology®

# EV8736DL-00A

## High Efficiency, Fast Transient, 6A, 19V Synchronous Step-down Converter Evaluation Board

### DESCRIPTION

The EV8736DL-00A is an evaluation board for the MP8736DL, a monolithic synchronous buck regulator.

This EV board can deliver 6A continuous load current over an operating input voltage 4.5V to 19V. High efficiency can be achieved over a wide output current load range.

Constant-On-Time (COT) control mode provides fast transient response and eases loop stabilization.

This EV board can be turned on or shut down via a remote ON/OFF input that is referenced to ground. This input is compatible with popular logic devices.

### ELECTRICAL SPECIFICATIONS

Parameter	Symbol	Value	Units
Input Voltage	V <sub>IN</sub>	4.5 – 19	V
Output Voltage	V <sub>OUT</sub>	1.05	V
Output Current	I <sub>OUT</sub>	6	A

### FEATURES

- Wide 4.5V to 19V Operating Input Range
- 6A Output Current
- Internal 30mΩ High-Side 12mΩ Low-Side Power MOSFETs
- Proprietary Switching Loss Reduction Technique
- 1% Reference Voltage
- Programmable Soft Start Time
- Soft Shutdown
- Programmable Switching Frequency
- SCP, OCP, OVP, UVP Protection and Thermal Shutdown
- Output Adjustable from 0.8V to 13V
- Available in a 20-pin QFN3x4 Package

### APPLICATIONS

- Notebook Systems and I/O Power
- Networking Systems
- Digital Set Top Boxes
- Personal Video Recorders
- Flat Panel Television and Monitors
- Distributed Power Systems

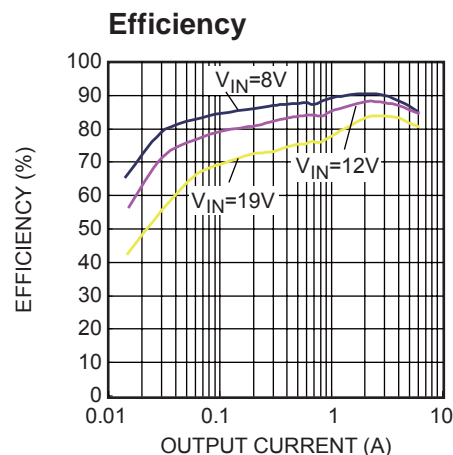
"MPS" and "The Future of Analog IC Technology" are Registered Trademarks of Monolithic Power Systems, Inc.

## EV8736DL-00A EVALUATION BOARD

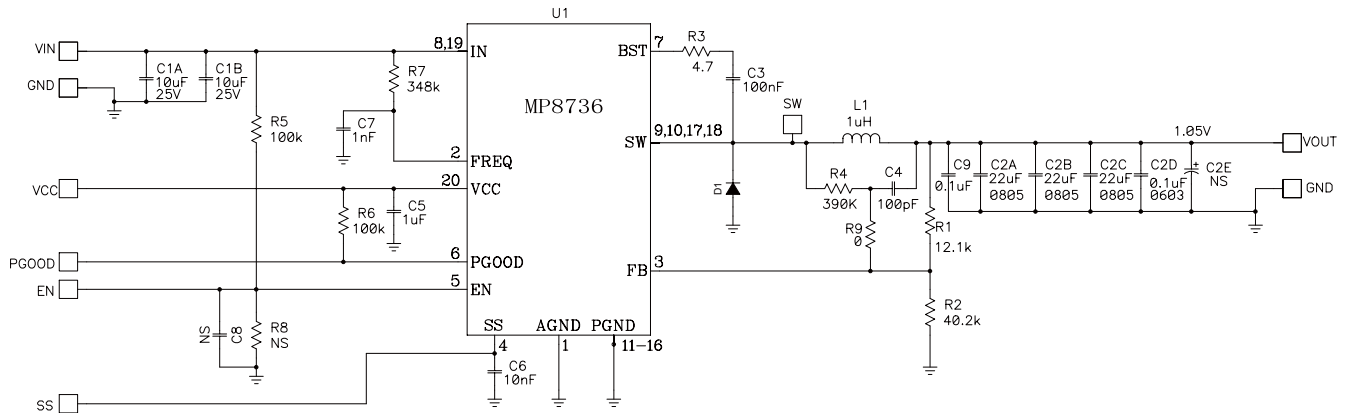


(L x W x H) 3.37" X 3.37" X 0.06"  
(85.5mm x 85.5mm x 1.6mm)

Board Number	MPS IC Number
EV8736DL-00A	MP8736



## EVALUATION BOARD SCHEMATIC



## EV8736DL-00A BILL OF MATERIALS

Qty	Ref	Value	Description	Package	Manufacturer	Part Number
2	C1A, C1B	10µF	Ceramic Cap., 25V, X7R	1210	muRata	GRM32DR71E106K
3	C2A, C2B, C2C	22µF	Ceramic Cap., 6.3V, X7R	0805/1210	muRata	GRM21BR60J226M
3	C2D, C3, C9	0.1µF	Ceramic Cap., 50V, X7R	0603	muRata	GRM188R71H104K
1	C2E	NS	POSCAP, 2.5V,	C2 size		
1	C4	100pF	Ceramic Cap., 50V, C0G	0603	muRata	GRM1885C1H101J
1	C5	1µF	Ceramic CAP, 25V, X7R	0603	muRata	GRM188R71E105K
1	C6	10nF	Ceramic Cap., 50V, X7R	0603	muRata	GRM188R71H103K
1	C7	1nF	Ceramic Cap., 50V, C0G	0603	muRata	GRM1885C1H102J
1	C8	NS	Not Stuff	0603		
1	R1	12.1kΩ	Film Res., 1%	0603	Yageo	RC0603FR-0712K1L
1	R2	40.2kΩ	Film Res., 1%	0603	Yageo	RC0603FR-0740K2L
1	R3	4.7Ω	Film Res., 5%	0603	Yageo	RC0603JR-074R7L
1	R4	390kΩ	Film Res., 1%	0603	Yageo	RC0603JR-07390KL
2	R5, R6	100kΩ	Film Res., 5%	0603	Yageo	RC0603JR-07100KL
1	R7	348kΩ	Film Res., 1%	0603	Yageo	RC0603FR-07348KL
1	D1	NS	Not Stuffed			
1	L1	1.0µH	1.72mΩ DCR, 31.3A	SMD	TOKO	FDU1250C-1R0M
1	U1		Step-Down Converter	QFN	MPS	MP8736DL

### PRINTED CIRCUIT BOARD LAYOUT

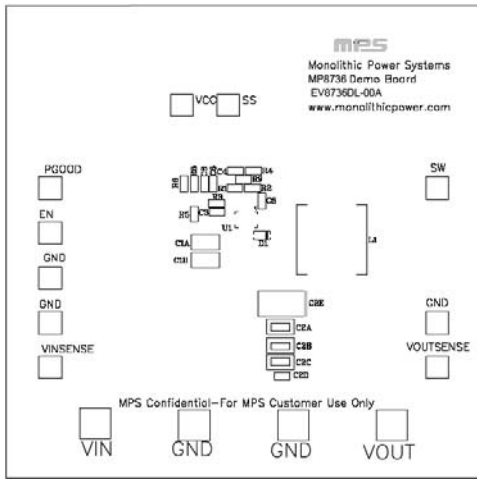


Figure 1—Top Silk Layer

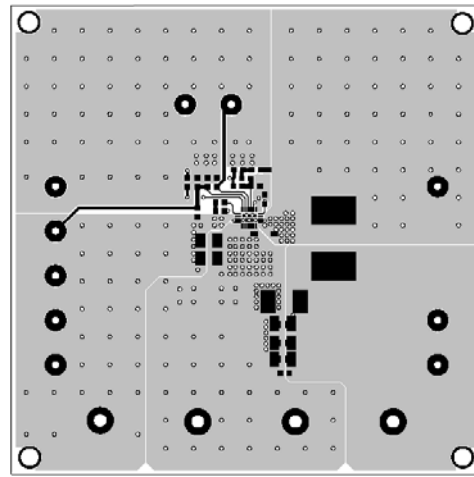


Figure 2—Top Layer

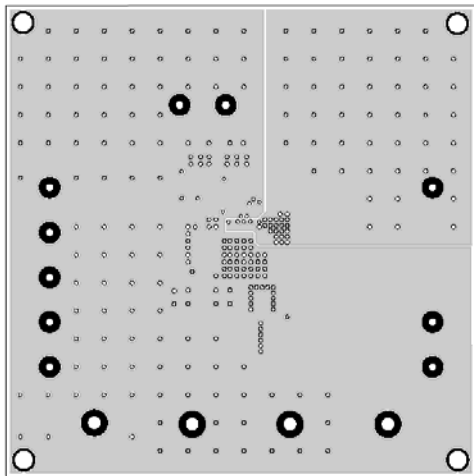


Figure 3—Inner Layer 1

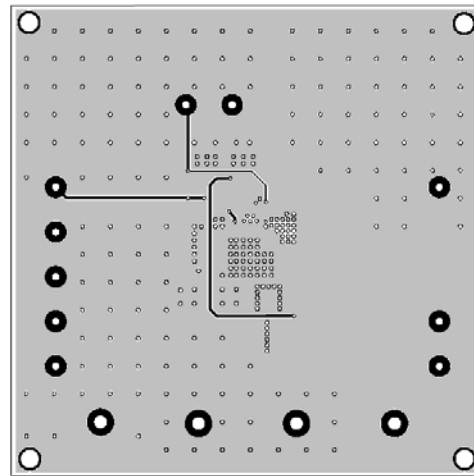


Figure 4—Inner Layer 2

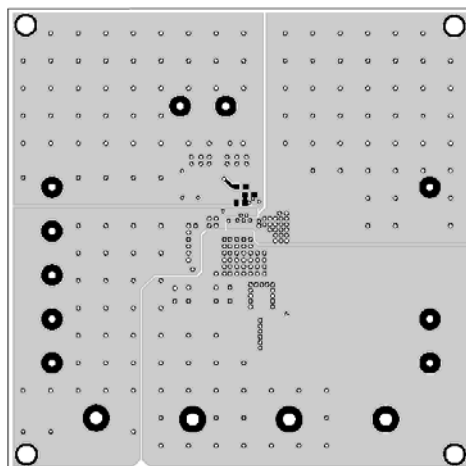


Figure 5—Bottom Layer

## 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 4.5V and 19V, 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 MP8736 will automatically startup.
5. To use the Enable function, apply a digital input to the EN pin. Drive EN higher than 2V to turn on the regulator or less than 0.4V to turn it off.
6. Use R1 and R2 to set the output voltage with  $V_{FB} = 0.8V$ . Follow the Application Information section in the device datasheet to select the proper value of R1, R2, inductor and output capacitor values when output voltage is changed.
7. If lower ripple at light loads is needed, then use TOKO 1.2uH or 1.5uH L1. But with the larger L1, the transient response peak to peak value will become larger too.

**NOTICE:** The information in this document is subject to change without notice. Users should warrant and guarantee that third party Intellectual Property rights are not infringed upon when integrating MPS products into any application. MPS will not assume any legal responsibility for any said applications.