# PAM2805 SOT23-6 EV Board User Guide

AE Department

## 1. Revision Information

| Date | Revision | Description | Comment |
|---|---|---|---|
| 2011/11 | V1.0 | Initial Release | |
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## 2. PAM2805 General Description

The PAM2805 is a step-up DC-DC WLED driver with 3 modes cycling function (100%brightness, 25%brightness and 8.5Hz blinking). The unique 3 modes cycling function can eliminate the needs of extra functional MCU or IC.

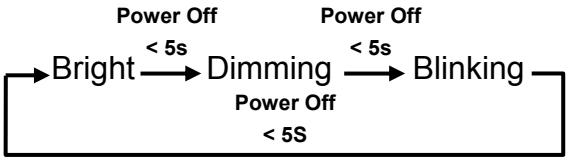
The PAM2805 can deliver up to 750mA output current by setting an external resistor. The PAM2805 switches at a 1.0MHz constant frequency, allowing for the use of small value external inductor and ceramic capacitors.

A low 95mV feedback voltage reduces the power loss in the Rs for better efficiency. With its internal 2A, 100mΩ NMOS switch, device can provide high efficiency even at heavy load.

The PAM2805 is available in SOT23-6 package.

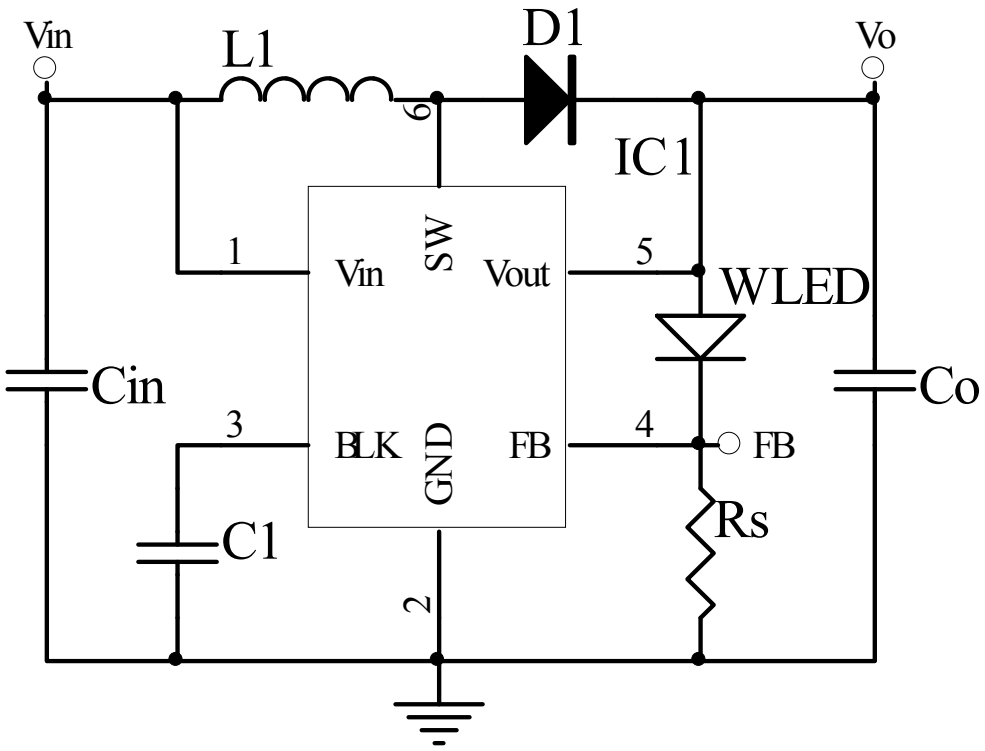
## 3. Key Features

- 3 Modes Cycling Function:




- Reset to Bright mode if Power Off time more than 5S
- Adjustable Output Current: up to 750mA
- 8.5Hz Blinking Mode
- Low Start-Up Voltage: 0.9V(Typ.)
- Low SW on Resistance: 100mΩ
- Over Temperature Protection
- Over Voltage Protection
- SOT23-6 Package
- Pb-Free Package

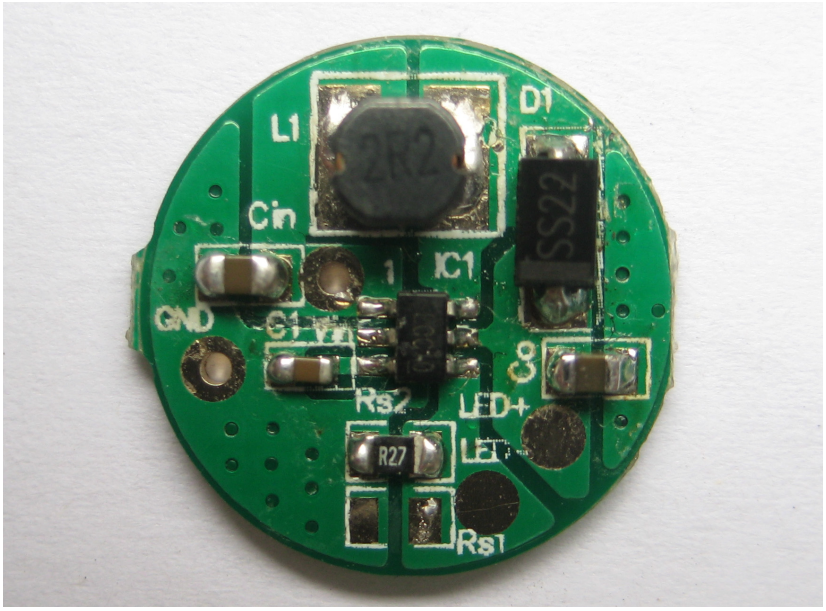
## 4. EV Board Schematic




## 5. EVB PAM2805 Description

PAM2805 EVB is an evaluation board for the PAM2805 SOT23-6, a WLED driver. The board is targeted to be used in providing a simple and convenient evaluation environment for the PAM2805. Requires parts, power supply connectors etc. on the board, which 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 Vin and GND to power supply.

## 7. Resistor Select for LED Current Setting

**$I_{LED} = V_{REF}/R_S$ ($V_{REF}$ = 0.095V; $R_S = R_S1 // R_S2$)**

| $I_{LED}$ | $R_s1$ | $R_s2$ |
|---|---|---|
| 350mA | 0.27Ω | NC |
| 750mA | 0.27Ω | 0.22Ω |

## 8. External Components Selection

**Input & output Capacitors (Cin, Co)**

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

(2) Low leakage current needed, 10uF, X5R/X7R ceramic recommend.

**Blinking Capacitors (C1)**

(1) Low leakage current needed, 1uF, X5R/X7R ceramic recommend.

**Iset resistors (Rs1, Rs2)**

(1) $R_S$ set the power LED current, $I_{LED}$=0.095V/$R_S$, $R_S$= $R_S$1// $R_S$2, See above table

(2) For accurate LED Current 1% tolerance is required.

(3) Pay attention to power dissipation to these resistors for flowed high current.

**Inductor (L1)**

(1) Low DCR for good efficiency

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

**Diode (D1)**

(1) Consult the input voltage range and the output current, SS22 recommend

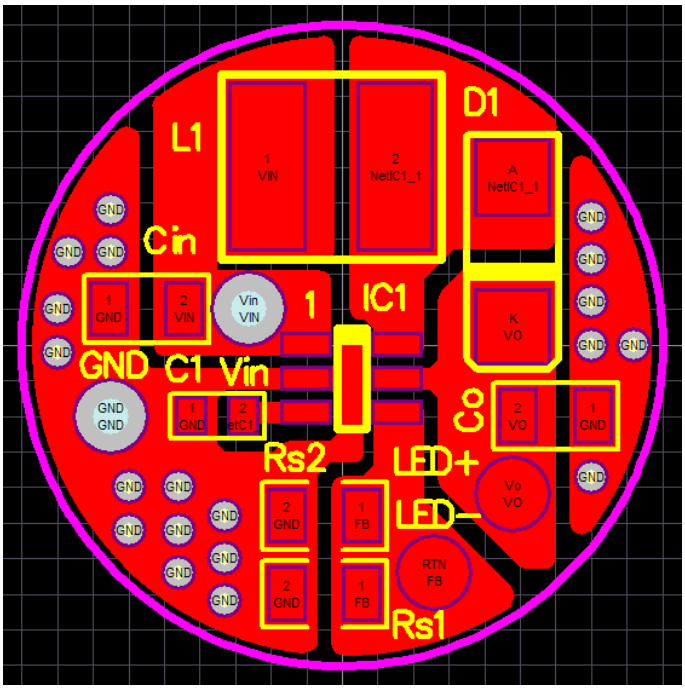
## 9. External Board BOM List

| Item | Value | Type | Rating | Description | Vender and Part No. |
|---|---|---|---|---|---|
| Cin | 10μF | X5R/X7R, Ceramic/0805 | 10V | Input coupling CAP, | TAIYO YUDEN EMK212ABJ106KD-T |
| Co(1) | 10μF | X5R/X7R, Ceramic/0805 | 10V | Output CAP | TAIYO YUDEN EMK212ABJ106KD-T |
| C1 | 1uF | X5R/X7R, Ceramic/0603 | 25V | Blinking CAP, | TAIYO YUDEN TMK107 BJ105KA-T |
| Rs1 | 0.27Ω | 0805 | 1% | LED current set RES | |
| L1 | 2.2μH | | >2A | Inductor | CD43-2.2uH |
| D1 | | 2A/20V | | Schottky Diode | SS22 |
| IC1 | | PAM2805 | SOT23-6 | | |
| PCB | | PAM2805 EVB | | | |

Note: 1. For single cell application, It will be much better to add a 10μF output CAP to improve the efficiency.

## 10. PCB Layout Example

**Top Layer**




**Bottom Layer**