

DESCRIPTION

The EV20046HQ-00A evaluation board demonstrates the performance of MP20046, a low noise, low dropout and high PSRR linear regulator. It operates from a 2.7V to 5.5V input voltage and the output voltage is preset internally which ranges from 1.5V to 3.3V.

The EV20046HQ-00A can supply up to 2A of load current, and features current limiting, over temperature protection and power-good status.

An internal PMOS pass element is used to allow a low 75uA ground current at full load, and drops down to 1uA when the device is disabled, making the MP20046 suitable for battery-power devices.

FEATURES

- Up to 2A Output Current
- Low 210mV Dropout at 2A
- Fast Transient Response
- 70dB PSRR at 100Hz
- 17µV_{RMS} Low Noise Output
- Open Drain Power-Good Status Output
- Current Limit and Thermal Protection

APPLICATIONS

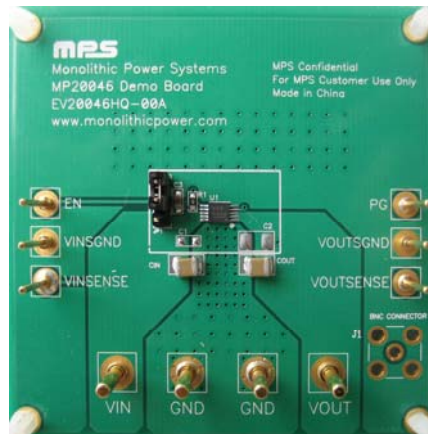
- Telecom
- Servers
- DSP, FPGA Supplies

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ELECTRICAL SPECIFICATIONS

| Parameter | Symbol | Value | Units |
|----------------|------------------|-----------|-------|
| Input Voltage | V _{IN} | 3.8 – 5.5 | V |
| Output Voltage | V _{OUT} | 3.3 | V |
| Load Current | I _{OUT} | 2 | A |

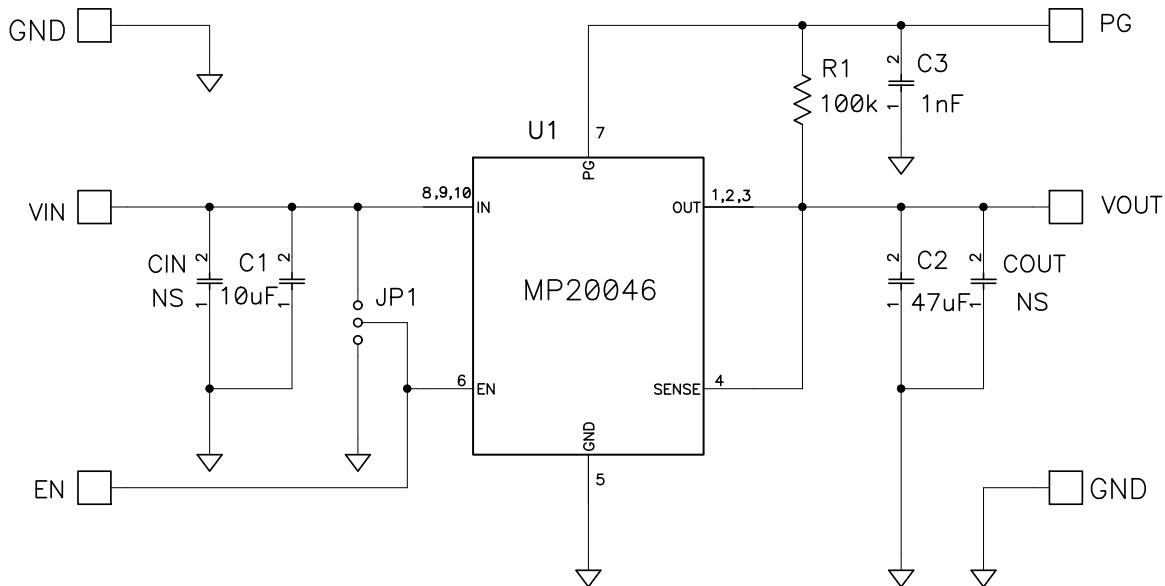
EV20046HQ-00A EVALUATION BOARD



(L x W x H) 2.5" x 2.5" x 0.4"
(6.35cm x 6.35cm x 1.1cm)

| Board Number | MPS IC Number |
|---------------|---------------|
| EV20046HQ-00A | MP20046HQ |

EVALUATION BOARD SCHEMATIC



EV20046HQ-00A BILL OF MATERIALS

| Qty | Ref | Value | Description | Package | Manufacturer | Part Number |
|-----|------|-------|----------------------------|------------|--------------|--------------------|
| 1 | C1 | 10uF | Ceramic Capacitor X5R, 16V | 0805 | KYOCERA | CM21X5R106K16AT |
| 1 | C2 | 47uF | Ceramic Capacitor X5R, 10V | 1210 | Murata | GRM32ER61A476KE20L |
| 1 | CIN | NS | | | | |
| 1 | COUT | NS | | | | |
| 1 | C3 | 1nF | Ceramic Capacitor X7R, 50V | 0805 | TDK | C2012X7R1H102K |
| 1 | R1 | 100k | Film Res, 5% | 0603 | Any | |
| 1 | U1 | | LDO Regulator | QFN10(3x3) | MPS | MP20046HQ |

PRINTED CIRCUIT BOARD LAYOUT

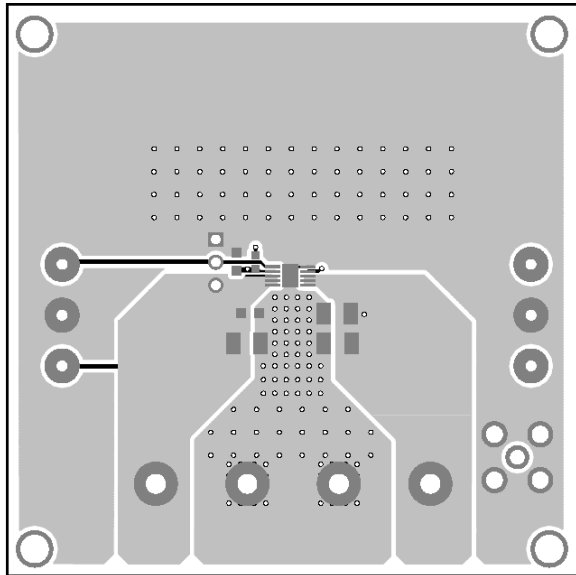


Figure 1—Top Layer

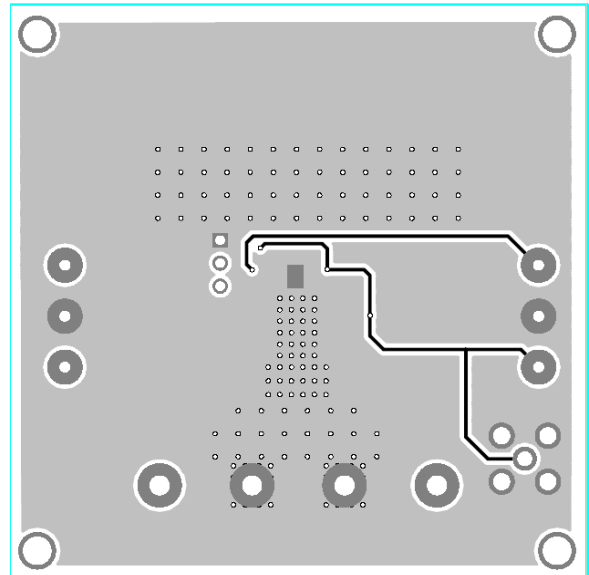


Figure 2—Bottom Layer

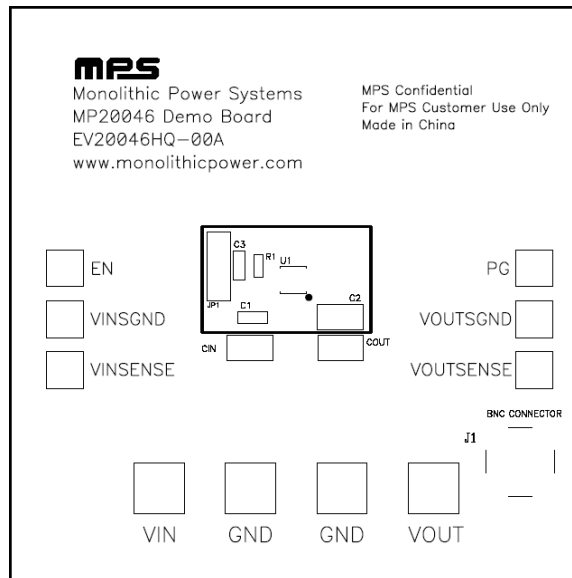


Figure 3—Top Silk Layer

QUICK START GUIDE

The output voltage of this board is set to 3.3V by operating from +3.8V to +5.5V input. The board layout accommodates most commonly used resistors and capacitors.

1. The /EN pin is connected to GND for automatic startup. You can connect /EN to VIN to disable the MP20046. Do not float the /EN pin.
2. Attach the positive and negative ends of the load to the VOUT and GND pins, respectively.
3. Attach the input voltage ($3.8V \leq V_{IN} \leq 5.5V$) and input ground to the VIN and GND pins, respectively.

To evaluate the other versions of MP20046HQ with different output voltages, carefully remove the IC (U1) and replace it with the corresponding chip. Please refer to the datasheet for the detailed information of different output voltage option of MP20046HQ.

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