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February 2007



FAN5336 Evaluation Board User Manual

- 2.7 to 5.5V Input Range
- 9V to 33V Output Range
- 1.5A Peak Switch Current
- Low Noise
- Low Shutdown Current: <math><1\mu\text{A}</math>
- 1.5 MHz Fixed-Frequency PWM Operation
- Over Voltage Protection, Shutdown Mode and Soft Start
- Excellent Regulation: 0.2%
- Small 6-lead 3x3mm MLP Package

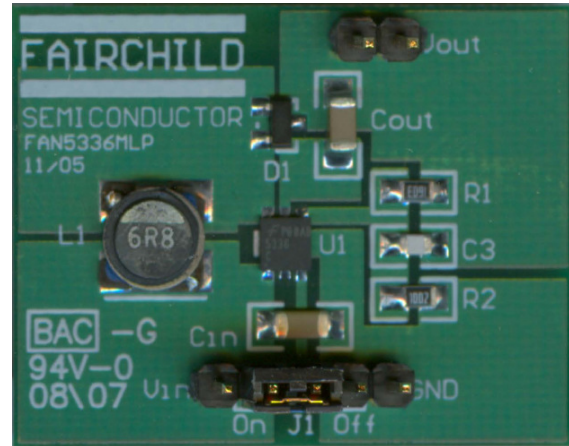


Figure 1: FAN5336MPX

Description:

The **FAN5336 Evaluation Board** is a compact circuit including the FAN5336 MPX in an MLP package and two small capacitors which can provide regulated output voltage to the load. The inductor-Schottky diode combination and two typically valued resistors are also included to form a resistor divider to the feedback pin. A feed forward capacitor is provided for stability as well. The FAN5336 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.

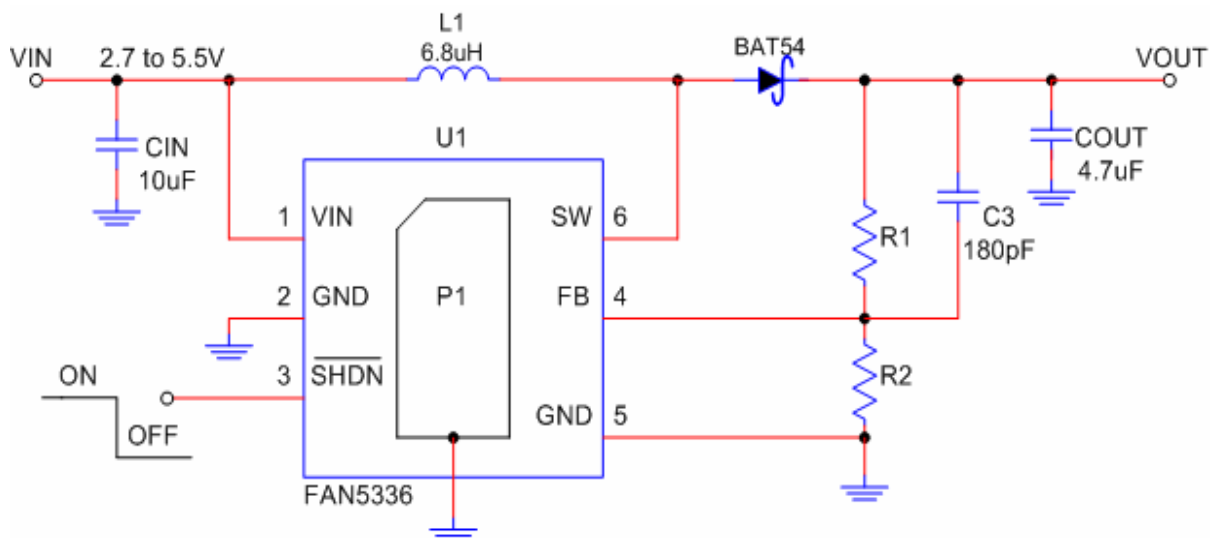


Figure 2: Schematic Diagram

Where To Begin:

1: Connect V_{IN} (2.7 to 5.5V) and Gnd (0V).

2: To verify supply current in "ON" and "OFF" modes, observe that in shutdown mode, supply current will drop to the current pulled by the resistor divider.

$$I = V_{IN} / (R1 + R2).$$

(Note: Use Jumper J1 to connect V_{IN} directly to "ON" or Gnd to "OFF")

3: Observe that $V_{OUT} = V_{REF} \{ 1 + (R1/R2) \}$ ($V_{REF} = 1.23V$ typical).

4: Verify that V_{OUT} is independent of V_{IN} when it decreases from 5.5V to 2.7V if the load current does not exceed its maximum value, a function of V_{IN} .

(Note: Although the load current is indirectly limited by the maximum inductor current, V_{OUT} is not allowed to be shorted to ground. Failure results in damaging the Schottky diode and/or the IC)

(Note: The Schottky diode D1, rectifies the voltage pulses generated by the inductor)

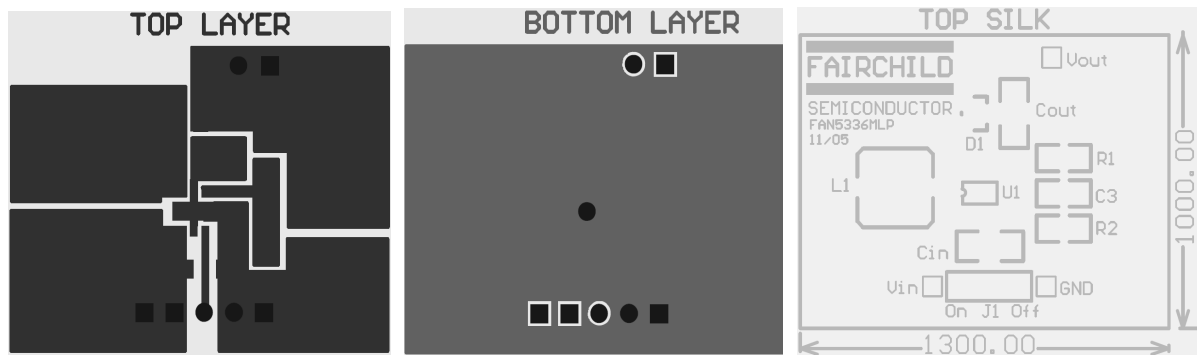


Figure 3: PCB Layout

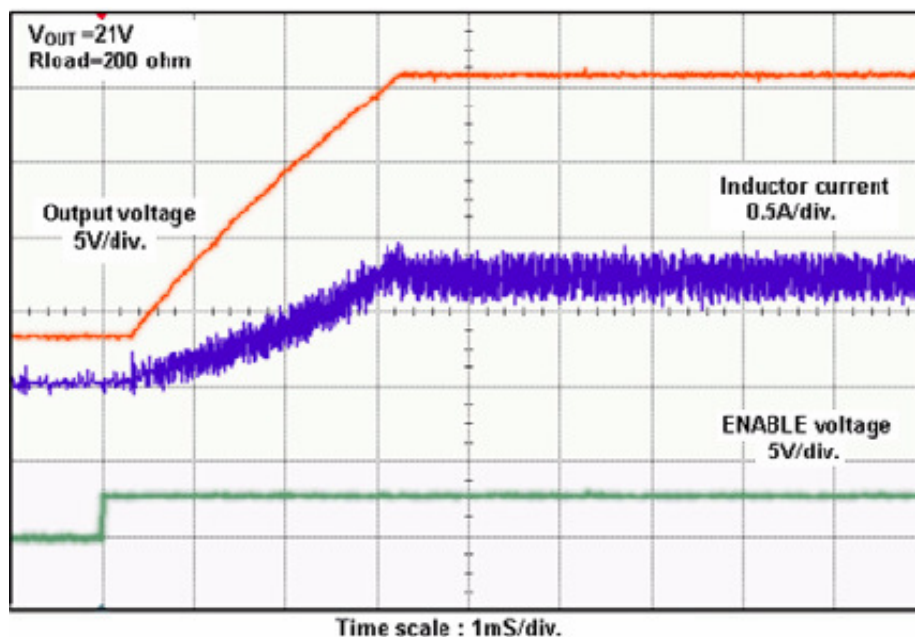


Figure 4: Start-Up Waveform

Table 1: FAN5336 List of Materials

Description	Qty	Ref.	Vendor	Part Number
Hardware Connector Header .1 SINGLE STR 36POS	7	GND,VIN, VOUT,ON/OFF	Digi-Key	S1011-36-ND
Hardware, SHUNT, PHBR 15 AU	1	ON/OFF	Digi-Key	A26227-ND
Inductor 6.8uH, 1.5A, 35mohm, low profile, 20%, SMD	1	L1	TDK	SLF6028T-6R8M1R5
IC System Regulator, MLP-6, FSID: FAN5336	1	U1	Fairchild	FAN5332MPX
Capacitor 180pF, 10%, 50V, COG, 0805	1	C3	Any	
Resistor 10 Kohm, 1%, 0805	1	R2	Any	
Resistor 160 Kohm, 1%, 0805	1	R1	Any	
Capacitor 10 uF/6.3V, 10%, 1206	1	CIN	Panasonic	ECJ-3YB0J106K
Capacitor 4.7 uF/25V, 10%, 1206	1	COUT	Panasonic	
Diode Schottky, 30V, 0.2A , SOT-23, FSID: BAT54	1	D1	Fairchild	BAT54

Table 2: Ordering Information

Product Number	Package Type	Order Code
FAN5336	6-Lead MLP	FAN5336MPX