

### DESCRIPTION

The EV2209DL-00A is an evaluation board for the MP2209DL, a monolithic synchronous buck regulator.

This EV board can deliver 2A continuous load current over an operating input voltage 3V to 16V. High efficiency power conversion is achieved through the use of synchronous rectification techniques. The output is adjustable over a range of 0.8V to 0.9xVIN by means of an external resistor from FB pin to ground.

Current mode control is implemented, which provides fast transient response and cycle-by-cycle current limiting. The EV board will go into hiccup mode to protect against over current/short circuit.

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. External soft-start prevents inrush current at turn-on.

### ELECTRICAL SPECIFICATIONS

Parameter	Symbol	Value	Units
Input Voltage	V <sub>IN</sub>	3 – 16	V
Supply Voltage	V <sub>CC</sub>	3 – 6	V
Output Voltage	V <sub>OUT</sub>	1.8	V
Output Current	I <sub>OUT</sub>	2	A

### FEATURES

- 2A Output Current
- 3V to 16V Operating Input Range
- Adjustable Output from 0.8V to 0.9xVIN
- Fully Assembled and Tested

### APPLICATIONS

- $\mu$ P/ASIC/DSP/FPGA Core and I/O Supplies
- Printers and LCD TVs
- Network and Telecom Equipment
- Point of Load Regulators

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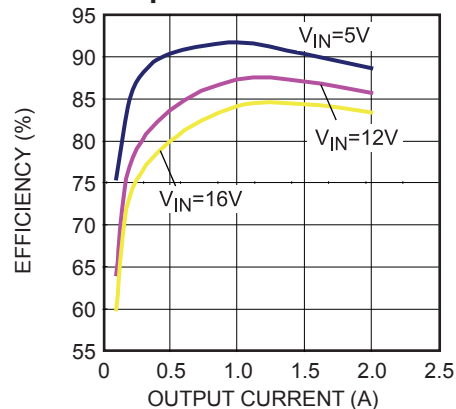
### EV2209DL-00A EVALUATION BOARD



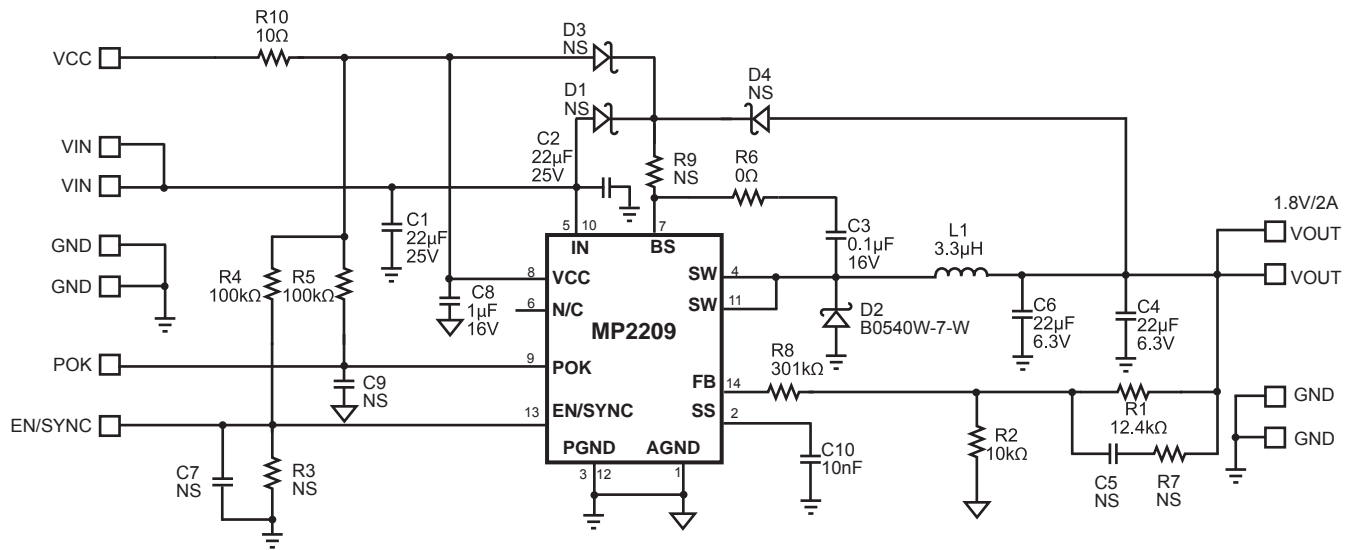
(L x W x H) 2.4" X 2.0" X 0.5"  
(6.1cm x 5.1cm x 1.3cm)

Board Number	MPS IC Number
EV2209DL-00A	MP2209DL

Efficiency vs. Output Current



## EVALUATION BOARD SCHEMATIC



## EV2209DL-00A BILL OF MATERIALS

Qty	Ref	Value	Description	Package	Manufacturer	Manufacturer P/N
2	C1,C2	22uF	Ceramic Cap. 25V, X5R	SMC1210	Murata	GRM32ER61E226KE
1	C3	0.1uF	Ceramic Cap. 16V, X7R	SMC0603	Murata	GRM188R71C104KA
2	C4,C6	22uF	Ceramic Cap. 6.3V, X5R	SMC1206	Murata	GRM31CR60J226KE
3	C5,C7,C9	NS	Do Not Stuff	SMC0603		
1	C8	1uF	Ceramic Cap. 16V, X7R	SMC0603	Murata	GRM188R71C105KA
1	C10	10nF	Ceramic Cap. 50V, X7R	SMC0603	Murata	GRM188R71H103KA01D
3	D1,D3,D4	NS	Do Not Stuff	SOD-323		
1	D2	0.5A,40V	Schottky Diode	SOD-123	Diodes Inc	B0540W-7-F
1	R1	12.4K	Film Resistor ,1%	SMR0603	Yageo	RC0603FR-0712K4L
1	R2	10K	Film Resistor, 1%	SMR0603	Yageo	RC0603FR-0710KL
2	R4, R5	100K	Film Resistor, 5%	SMR0603	Yageo	RC0603JR-07100KL
3	R3,R7,R9	NS	Do Not Stuff	SMR0603		
1	R6	0Ω	Film Resistor ,5%	SMR0603	Yageo	RC0603JR-070RL
1	R8	301K	Film Resistor, 5%	SMR0603	Yageo	RC0603JR-07301KL
1	R10	10Ω	Film Resistor, 1%	SMR0603	Yageo	RC0603FR-0710RL
1	L1	3.3uH	Inductor, DCR=9.6mΩ, I <sub>rms</sub> =8A	SMD	Würth	744314330
			Inductor, DCR=7.3mΩ, I <sub>rms</sub> =11.7A		TOKO	FDA1055-3R3M
			Inductor, DCR=11.6mΩ, I <sub>rms</sub> =7.5A		TDK	ULF100457-3R3N6R9
1	U1		Step-Down Regulator	QFN14 3x4mm	MPS	MP2209DL

## PRINTED CIRCUIT BOARD LAYOUT

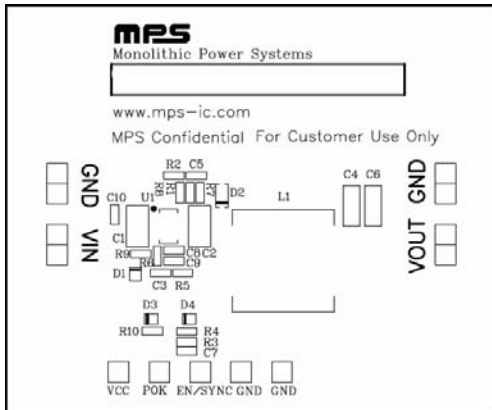


Figure 1—Top Silk Layer

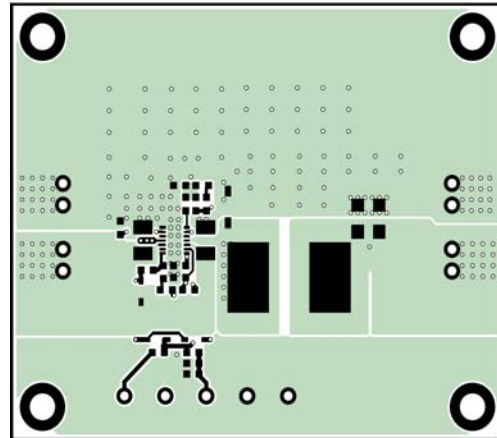


Figure 2—Top Layer

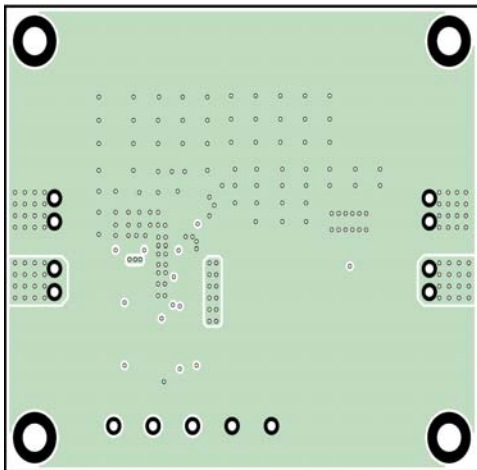


Figure 3—Inner Layer 1

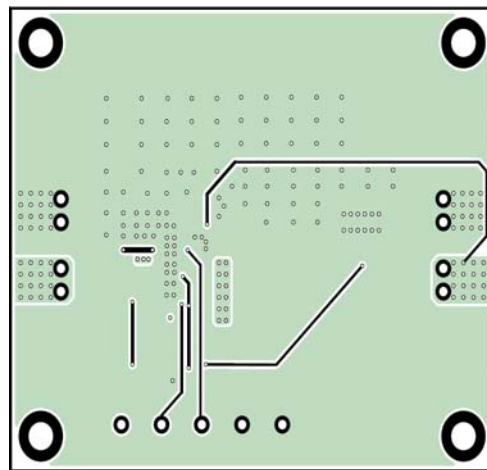


Figure 4—Inner Layer 2

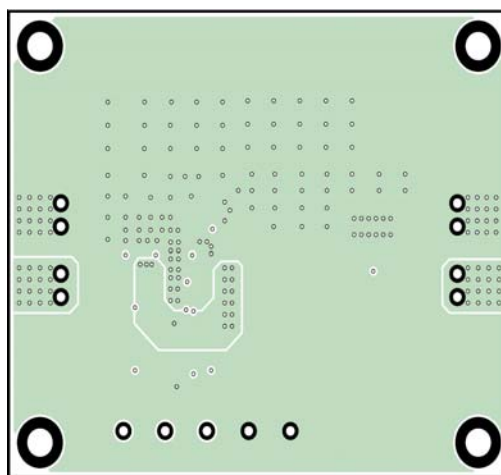


Figure 5—Bottom Layer

## 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 (VIN supply) to 3V-16V, and then turn it off.
3. Connect the positive and negative terminals of the power supply output to the VIN and GND pins, respectively.
4. Apply 3V-6V DC voltage to VCC and GND pins. Turn the power supply (VIN supply) on. The EV2209DL will automatically startup.
5. To use the Enable function, apply a digital input to the EN pin. Drive EN higher than 1.6V to turn on the regulator, drive EN 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.

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