

PAM2310 SOP8 EV Board User Guide

AE Department

1. Revision Information

Date	Revision	Description Initial Release	Comment
2011/05	V1.0	Initial Release	

2. PAM2303 General Description

The PAM2310 is a 2A step-down DC-DC converter. At heavy load, the constant-frequency PWM control performs excellent stability and transient response. No external compensation components are required.

The PAM2310 supports a range of input voltages from 2.7V to 5.5V, allowing the use of adapter or DC-DC output 5V etc standard power source. The output voltage is adjustable from 0.6V to the input voltage. The PAM2310 employs 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 over-temperature and short circuit protection.

The PAM2310 delivers 2A maximum output current while consuming only 42 µA of no-load quiescent current. Ultra-low RDS(ON) integrated MOSFETs and 100% duty cycle operation make the PAM2310 an ideal choice for high output voltage, high current applications which require a low dropout threshold.

The PAM2310 is available in SOP8 package.



3. Key Features

Output Current: Up to 2A
Output Voltage: 0.6V to VIN
Input Voltage: 2.7V to 5.5V

Efficiency up to 95%

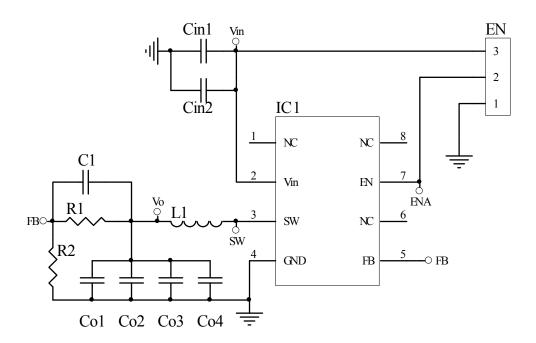
42μA (Typ) No Load Quiescent Current

Shutdown Current: <1µA</p>

100% Duty Cycle LDO Operation

- 1.5MHz Switching Frequency
- Internal Soft Start
- No external Compensation Required
- Current Limit Protection
- Thermal Shutdown
- SOP8 Package

4. EV Board Schematic



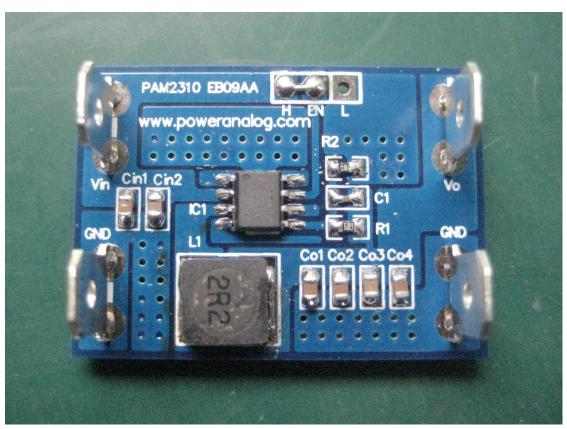
5. EVB PAM2310 EB09AA Description

PAM2310 EB09AA is an evaluation board for the PAM2310 SOP8, a DC/DC converter. The board is targeted to be used in providing a simple and convenient evaluation environment for the PAM2310. Requires parts, power supply connectors 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} $		$V_{REF} = 0.6V$	
Vo	R1	R2	L
1.2V	150k	150k	2.2µH
1.5V	225k	150k	2.2µH
1.8V	300k	150k	2.2µH
2.5V	475k	150k	2.2µH
3.3V	680k	150k	2.2µH



8. External Compnents Selection

Input & output Capacitors (CinX, CoX)

- (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 (C1)

- (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	Туре	Rating	Description	Vender and Part No.
Cin1, Cin2, Co1, Co2, Co3, Co4	10µF	X5R/X7R, Ceramic/0805	10V	Input coupling CAP, Output CAP	TAIYO YUDEN EMK212ABJ106KD-T
C1	100pF	COH/CH, Ceramic/0402	50V	Feed forward CAP	TAIYO YUDEN UMK105CH101JV-F
L1	2.2µH	5848	>3A	Inductor	WURTH 744774022 TAIYO YUDEN NRS8030T3R0NMGJ
R1	680K	0603	1%	Voltage set RES	
R2	150K	0603	1%		
IC1		PAM2310	SOP-8		
PCB		PAM2310 EB09AA			



10. PCB Layout Example

