

DESCRIPTION

The EV2370DJ-00A is an evaluation board for the MP2370DJ, a monolithic step-down white LED driver with a built-in power MOSFET. It is configured for driving one 3W white LED device.

The MP2370 achieves 1.2A peak output current over a wide input supply range with excellent load and line regulation. Current mode operation provides fast transient response and eases loop stabilization. Fault condition protection includes cycle-by-cycle current limiting and thermal shutdown.

The MP2370 requires a minimum number of readily available standard external components.

The MP2370 is available in TSOT23-6 package.

ELECTRICAL SPECIFICATIONS

| Parameter | Symbol | Value | Units |
|---------------|-----------|-------|-------|
| Input Voltage | V_{IN} | 6-24 | V |
| Load Current | I_{OUT} | 770 | mA |

FEATURES

- Wide 4.5V to 24V Operating Input Range
- 1.2A Peak Output Current
- 0.35Ω Internal Power MOSFET Switch
- Up to 92% Efficiency
- Thermal Shutdown
- Cycle-by-Cycle Over Current Protection
- Available in TSOT23-6 Package
- Fully Assembled and Tested

APPLICATIONS

- WLED Drivers
- Distributed Power Systems
- Battery Charger
- Pre-Regulator for Linear Regulators

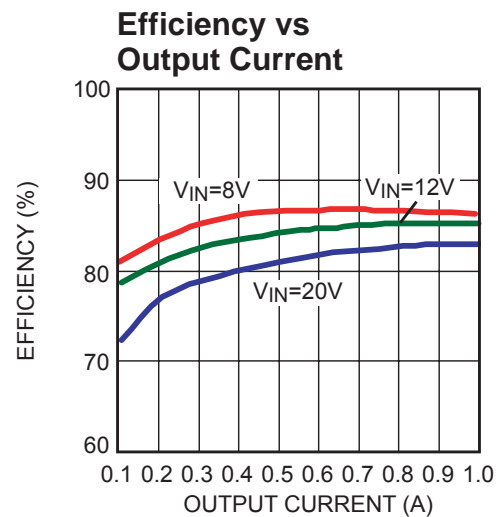
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EV2370DJ-00A EVALUATION BOARD

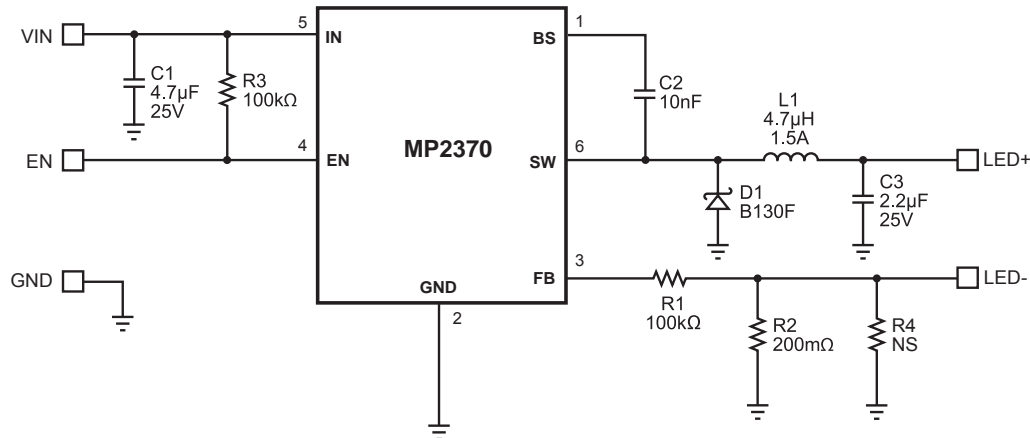


(L x W x H) 1.8" x 1.8" x 0.4"
4.6cm x 4.6cm x 1.0cm

| Board Number | MPS IC Number |
|--------------|---------------|
| EV2370DJ-00A | MP2370DJ |



EVALUATION BOARD SCHEMATIC



EV2370DJ-00A BILL OF MATERIALS

| Qty | Ref | Value | Description | Package | Manufacturer | Part Number |
|-----|-------|-------|-----------------------------|----------|--------------|----------------|
| 1 | C1 | 4.7µF | Ceramic Capacitor, 25V, X7R | 1206 | TDK | C3216X7R1E475K |
| 1 | C2 | 10nF | Ceramic Capacitor, 50V, X7R | 0603 | TDK | C1608X7R1H103K |
| 1 | C3 | 2.2µF | Ceramic Capacitor, 25V, X7R | 0805 | TDK | C2012X7R1E225K |
| 1 | D1 | | Diode Schottky, 30V, 1A | SMA | Diodes Inc | B130-F |
| 1 | L1 | 4.3µH | Inductor, 1.5A | SMD | Toko | #A920CY-4R3M |
| 2 | R1,R3 | 100kΩ | Resistor, 5% | 0603 | Any | |
| 1 | R2 | 200mΩ | Resistor, 1% | 0805 | KAMAYA | RLC20-R200F |
| 1 | R4 | NS | Not Stuffed | | | |
| 1 | U1 | | White LED Driver | TSOT23-6 | MPS | MP2370DJ |

PRINTED CIRCUIT BOARD LAYOUT

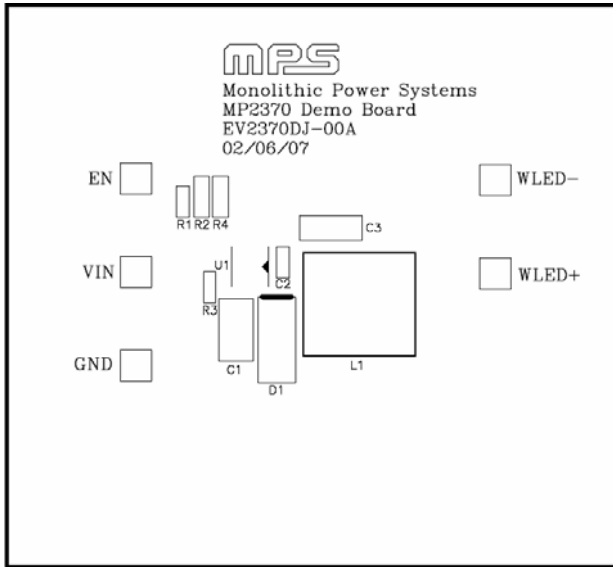


Figure 1—Top Silk Layer

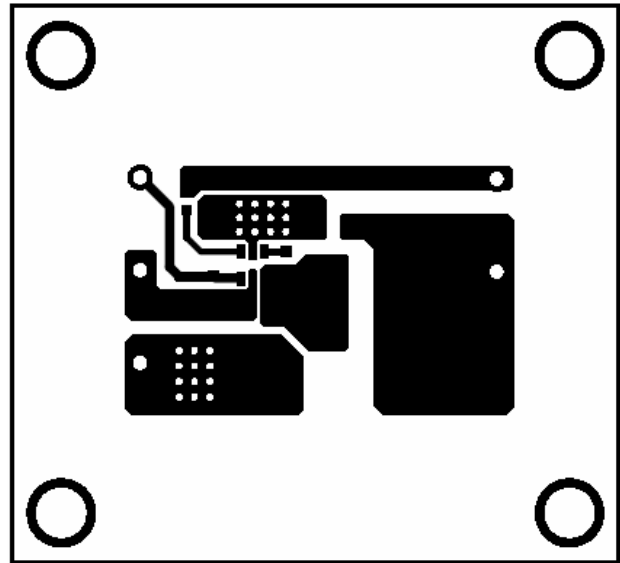


Figure 2—Top Layer

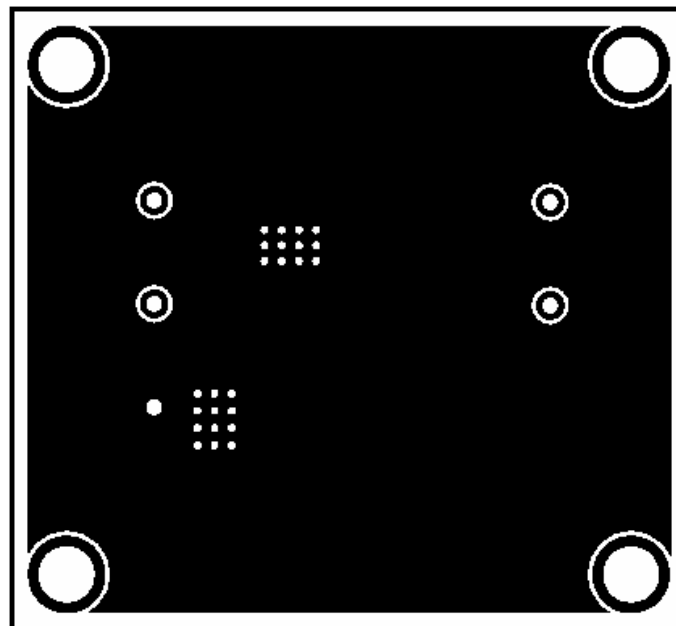


Figure 3—Bottom Layer

QUICK START GUIDE

The output current of this board is preset to 770mA, to accommodate the 3W White LED device.

1. Attach the positive and negative ends of White LED load to the WLED+ and WLED- pins.
2. Preset the power supply output to 6V to 24V and turn it off.
3. Connect the positive terminal of the power supply output to the VIN pin and the negative terminal of the power supply output to the GND pin.
4. Turn the power supply on. The MP2370 will automatically startup.
5. To use the Enable function, apply a digital input to EN pin. Drive EN higher than 2V to turn on the regulator and less than 0.3V to turn it off.
6. The Output Current can be changed by varying R2 and R4, respectively. Calculate the new values by the following formula:

$$R2 = \frac{0.15}{I_{WLED}}$$

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