

PAM2305D DFN EV Board User Guide
AE Department

1. Revision Information

Date	Revision	Description	Comment
2011/07	V1.0	Initial Release	

2. PAM2305D General Description

The PAM2305D is a 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 PAM2305D provides a power-saving Pulse-Skipping Modulation (PSM) mode to reduce quiescent current under light load operation to save power.

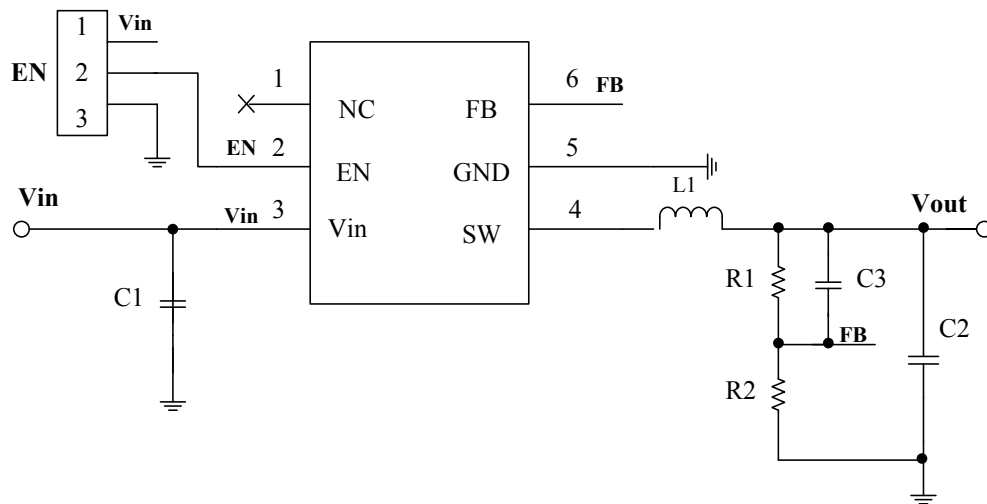
The PAM2305D supports a range of input voltages from 2.5V to 5.5V, allowing the use of a single Li+/Li-polymer cell, multiple Alkaline/NiMH cell, USB, and other standard power sources. The output voltage is adjustable from 0.6V to the input voltage. All versions employ internal power switch and synchronous 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 0.1µA. Other key features include under-voltage lockout to prevent deep battery discharge.

The PAM2305D is available in SOT23-5, DFN2x2 6-Pin and QFN3x3 16-Pin packages.

3. Key Features

- Efficiency up to 96%
- Only 40uA(TYP.) Quiescent Current
- Output Current: Up to 1A
- Internal Synchronous Rectifier
- 1.5MHz Switching Frequency
- Soft Start
- Under-Voltage Lockout
- Short Circuit Protection
- Thermal Shutdown
- 5-pin Small SOT23-5, DFN2x2 6-Pin and QFN3x3 16-Pin Packages
- Pb-Free Package

4. EV Board Schematic

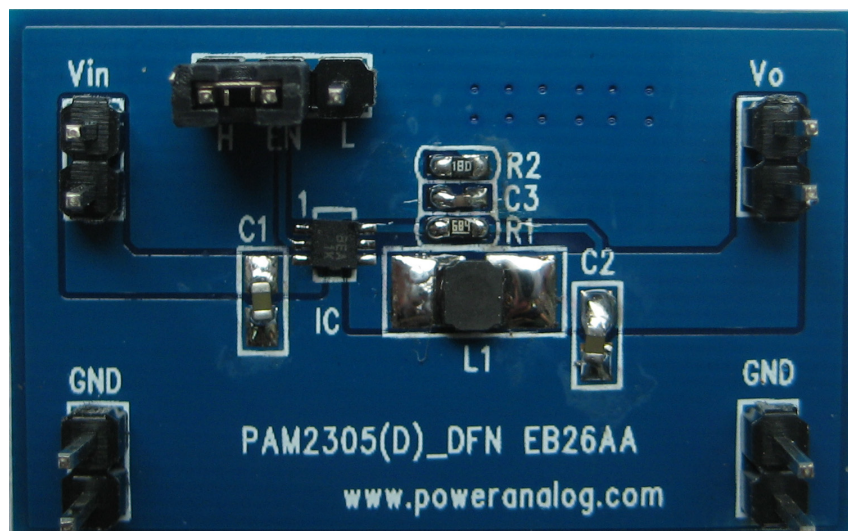


5. EVB PAM2305D EB26AA Description

PAM2305D DFN EB26AA is an evaluation board for the PAM2305D DFN, a DC/DC converter. The board is targeted to be used in providing a simple and convenient evaluation environment for the PAM2305D. Requires parts, power supply connectors etc. on the board, which makes it easy to be evaluated.

6. EV Board View

Top View



7. Resistor Select for Output Voltage Setting

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

V_o	R3	R4	L
1.2V	150k	150k	1.0 μ H
1.5V	150k	100k	2.2 μ H
1.8V	300k	150k	2.2 μ H
2.5V	475k	150k	4.7 μ H
3.3V	680k	150k	4.7 μ H

8. External Components Selection

Input & output Capacitors (C1, C2)

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

Feed forward capacitor (C3)

- (1) Lower the output ripple.
- (2) Low leakage current needed, 100pF, COH/CH ceramic recommend.

Output Voltage programmer resistors (R1, R2)

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

Inductor (L1)

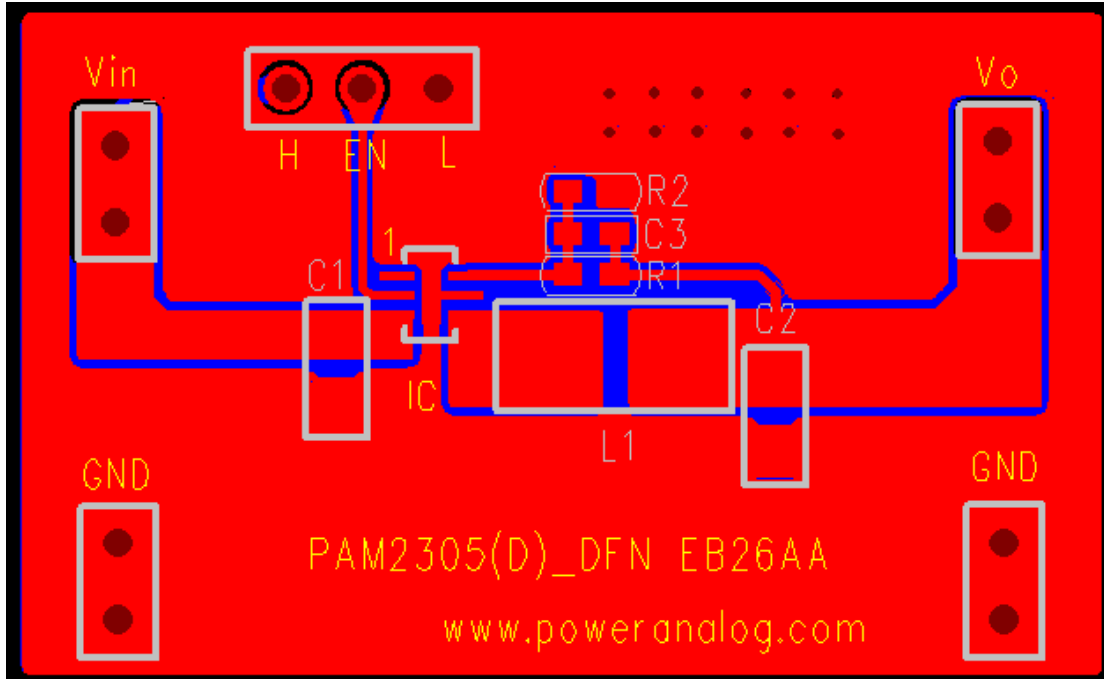
- (1) Low DCR for good efficiency.
- (2) Inductance saturate current must higher than the output current.

9. Evaluation Board BOM List:

Item	Value	Type	Rating	Description	Vender and Part No.
C1, C2	10 μ F	X5R/X7R, Ceramic/0603	6.3V	Input coupling CAP, Output CAP	TAIYO YUDEN JMK107 BJ106KA-T
C3	100pF	COH/CH, Ceramic/0402	6.3V	Feed forward CAP	TAIYO YUDEN UMK105CH101JV-F
L1	4.7 μ H		1.2A	Inductor	TAIYO YUDEN NR3015T 4R7M
R1	680K	0603	1%	Voltage set RES	
R2	150K	0603	1%		
IC1		PAM2305D			
PCB		PAM2305(D)DFN EB26AA			

10. PCB Layout Example

Top Layer



Bottom Layer

