

### DESCRIPTION

The EV8110DS-00A is an evaluation board for the MP8110, a low-cost, precision, high-side current-sense amplifier. The input voltage ranges from 2.5V to 40V. The output voltages are proportional to the load current with a 1V output corresponding to 5A of load current.

The MP8110 operates from a single 2.5V to 40V supply and typically consumes 17µA. It is ideal for today's notebook computers, cell phones and other systems where battery/DC current monitoring is critical.

High-side current monitoring is especially useful in battery-powered systems since it does not interfere with the ground path of the battery charger. The input common-mode range of 1.4V to 40V is independent of the supply voltage and ensures that the current-sense feedback remains viable even when connected to a 2-cell battery pack in deep discharge.

### ELECTRICAL SPECIFICATIONS

Parameter	Symbol	Value	Units
Input Voltage	$V_{IN}=V_{CC}$	2.5 – 40	V
Load Current	$I_{LOAD}$	0 – 5	A
Output Voltage 1	$V_{OUT1}$	0 – 1	V
Output Voltage 2	$V_{OUT2}$	0 – 1	V

### FEATURES

- 2.5V to 40V Operating Supply Voltage
- 1.4V to 40V Input Common Mode Range
- Fully Assembled and Tested

### APPLICATIONS

- Portable PCs
- PDA's
- Smart Battery Packs
- Cell Phones
- Portable Test/Measurement Systems
- Battery-Operated Systems
- Energy Management Systems

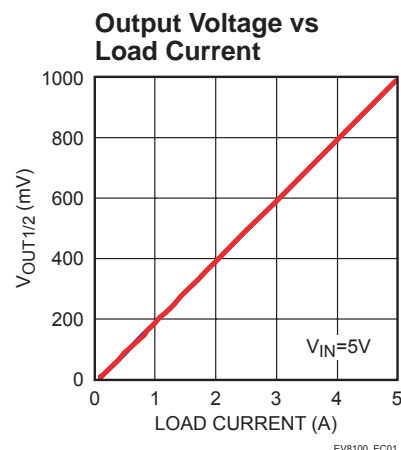
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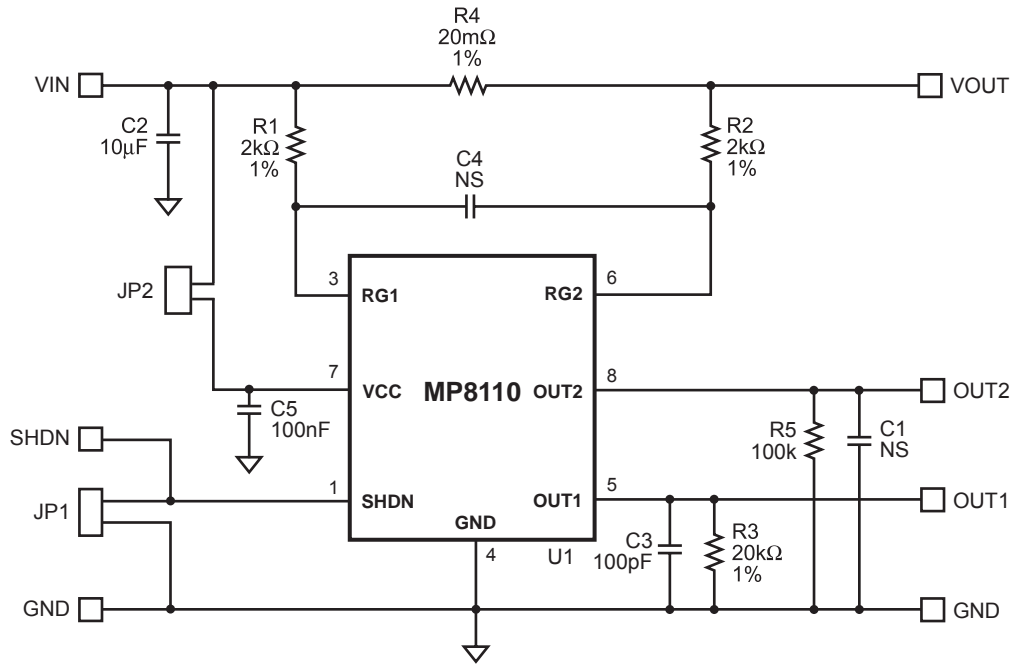
### EV8110DS-00A EVALUATION BOARD



(L x W x H) 1.7" x 1.6" x 0.6"  
(4.4cm x 4.2cm x 1.4cm)

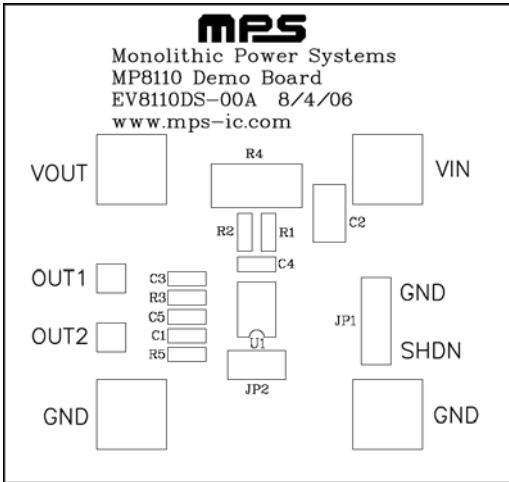
Board Number	MPS IC Number
EV8110DS-00A	MP8110DS



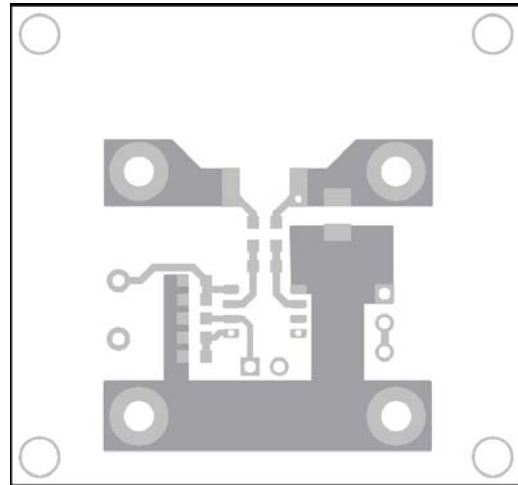
**EVALUATION BOARD SCHEMATIC**

**EV8110DS-00A BILL OF MATERIALS**

Qty	Ref	Value	Description	Package	Manufacturer P/N
1	C3	100pF	Ceramic Cap., 50V, NPO	805	TDK
1	C5	100nF	Ceramic Cap., 50V, X7R	805	TDK
1	C2	NS	Electrolytic Cap, 50V	F60	United Chemi-con
1	C4	NS	Do Not Stuff	805	
1	C1	NS	Do Not Stuff	805	
2	R1, R2	2k Ohm	Film Res., 1%	805	Panasonic
1	R3	20k Ohm	Film Res., 1%	805	Panasonic
1	R4	0.02 Ohm	Film Res., 1%	2512	Panasonic
1	R5	100k Ohm	Film Res., 5%	805	Panasonic

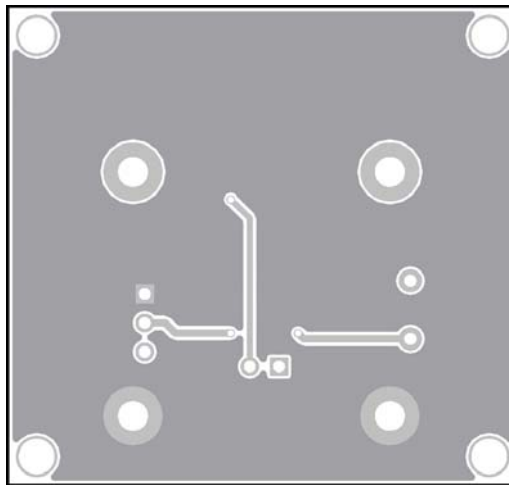
**PRINTED CIRCUIT BOARD LAYOUT**



**Figure 1—Top Silk Layer**



**Figure 2—Top Layer**



**Figure 3—Bottom Layer**

## QUICK START GUIDE

1. Preset the power supply to  $2.5V \leq V_{IN} \leq 40V$ .
2. Turn the power supply off.
3. Connect the power supply terminals to:
  - a. Positive (+):  $V_{IN}$
  - b. Negative (-): GND
4. Connect the load to:
  - a. Positive (+):  $V_{OUT}$
  - b. Negative (-): GND
5. Make sure jumper JP1 is installed.
6. Turn on the power supply. The MP8110 is enabled one the evaluation board once  $V_{IN}$  is applied. To disable the MP8110, remove jumper JP1.

Output Voltage 1 and Output Voltage 2 are obtained across resistor R3 and capacitor C1, respectively. The output voltages can be calculated as:

$$V_{OUT1} = V_{OUT2} = \frac{I_{LOAD} \times R4}{R1} \times R3 = 0.2 \times I_{LOAD}$$

Where  $R4=20m\Omega$ ,  $R1=R2=2k\Omega$  and  $R3=20k\Omega$ .

7. JP2 is a jumper to set  $V_{CC}$ . If  $V_{IN} = V_{CC}$ , JP2 jumper should be installed, otherwise using external power supply to supply  $V_{CC}$  and  $V_{CC} \geq V_{IN}$ .

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