



The Future of Analog IC Technology®

# EV2112DQ-00A

## 1A, 1MHz Synchronous Step-Down Converter

EVALUATION BOARD

### DESCRIPTION

The EV2111/12DQ-00A is an evaluation board for the MP2112DQ.

The MP2112 is a 1MHz constant frequency, current mode, PWM step-down converter. The device integrates a main switch and a synchronous rectifier for high efficiency without an external Schottky diode. It is ideal for powering portable equipment that runs from a single cell Lithium-Ion (Li+) battery. The MP2112 can supply 1A of load current from a 2.5V to 6V input voltage. The output voltage can be regulated as low as 0.6V. The MP2112 can also run at 100% duty cycle for low dropout applications.

The MP2112 is available in a space-saving 6-pin 3mmx3mm QFN package with an exposed pad.

### ELECTRICAL SPECIFICATIONS

Parameter	Symbol	Value	Units
Input Voltage	$V_{IN}$	2.5 – 6	V
Output Voltage	$V_{OUT}$	1.8	V
Output Current	$I_{OUT}$	1	A

### FEATURES

- High Efficiency: Up to 95%
- 1A Available Load Current
- 2.5V to 6V Input Voltage Range

### APPLICATIONS

- Cellular and Smart Phones
- Microprocessors and DSP Core Supplies
- PDAs
- MP3 Players
- Set-top Box
- Digital Still and Video Cameras
- Portable Instruments

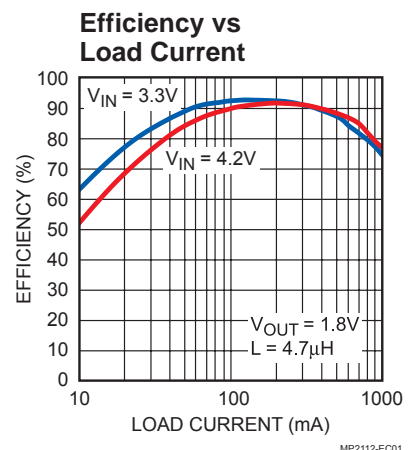
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## EV2111/12DQ-00A EVALUATION BOARD

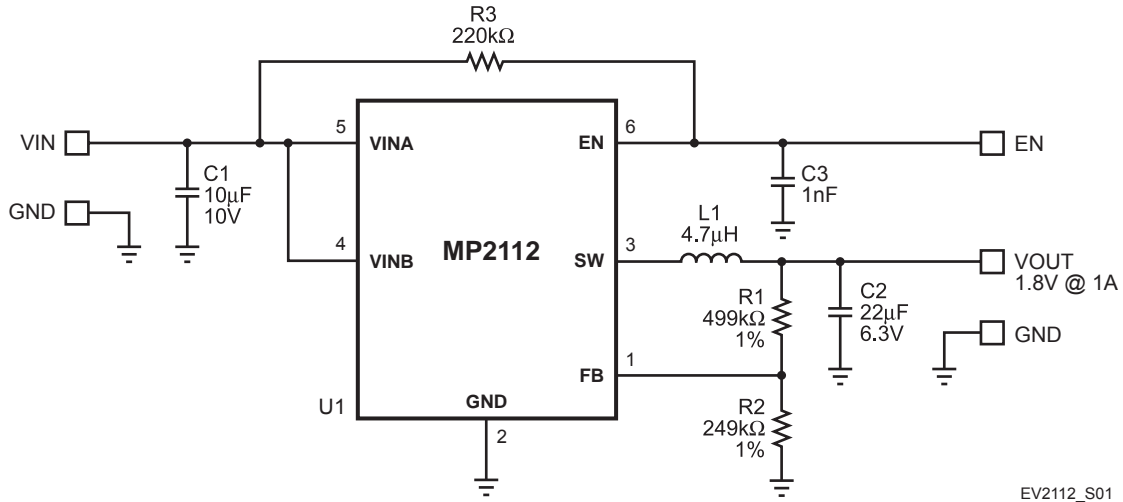


(L x W x H) 2.1" x 2.1" x 0.4"  
(5.3cm x 5.3cm x 1.0cm)

Board Number	MPS IC Number
EV2111/12DQ-00A	MP2112DQ



EVALUATION BOARD SCHEMATIC



EV2112\_S01

EV2112DQ-00A BILL OF MATERIALS

Qty	Ref	Value	Description	Package	Manufacturer	Manufacturer P/N
1	C1	10µF	Ceramic Cap., 10V, X7R	1206	KEMET	C1206C106K8RAC
			Ceramic Cap., 10V, X7R	1210		C1210C106K8RAC
			Ceramic Cap., 10V, X7R	1210	AVX	1210ZC106KAT2A
			Ceramic Cap., 10V, X5R	1210	TDK	C3225X5R1A106K
1	C2	22µF	Ceramic Cap, 6.3V, X5R	1210	TDK	C3225X5R0J226M
1	C3	1nF	Ceramic Cap., 50V, X7R	0805	TDK	C2012X7R1H102K
1	L1	4.7µH	4.7µH, 2A, D63CB	SMD	TOKO	A916CY-4R7M
			4.7µH, 1.87A, D53LC	SMD	TOKO	A915AY-4R7M
			4.7µH, 1.6A, CDC5D23	SMD	Sumida	CDC5D23B-4R7MC
1	R1	499kΩ	Resistor, 1%	0805	Panasonic	ERJ-6ENF4993V
1	R2	249kΩ	Resistor, 1%	0805	Panasonic	ERJ-6ENF2493V
1	R3	220kΩ	Resistor, 5%	0805	Panasonic	ERJ-6GEYJ224V
1	U1	MP2112	DC-DC Converter	QFN6	MPS	MP2112DQ

PRINTED CIRCUIT BOARD LAYOUT

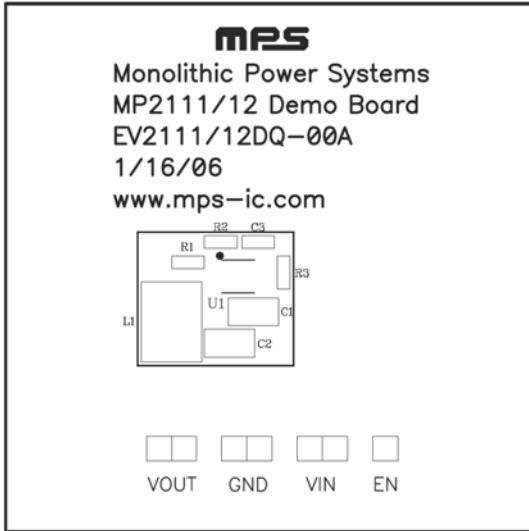


Figure 1—Top Silk Layer

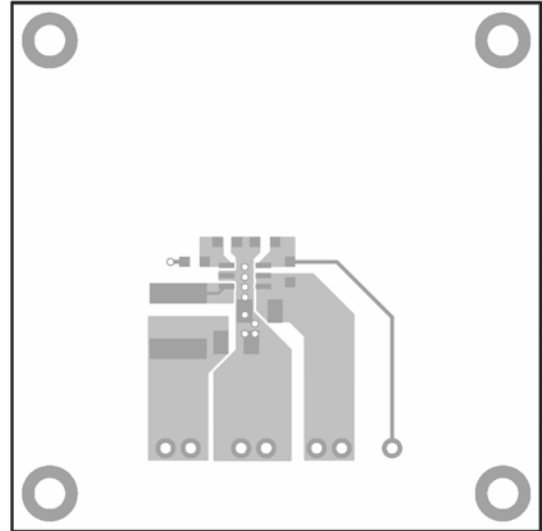


Figure 2—Top Layer

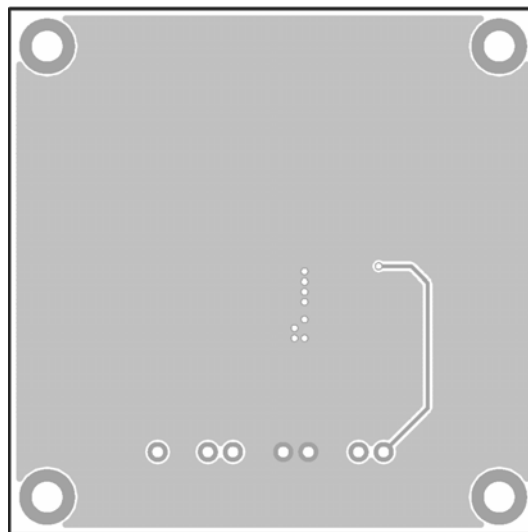


Figure 3—Bottom Silk Layer

## QUICK START GUIDE

The output voltage of this board is set to 1.8V, and the board accommodates most commonly used inductors and capacitors.

1. Attach the positive and negative ends of the load to the VOUT and GND pins, respectively.
2. Attach the input voltage ( $2.5V \leq V_{IN} \leq 6V$ ) and input ground to the VIN and GND pins, respectively. The IC should automatically startup.

To operate the IC through the enable pin without automatic startup, first remove resistor R3.

Apply a voltage greater than 1.5V to enable the IC; lower than 0.3V to shut it off. Be careful not to exceed 6V on the EN pin.

3. The output voltage of this board can be changed by varying the value of resistor R2. Calculate the value of R2 using the equation:

$$R2 = \frac{R1}{\frac{V_{OUT}}{V_{FB}} - 1}$$

Where  $V_{FB}=0.6V$  and  $R1=499k\Omega$ .

For example, if  $V_{OUT}=2.5V$  is desired:

$$R2 = \frac{499k}{\frac{2.5V}{0.6V} - 1} = 158k$$

Therefore, use a 158k $\Omega$  (1%) resistor for R2.

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