

DESCRIPTION

The EV2207DQ-00D is an evaluation board for the MP2207, a monolithic synchronous buck regulator.

This EV board can deliver 4A 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 0.9xV_{IN} 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. Built-in soft-start prevents inrush current at turn-on.

ELECTRICAL SPECIFICATIONS

Parameter	Symbol	Value	Units
Input Voltage	V _{IN}	3–16	V
Supply Voltage	V _{CC}	2.5– 6	V
Output Voltage	V _{OUT}	1.8	V
Output Current	I _{OUT}	4	A

FEATURES

- 4A Output Current
- 3V to 16V Operating Input Range
- Adjustable Output from 0.8V to 0.9xV_{IN}
- Fully Assembled and Tested

APPLICATIONS

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

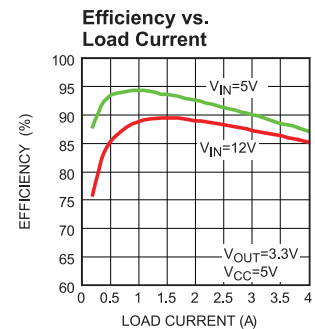
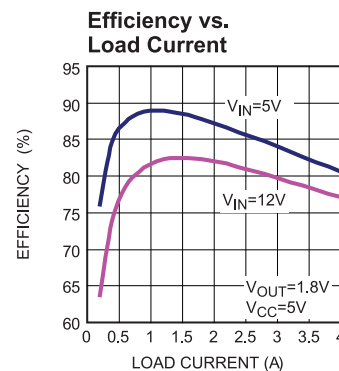
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EV2207DQ-00D EVALUATION BOARD

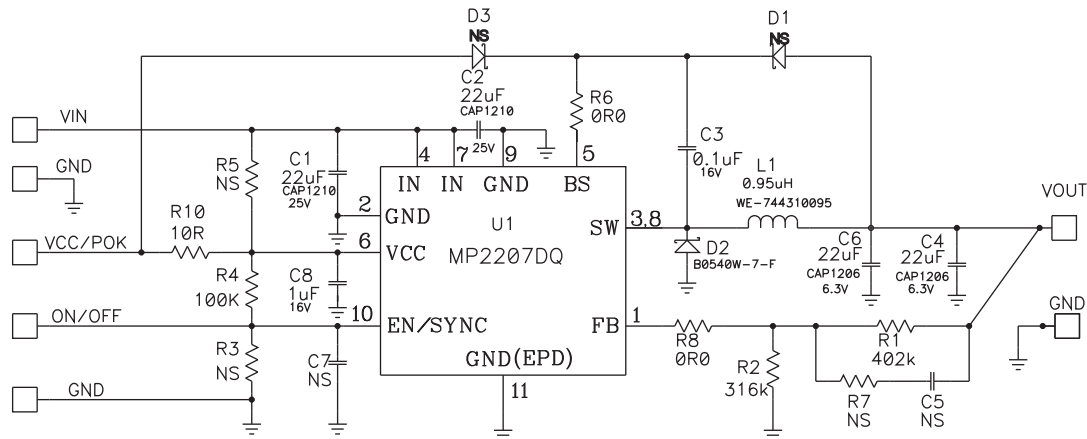


(L x W x H) 2.4" X 2.0" X 0.5"
(6.1cm x 5.1cm x 1.3cm)

Board Number	MPS IC Number
EV2207DQ-00D	MP2207DQ



EVALUATION BOARD SCHEMATIC



EV2207DQ-00D BILL OF MATERIALS

Qty	Ref	Value	Description	Package	Manufacturer	Manufacturer P/N
2	C1,C2	22μF	Ceramic Cap. 25V, X7R	1210	Murata	GRM32ER71E226K
1	C3	0.1μF	Ceramic Cap. 16V, X7R	0603	Murata	GRM188R71C104K
1	C8	1μF	Ceramic Cap. 16V, X7R	0603	Murata	GRM188R71C105K
2	C4,C6	22μF	Ceramic Cap. 6.3V, X7R	1210	Murata	GRM32ER70J226K
0	C5,C7	NS	Do Not Stuff	0603		
0	D1,D3	NS	Do Not Stuff			
1	D2	0.5A, 40V	Schottky Diode	SOD-123	Diodes Inc	B0540W-7-F
1	R1	402k	Film Resistor ,1%	SMR0603	Yageo	RC0603FR-07402KL
1	R2	316k	Film Resistor, 1%	SMR0603	Yageo	RC0603FR-07316KL
2	R4	100k	Film Resistor, 5%	0603	Yageo	RC0603FR-07100KL
0	R3,R5, R7	NS	Do Not Stuff			
2	R6,R8	0Ω	Film Resistor ,5%	0603	Yageo	RC0603JR-0700R0L
1	R10	10Ω	Film Resistor ,5%	SMR0603	Yageo	RC0603JR-0710R0L
1	L1	0.95μH	Inductor, Ia=13A, DCR=7.4mΩ	SMD 7x7mm	Würth Electronics	744310095
1	U1		Step-Down Regulator	QFN10	MPS	MP2207DQ-R3

PRINTED CIRCUIT BOARD LAYOUT

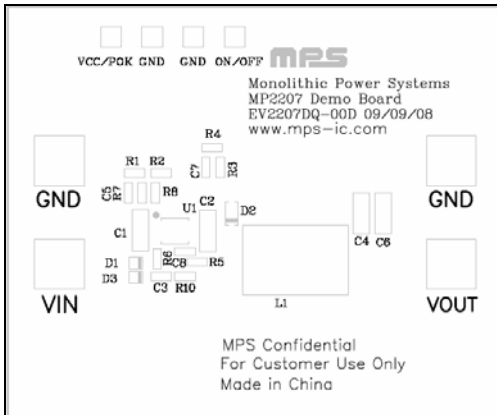


Figure 1—Top Silk Layer

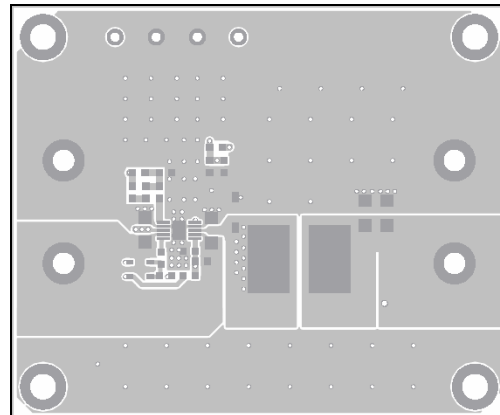


Figure 2—Top Layer

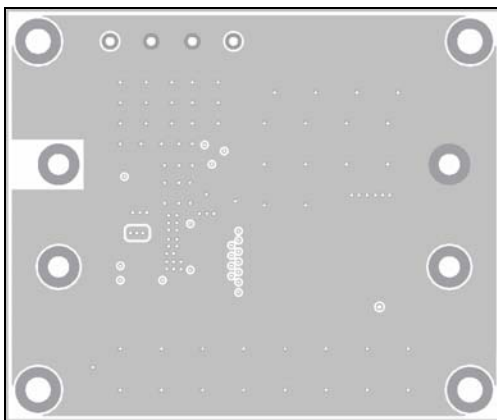


Figure 3—Inner Layer 1

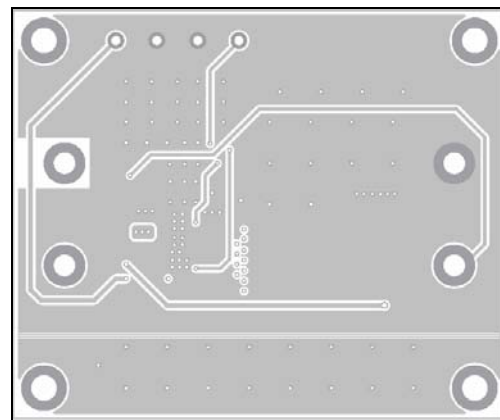


Figure 4—Inner Layer 2

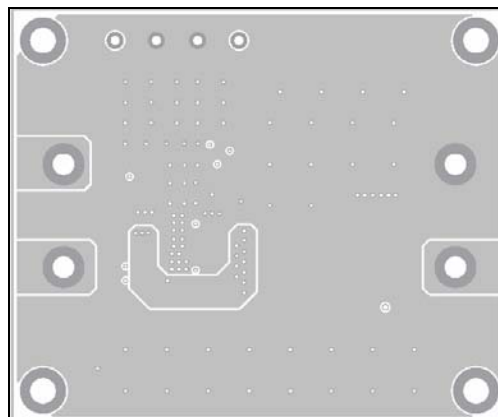


Figure 5—Bottom Layer

QUICK START GUIDE

1. Connect the positive and negative terminals of the load to the V_{OUT} and GND pins, respectively.
2. Preset the power supply output (V_{IN} supply) to 3V-16V, then turn it off.
3. Connect the positive and negative terminals of the power supply output to the V_{IN} and GND pins, respectively.
4. Apply 3.3V-5V DC voltage to V_{CC} and GND pins. Turn the power supply (V_{IN} supply) on.
5. 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. V_{EN} must be lower than V_{CC} .
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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