EV2370DJ-00A

1.2A, 24V, 1.4MHz Step-Down White LED Driver Evaluation Board

The Future of Analog IC Technology

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.

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

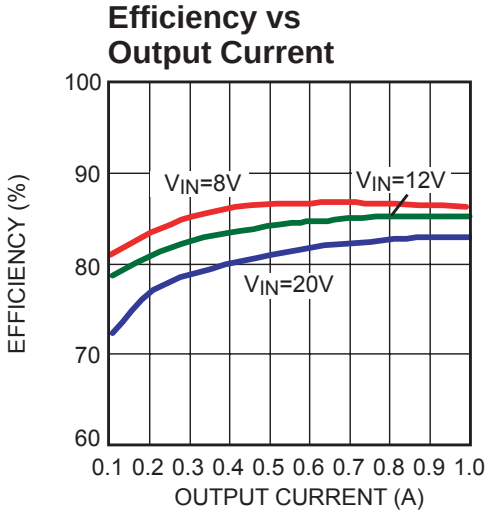
ELECTRICAL SPECIFICATIONS

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

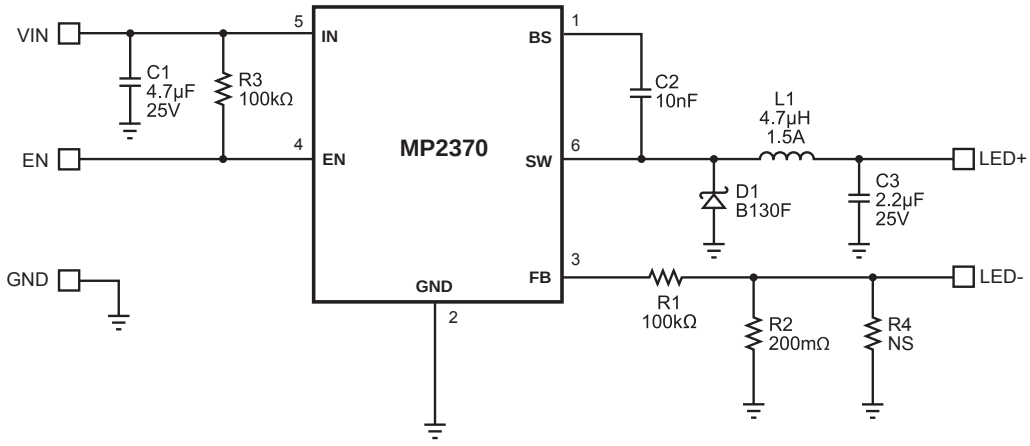
EV2370DJ-00A EVALUATION BOARD

(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

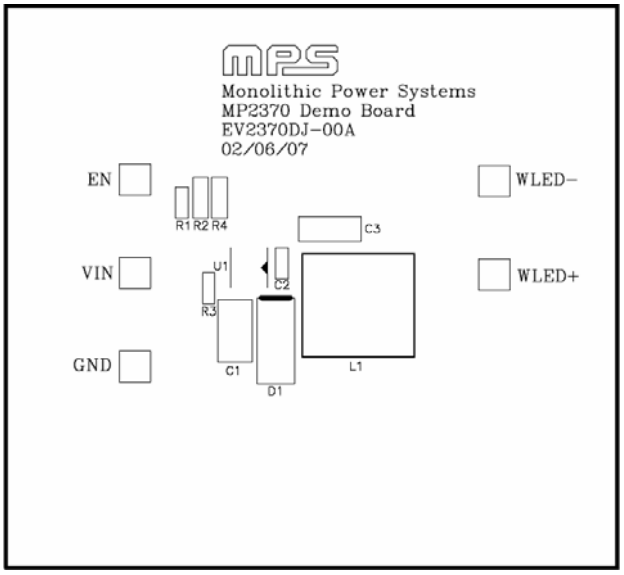


Figure 1—Top Silk Layer

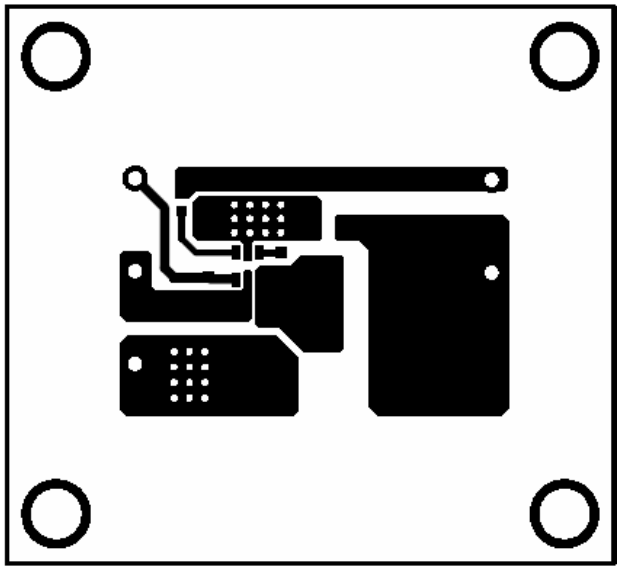


Figure 2—Top Layer

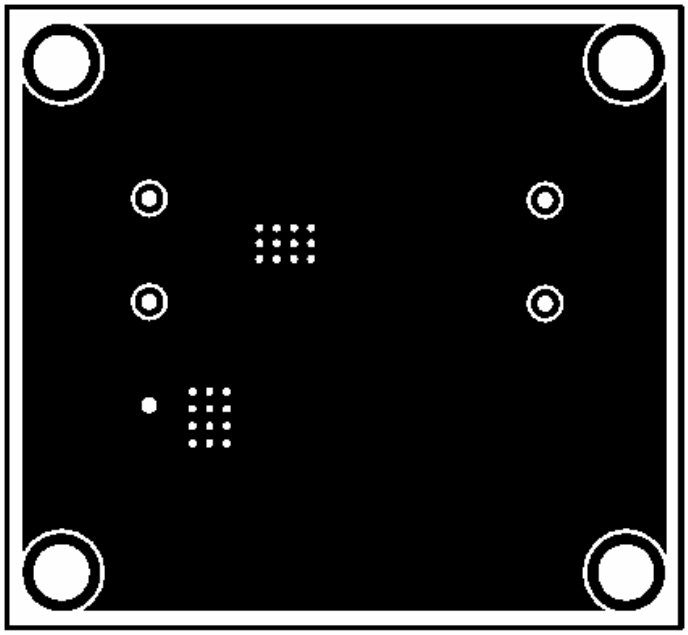


Figure 3—Bottom Layer

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:

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