PAM2804 EV Board User Guide
AE Department

1. Revision Information

Date	Revision	Description	Comment
2010/10	V1.0	Initial Release	

2. PAM2804 General Description

The PAM2804 is a step-down current mode LED driver. When the input voltage down to lower than LED forward voltage, then PAM2804 run into LDO mode.

The PAM2804 supports a range of input voltages from 2.5V to 6.0V, allowing the use of a single Li+/Li-polymer cell, 3AA or 4AA cell, USB, and other stand power sources.

The FB voltage is only 0.1V to achieve high efficiency.

PAM2804 employ internal power switch and synchronous rectifier to minimize external part count and realize high efficiency.

During shutdown, the input is disconnected from the output and the shutdown current is less than 1μA. Other key features include under-voltage lockout to prevent deep battery discharge of the Li+ battery.

3. Key Features

- Efficiency up to 93%
- 180μA (typ) Quiescent Current
- Output Current: Up to 1A
- Internal Synchronous Rectifier
- 1.5MHz Switching frequency
- Soft Start

- Under-Voltage Lockout
- Short LED Protection
- Open LED Protection
- Thermal Shutdown
- 5-pin Small SOT23-5 Package
- Pb-Free Package

4. EV Board Schematic
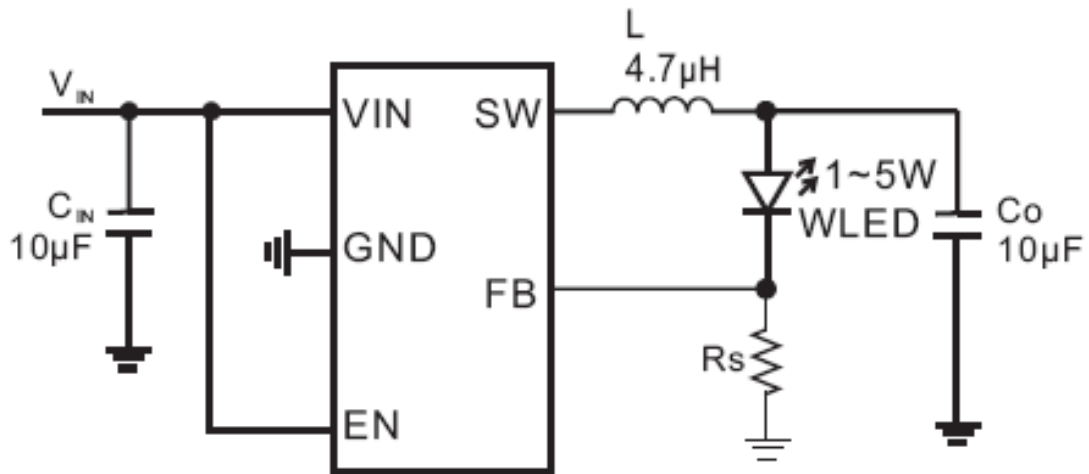
5. EVB PAM2804 EB09AA Description

PAM2804 EB09AA is an evaluation board for the PAM2804, a LED driver.

The board is targeted to be used in providing a simple and convenient evaluation environment for the PAM2804. Requires parts on the board makes it easy to be evaluated.

6. EV Board View

EV Board Operational Sequence:
1. Connect LED+ to anode of the power LED, the cathode connect to LED-

2. Connect V_{IN} and GND to power supply.

7. EV Boards BOM List

Item	Value	Type	Rating	Description	Vender and Part No.
Cin	10µF	X5R/X7R, Ceramic/0805	10V	Input coupling CAP	JMK212BJ106MA
Co	10µF	X5R/X7R, Ceramic/0805	10V	Input coupling CAP	JMK212BJ106MA
R1	0.3ohm	1206	1%	ILED=0.1/R1	
L1	4.7µH	3.7mm*3.0mm	1.2A	Inductor	NR4012T 4R7M
IC1	PAM2804	SOT-23-5		Power management IC	PAM2804
PCB		PAM2804 EB09AA			

8. External Components Selection

Input & Output Capacitors (Cin, Co)

(1) For lower output ripple, low ESR is required.

(2) Low leakage current needed, 10µF, X5R/X7R ceramic recommend.
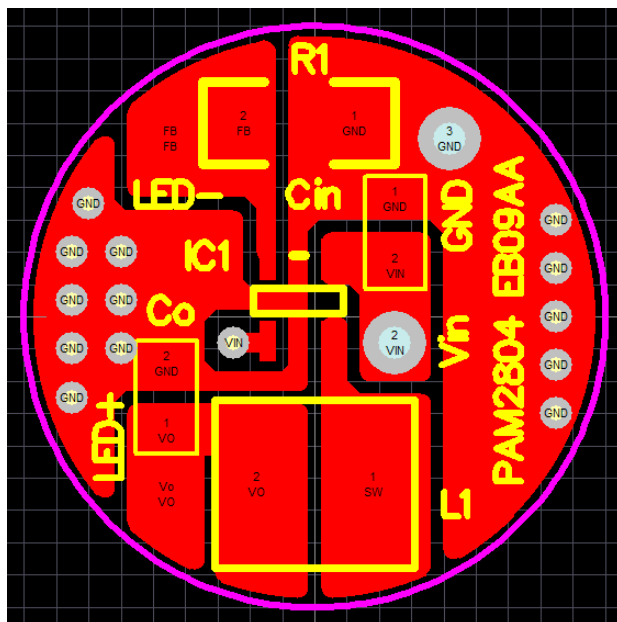
Output Voltage Programmer Resistors (R1)

(1) For programmer output current.

(2) For accurate output current, 1% tolerance is required.

Inductor (L1)

(1) Low DCR for good efficiency.

(2) Inductor rated Current must higher than the output current.

9. PCB Layout Example

Top Layer

Bottom Layer