

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

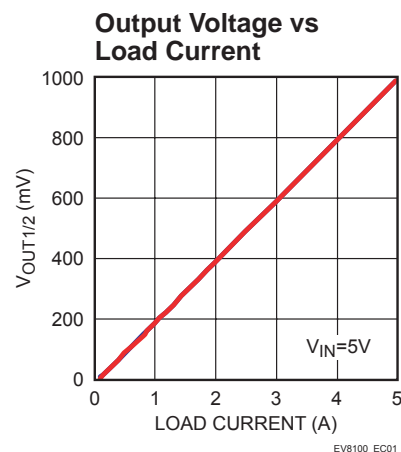
"MPS" and "The Future of Analog IC Technology", are Trademarks of Monolithic Power Systems, Inc.

EV8110DS-00A EVALUATION BOARD

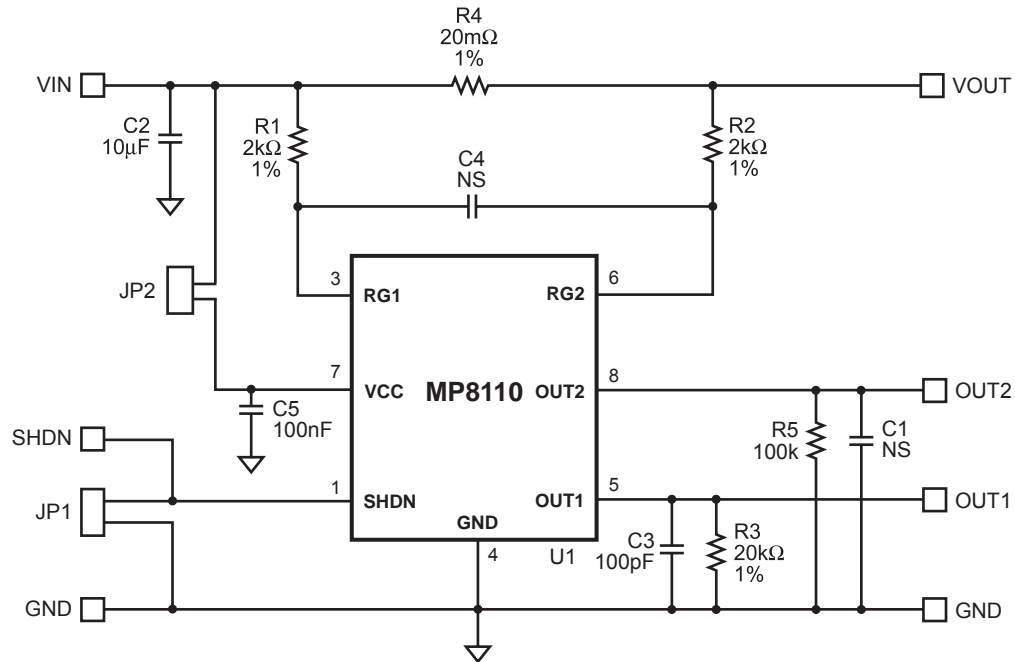


(L x W x H) 1.7" x 1.6" x 0.6"
(4.4cm x 4.2cm x 1.4cm)

| 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

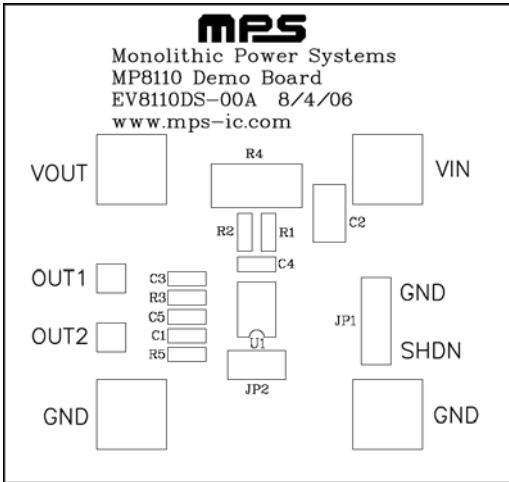


Figure 1—Top Silk Layer

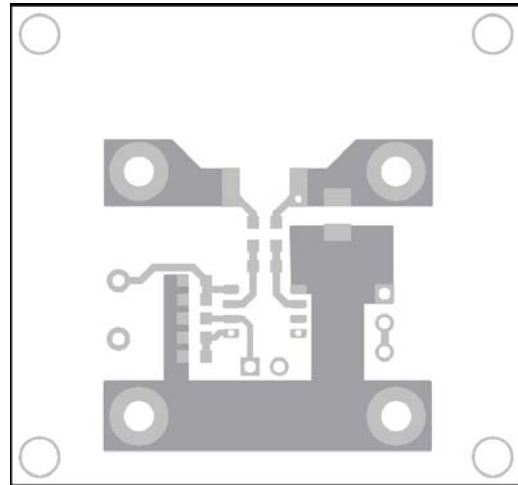


Figure 2—Top Layer

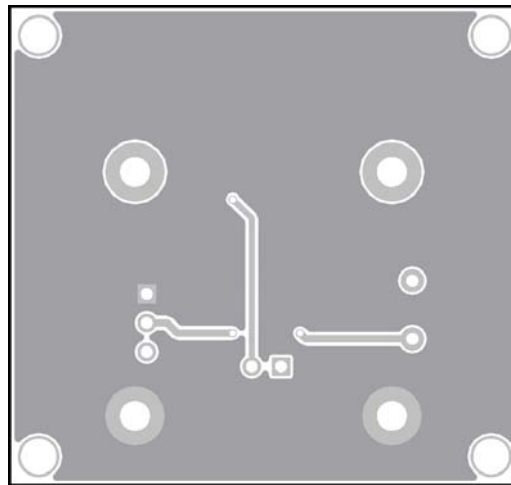


Figure 3—Bottom Layer

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 $V_{CC} \geq V_{IN}$.

NOTICE: The information in this document is subject to change without notice. Please contact MPS for current specifications. Users should warrant and guarantee that third party Intellectual Property rights are not infringed upon when integrating MPS products into any application. MPS will not assume any legal responsibility for any said applications.