



The Future of Analog IC Technology®

# EV3410DJ-00A

1.8V Minimum Input, 3.3V/300mA Output  
Synchronous Boost Converter EV Board

## DESCRIPTION

The EV3410DJ-00A is a MP3410 evaluation board that is configured to provide a regulated 3.3V output at up to 300mA from a 1.8V input or higher. The output voltage is adjustable from  $V_{IN}$  to 6V by changing resistors on the evaluation board.

The high 500kHz switching frequency of the MP3410 allows for smaller external components, producing a compact solution for a wide range of load currents. The internal compensation and soft-start features further reduce the component count. The P-Channel synchronous rectified switch improves efficiency and isolates the output from the input in a shutdown condition.

## ELECTRICAL SPECIFICATIONS

Parameter	Symbol	Value	Units
Input Voltage	$V_{IN}$	1.8 – 3.0	V
Output Voltage	$V_{OUT}$	3.3	V
Output Current	$I_{OUT}$	300	mA

## FEATURES

- 1.8V Minimum Input Voltage
- 3.3V Output Voltage, Adjustable from  $V_{IN}$  up to 6V
- Output Disconnect at Shutdown Mode
- 500kHz Switching Frequency
- 0.1 $\mu$ A Shutdown Current
- Fully Assembled and Tested

## APPLICATION EXAMPLES

- MP3 Players
- Digital Still and Video Cameras
- Portable Electronics Using 2-3 Alkaline Cells or Li-Ion Batteries

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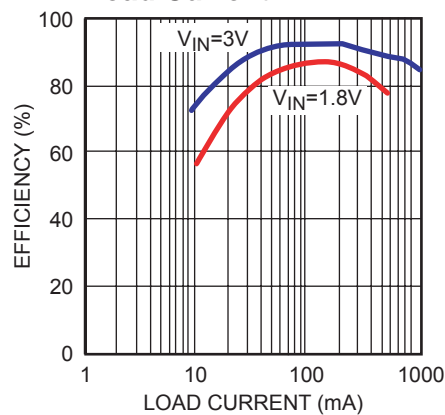
## EV3410DJ-00A EVALUATION BOARD



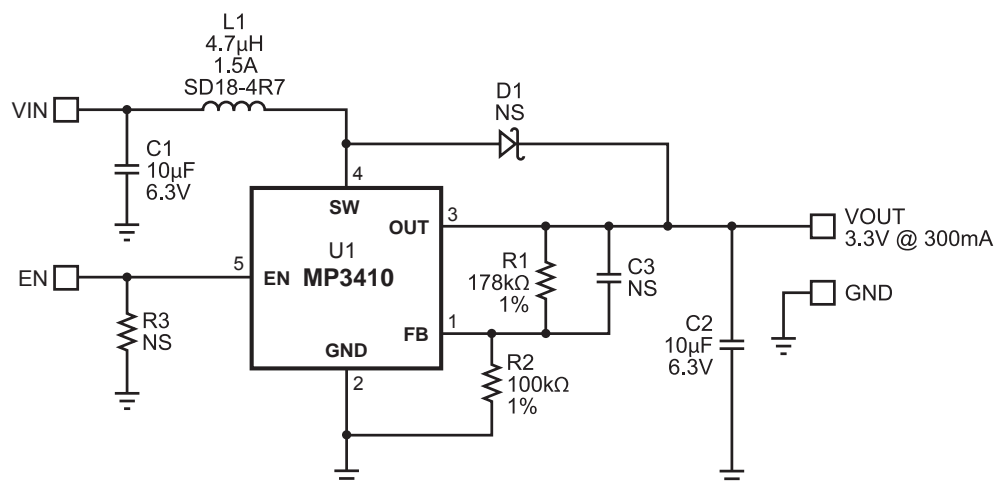
(L x W x H) 2.4" x 2.4" x 0.4"  
(6.2cm x 6.2cm x 1.1cm)

Board Number	MPS IC Number
EV3410DJ-00A	MP3410DJ

Efficiency vs Load Current



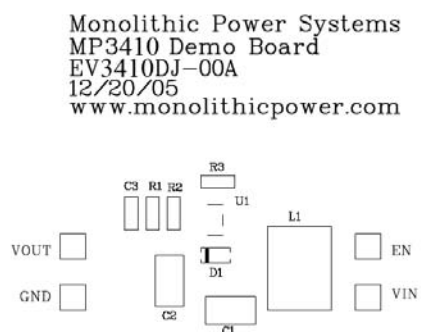
## EVALUATION BOARD SCHEMATIC



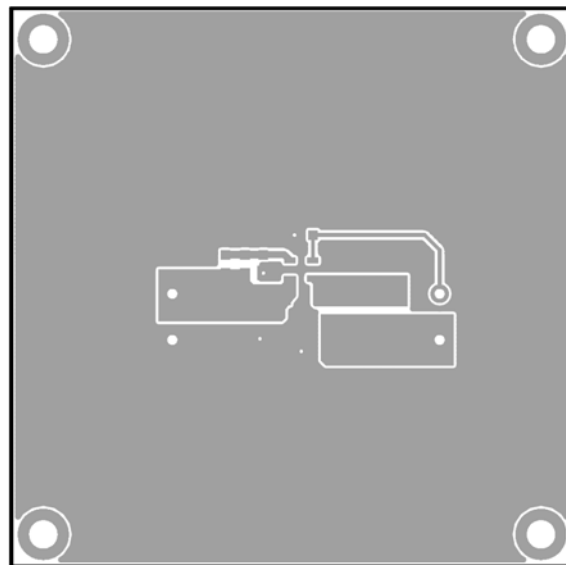
## EV3410DJ-00A BILL OF MATERIALS

Qty	Ref	Value	Description	Package	Manufacturer: Part No.	Distributor: Part No.
2	C1,C2	10µF	Ceramic Capacitor, 6.3V, X5R	1206	TDK: C3216X5R0J106K	Digikey: 445-1388-1-ND
1	C3		Not Stuffed			
1	D1		Not Stuffed			
1	L1	4.7µH	Inductor, 1.5A, SMD, Unshielded		Cooper: SD18-4R7	
1	R1	178kΩ	Resistor, 1%	0805	Panasonic: ERJ-6GEYJ1783V	Digikey: P178KCCT-ND
1	R2	100kΩ	Resistor, 1%	0805	Panasonic: ERJ-6GEYJ104V	Digikey: P100KCCT-ND
1	R3		Not Stuffed			
1	U1		MP3410	TSOT23-5	MP3410	

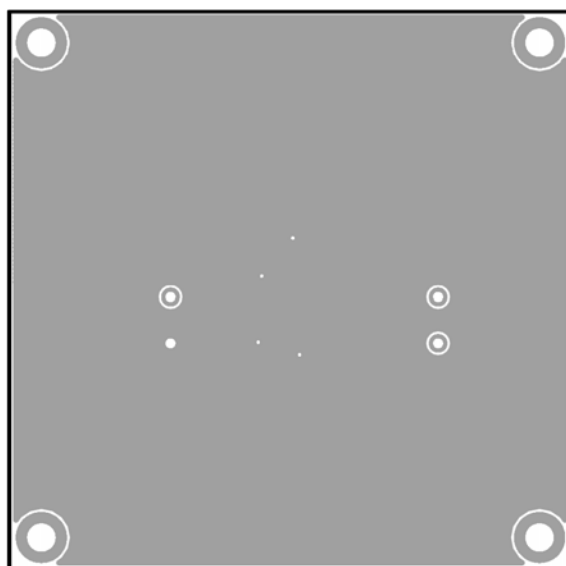
## PRINTED CIRCUIT BOARD LAYOUT



**Figure 1—Top Silk Layer**



**Figure 2—Top Layer**



**Figure 3—Bottom Layer**

## QUICK START GUIDE

The output voltage of this board is set to 3.3V. The board layout accommodates most commonly used inductors and output capacitors.

1. Preset Power Supply to  $1.8V \leq V_{IN} \leq 3.0V$ .
2. Turn Power Supply off.
3. Connect Power Supply terminals to:  
Positive (+): VIN, EN  
Negative (–): GND
4. Connect Load to:  
Positive (+): VOUT  
Negative (–): GND
5. Turn Power Supply on after making connections.
6. The MP3410 is enabled on the evaluation board once  $V_{IN}$  is applied. To disable the MP3410, disconnect EN from VIN.
7. The output voltage  $V_{OUT}$  can be changed by varying R1. Calculate the new value using the formula:

$$R1 = \left( \frac{V_{OUT}}{V_{FB}} - 1 \right) \times R2$$

Where  $V_{FB} = 1.2V$  and  $R2 = 100k\Omega$

For example, for  $V_{OUT} = 5V$

$$R1 = \left( \frac{5V}{1.2V} - 1 \right) \times 100k\Omega = 316.7k\Omega$$

Therefore use a 316k $\Omega$  standard 1% value.

For output voltages greater than 4V, it is recommended an external Schottky diode, such as MBR0520L, be placed in parallel with the internal P channel MOSFET (with the anode connected to SW and the cathode to OUT).

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