

FAN5308 Evaluation Board User Guide

Features:

- 2.5 to 5.5V Input Range
- Up to 800mA Output Current
- Adjustable Output from 0.8V to V_{IN}
- Thermal Shutdown, Short Circuit Protection, Soft Start, Output Over Voltage Protection
- 1.3MHz Fixed Frequency PWM Operation at heavy load and Burst Operation at light load
- Up to 96% Efficiency, Synchronous Operation
- Pb-Free 6-lead 3x3mm MLP Package

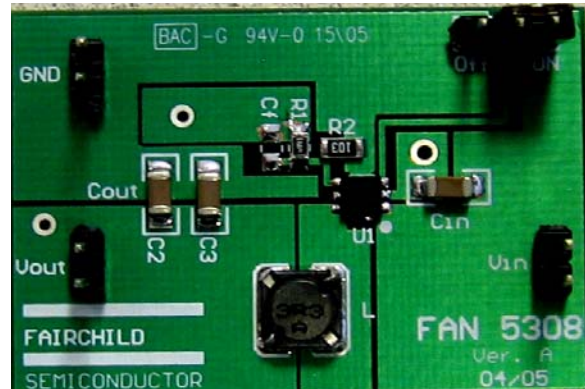


Figure 1: FAN5308 MPX

Description:

The **FAN5308 Evaluation Board** is a compact circuit including the FAN5308 MPX in a 3x3 MLP package and three 10uF input/output capacitors. Output voltage is adjusted using an external resistor divider. The FAN5308 demo board, a completely assembled and tested surface mount board, provides easy probe access points to all inputs and outputs so that electrical characteristics and waveforms can be easily measured.

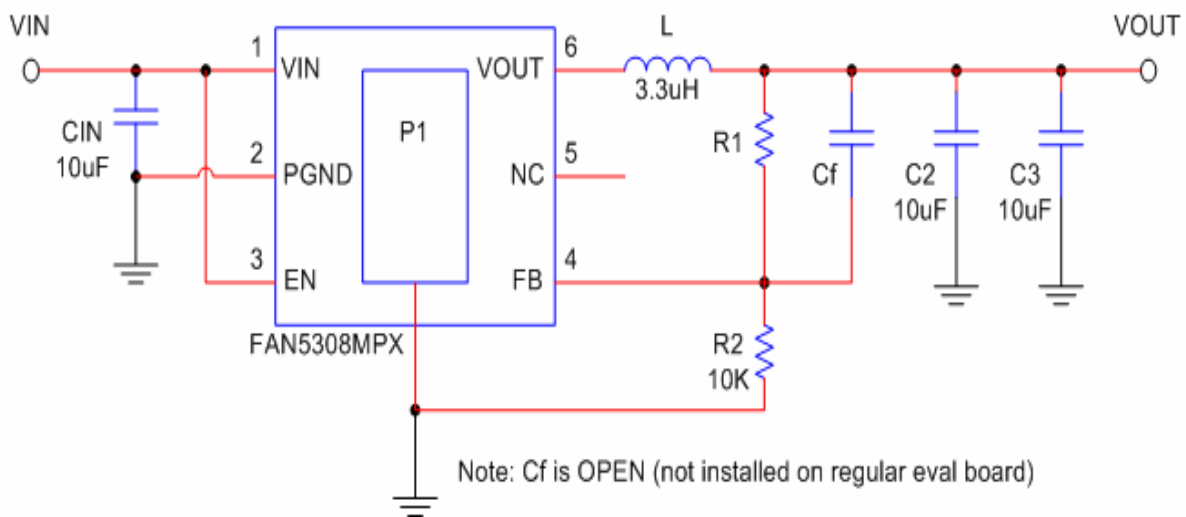


Figure 2: FAN5308 Schematic

Where To Begin:

- 1: Connect V_{IN} (2.5 to 5.5V) and Gnd (0V).
- 2: Use a jumper to toggle the circuit between "ON" and "OFF" modes.
- 3: Observe that for varying input levels, if $V_{IN} > V_{OUT} + 0.6V$ and $I_{LOAD} < 800mA$, V_{OUT} remains constant.
- 4: The output voltage level is $V_{OUT} = V_{REF} (1 + (R1/R2))$ where $V_{REF} = 0.8V$ (typical) and $R2 = 10K$. For $V_{OUT} = 1.2V$, $R1$ is preset to 5K and for $V_{OUT} = 3.3V$, $R1$ is preset to 31.25K.
- 5: To verify supply current in "ON" and "OFF" modes, observe that in shutdown mode, supply current will drop below 1uA and in "ON" mode, $I_q < 50uA$.
- 6: If quiescent current is a key design parameter a higher value feedback resistor, $R2$, can be used along with a small bypass capacitor C_f . (e.g. $R2 = 100K$ and $C_f = 10pF$)

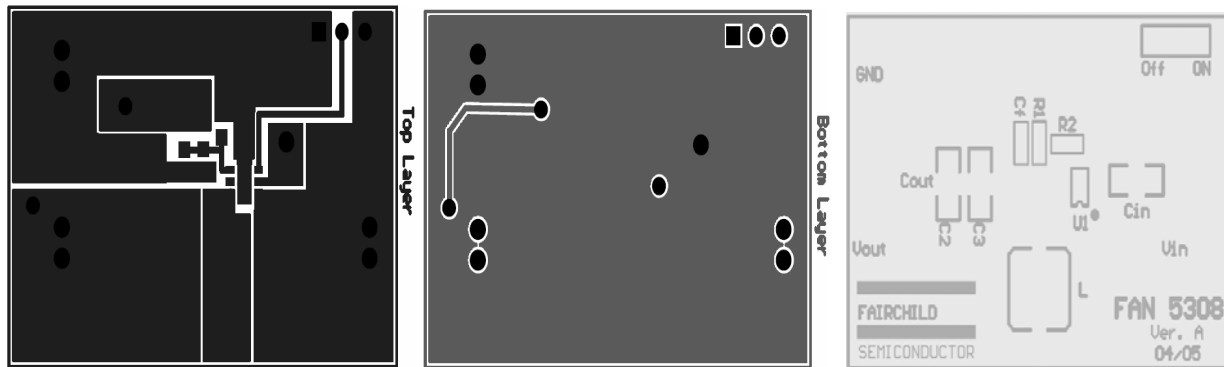


Figure 3: FAN5308 PCB Layout



Figure 4: Start-Up Waveform at Full Load $V_{in} = 5.5V$

Table 1: FAN5308 MPX List of Materials

Description	Qty	Ref.	Vendor	Part Number
Inductor 3.3 uH, 1.85 Amps, 20%, SMD-SMT	1	L	Panasonic	ELL6PM3R3N
Capacitor 10uF, 10%, 6.3V, X5R, 1206	3	C2,C3,Cin	MURATA Panasonic	GRM31CR70J106K ECJ-3YB0J106K
Resistor 10 Kohm, 1%, 1206	1	R2	Any	
Resistor 31.25Kohm, 1%, 0805 (for option VOUT set 3.3V)	1	R1	Any	
Resistor 4.99 Kohm, 1%, 0805 (for option VOUT set 1.2V)	1	R1	Any	
Hardware Connector Header .1 SINGLE STR 36POS	9	Vin,Vout,GND, on/off	Digi-Key	S1011-36-ND
IC DC/DC Regulator, 6 leads MLP 3x3, FSID: FAN5308MPX	1	U1	Fairchild	FAN5308 MPX
Hardware, SHUNT, PHBR 15 AU	1	on/off	DIGI-KEY	A26227-ND

Table 2: Ordering Information

Product Number	Package Type	Order Code
FAN5308	Pb-Free 6-Lead 3x3mm MLP	FAN5308 MPX

WARNING AND DISCLAIMER

Replace components on the Evaluation Board only with those parts shown on the parts list in the User's Guide. Contact an authorized Fairchild representative with any questions.

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DOME™	GTO™	MicroPak™	QFET®	SuperSOT™-8
EcoSPARK™	HiSeC™	MICROWIRE™	QS™	SyncFET™
E ² C MOS™	I ² C™	MSX™	QT Optoelectronics™	TinyLogic®
EnSigna™	i-Lo™	MSXPro™	Quiet Series™	TINYOPTO™
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FACT Quiet Series™		OCXPro™	RapidConnect™	UHC™
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