

PAM2306 EV Board User Guide

AE Department

1. Revision Information

Date	Revision	Description Initial Release	Comment
2010/08	V1.1	Initial Release	

2. PAM2306 General Description

The PAM2306 is a dual step-down, current mode, DC/DC converter. At heavy load, the constant frequency PWM control performs excellent stability and transient response. To ensure the longest battery life in portable applications, the PAM2306 have a power-saving Pulse-skipping Modulation (PSM) mode and reduce the quiescent current under light load operation to save power.

The PAM2306 is supported with a range of input voltages from 2.5V to 5V, allowing the use of a single Li+/Li-polymer cell, 3-cell Alkaline/NiMH batteries, USB, and other standard power sources. The output voltage is adjustable from 0.6V to the input voltage, while the suffix part numbers PAM2306-XX indicate pre-set voltage ranges of 3.3V, 1.8V, 1.5V or 1.2V. All versions include internal power switch and synchronous rectifier for minimal external part count and high efficiency. During the shutdown, the input is disconnected from the output and the shutdown current is less than 0.1μA. Other key features include under-voltage lockout to prevent deep-battery discharge.

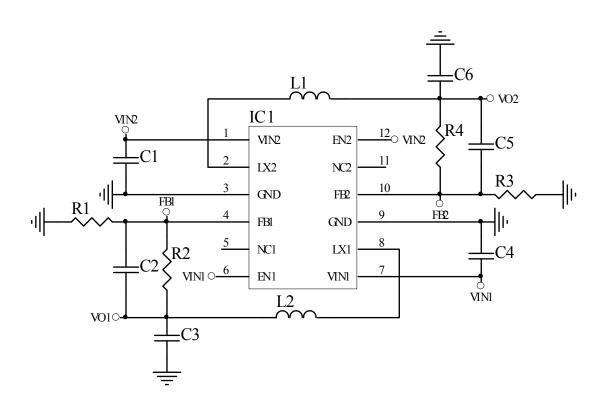


3. Key Features

- Efficiency up to 96%
- 40μA (typ) Quiescent Current
- Output Current: Up to1A per Channel
- Internal Synchronous Rectifier
- 1.5MHz Switching Frequency
- Soft-Start

- Under-Voltage Lockout
- Short Circuit Protection
- Thermal Shutdown
- Small 12LWDFN3×3Package
- Pb-Free Package and RoHS Compliant

4. EV Board Schematic

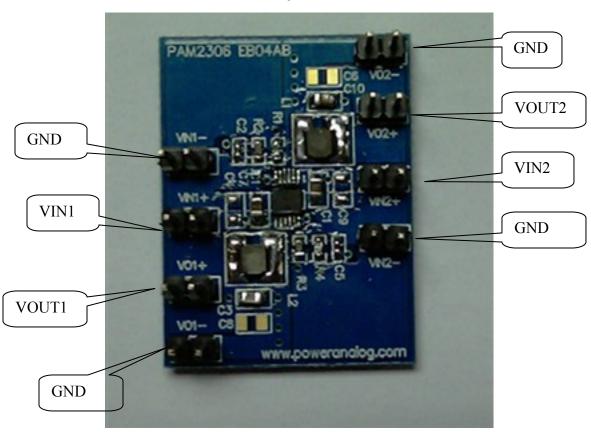


5. EVB PAM2306 EB04AB Description

PAM2306 EB04AB is an evaluation board for the PAM2306, a DC/DC converter. The board is targeted to be used in providing a simple and convenient evaluation environment for the PAM2306. Requires parts, power supply jacks etc. on the board, which makes it easy to be evaluated.

6. EV Board View





7. Resistor Select for Output Voltage Setting

 $V_{OUT} = (1+R1/R2) \times V_{REF}$ (V_{REF} = 0.6V)

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Vo	R1	R2	L
1.2V	200k	200k	2.2µH
1.5V	150k	100k	2.2µH
1.8V	200k	100k	2.2µH
2.5V	380k	120k	4.7µH
3.3V	680k	150k	4.7µH

8. External Compnents Selection

Input & output Capacitors

- (1) For lower output ripple, low ESR is required.
- (2) Low leakage current needed, 10uF, X5R/X7R ceramic recommend

Feed forward capacitor

- (1) Lower the output ripple
- (2) Low leakage current needed, 20-100pF, X5R/X7R ceramic recommend

Output Voltage programmer resistors

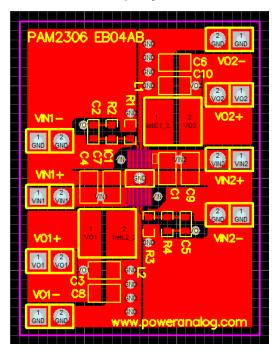
- (1) For programmer output voltage
- (2) For accurate output voltage, 1% tolerance is required.

Inductor

- (1) Low DCR for good efficiency
- (2) Inductance Decrease Current must higher than the output current

9. PCB Layout Example

Top Layer



Bottom Layer

