

# FAN5350 Evaluation Board User Manual

- 3MHz Fixed Frequency Operation
- 16 $\mu$ A Typical Quiescent Current
- Best-in-Class Load Transient
- Up to 600mA Output Current
- 2.7V to 5.5V Input Voltage Range
- 1.82V Fixed Output Voltage
- Synchronous Operation
- Pulse Skip and Power Save Mode
- 6-lead 3x3mm MLP and 5-bump 1x1.37mm WLCSP Packages

## Description:

The **FAN5350 Evaluation Board** is a compact circuit including the FAN5350 MPX or FAN5350 UCX, a 1 $\mu$ H inductor and one small 4.7 $\mu$ F input and output capacitor. The FAN5350 demo board is a completely assembled and tested surface mount board, providing easy probe access points to all inputs and outputs so that electrical characteristics and waveforms can be easily measured.

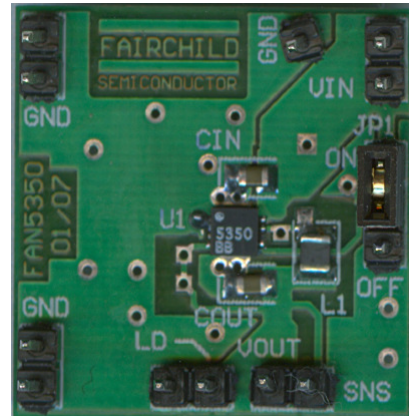


Figure 1: FAN5350 MPX

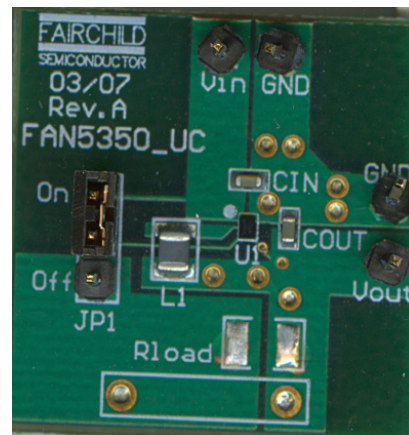


Figure 2: FAN5350 UCX

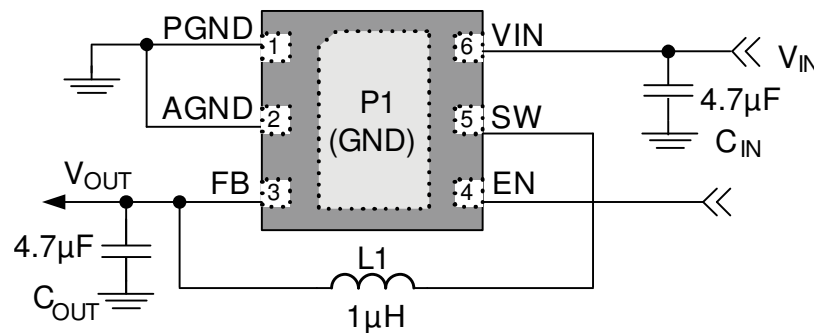


Figure 3: MLP Schematic Diagram

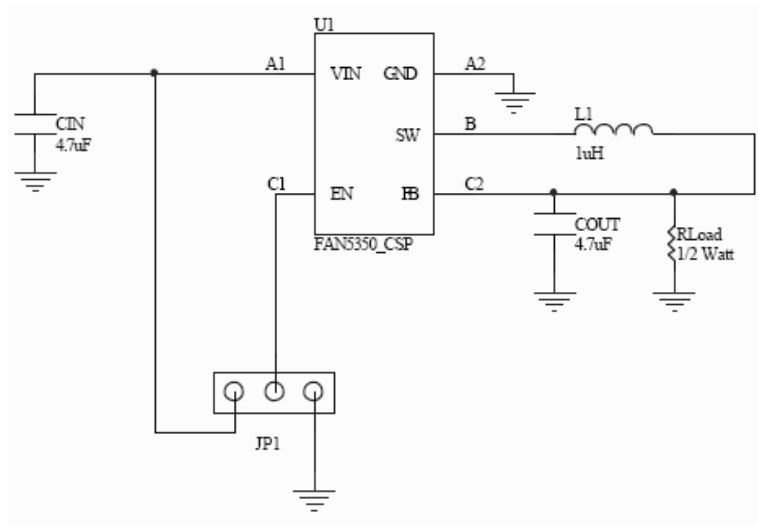


Figure 4: WLCSP Schematic Diagram

### Where To Begin:

- 1: Connect  $V_{IN}$  (2.7 to 5.5V) and GND (0V).
- 2: Use jumper JP1 to select "ON" and "OFF" modes.
- 3: Verify that the output voltage  $V_{OUT}$ , remains constant at 1.82V for varying input voltages and the load current
- 4: To measure the supply current in non-switching condition, the FB pin has to be forced with an external voltage higher than  $V_{OUT}$  nominal.  $V_{FB} = 2V$  is a good choice. To measure the supply current in switching condition, the digital current meter readings should be averaged until a stable value is displayed.
- 5: Observe that in OFF mode (EN connected to GND) the supply current drops below  $1\mu A$ . A typical value at room temperature is  $\sim 50nA$  provided that there is no leakage current through the PCB. Please ensure the PCB surface is very clean when performing this measurement.

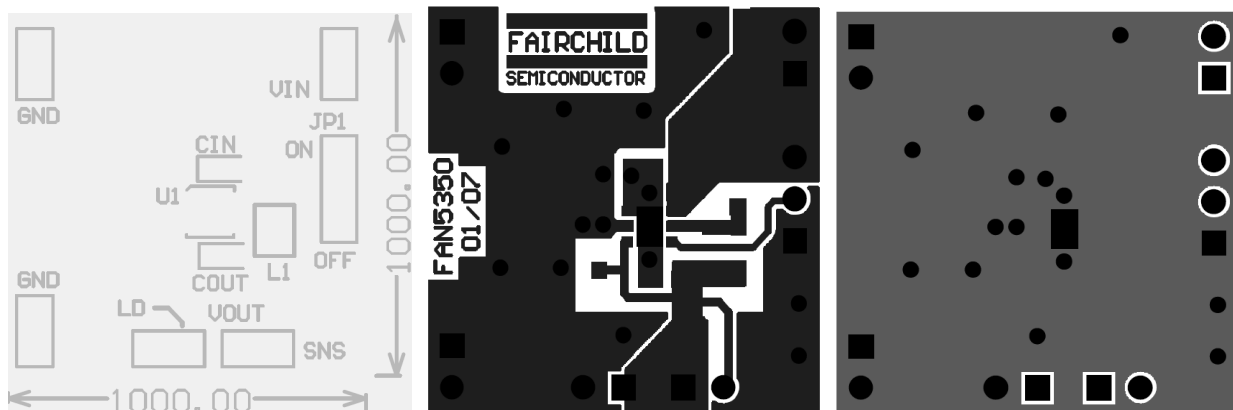


Figure 3: MLP PCB Layout

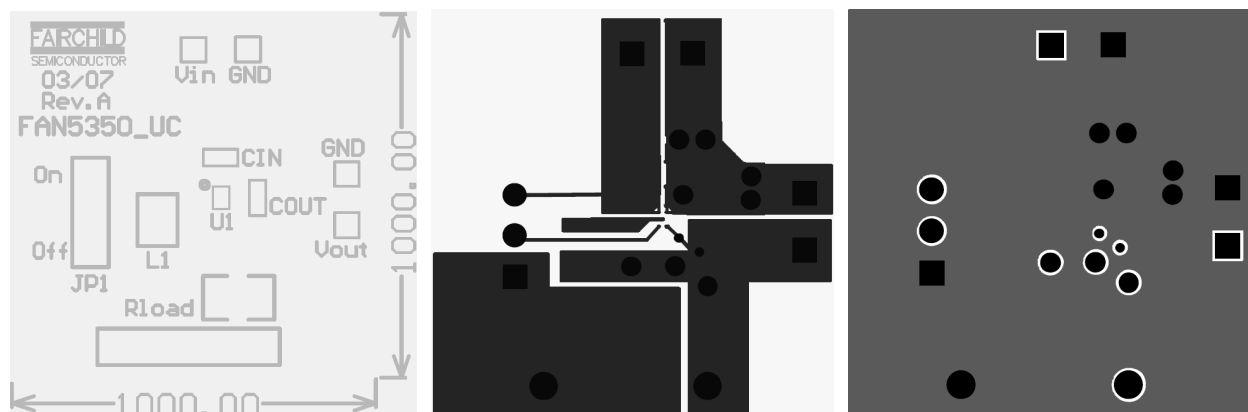


Figure 4: WLCSP PCB Layout

Table 1: WLCSP Bill of Materials

Description	Qty	Ref.	Vendor	Part Number
Inductor 1.3uH, 1.2A, 90mohm	1	L1	FDK	MIPSA2520D1R0
Capacitor 4.7uF, 10%, 6.3V, X5R, 0603	2	CIN,COUT	MURATA	GRM39 X5R 475K 6.3
Hardware Connector Header .1 SINGLE STR 36POS	7	Vin,Vout,GND, ON/OFF(JP1)	Digi-Key	S1011-36-ND
IC DC/DC Regulator in CSP, 5 bumps	1	U1	Fairchild	FAN5350UC
Load Resistor	1	Rload	Any	
Hardware, SHUNT, PHBR 15 AU	1	ON, PWM	DIGI-KEY	A26227-ND

Table 2: MLP Bill of Materials

Description	Qty	Ref.	Vendor	Part Number
Inductor 1.3uH, 1.2A, 90mohm	1	L1	FDK	MIPSA2520D1R0
Capacitor 4.7uF, 10%, 6.3V, X5R, 0603	2	CIN,COUT	MURATA	GRM39 X5R 475K 6.3
Hardware Connector Header .1 SINGLE STR 36POS	14	Vin,Vout,GND, LD, ON/OFF(JP1)	Digi-Key	S1011-36-ND
IC DC/DC Regulator in MLP, 6 pin	1	U1	Fairchild	FAN5350MPX
Hardware, SHUNT, PHBR 15 AU	1	ON, PWM	DIGI-KEY	A26227-ND

Table 3: Ordering Information

Product Number	Pb-Free	Operating Temperature Range	Package Type
FAN5350UCX	Yes	-40°C to 85°C	5-bump WLCSP 1x1.37mm
FAN5350MPX	Yes	-40°C to 85°C	6-pin MLP 3x3mm