

FAN5606 Evaluation Board User Manual

- 2.7 to 5V Input Range
- Up to 25mA Output Current
- Digital, Analog and PWM Brightness Control
- Drives Up to Six LEDs in Series
- Open Circuit Protection, Shutdown Mode and Soft Start
- .5MHz Operating Frequency
- Up to 90% Peak Efficiency
- Small 8-lead 3x3mm MLP Package

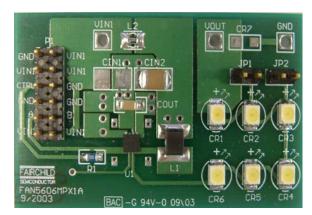


Figure 1: FAN5606 DMPX

Description:

The **FAN5606 Evaluation Board** is a compact circuit including the FAN5606 DMPX in a 3x3 MLP package and one small 4.7uF capacitor which can provide stable output current for up to six of Fairchild's super bright white LEDs. The FAN5606 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.

Where To Begin:

- 1: Connect Vin1 (2.7 to 5V) and Gnd (0V).
- 2: For analog mode, ground input "B" (pin 2) and connect input "A" (pin 1) to a fixed supply voltage through resistor R1.
- **3:** For digital mode, select 5mA (A=1,B=0), 10mA (A=0,B=1), or 20mA (A=1,B=1). Use a jumper to connect input "A" directly to Vin or Gnd and input "B" directly to Vin or Gnd. (**Note:** input "A" and input "B" must be connected to either Vin or Gnd at all times)
- **4:** To verify output current or change the number of operating LEDs, apply jumpers to pins JP1 and JP2. (Observe that the current remains constant for varying input voltage levels)
- **5:** To verify supply current in "ON" and "OFF" modes, observe that in shutdown mode, supply current will drop below 1uA.
- **6:** If you choose, you may add a capacitor C1 and inductor L2 to reduce ripple at the battery input.
- 7: The Zener diode CR7 protects the IC in the event of a sudden load disconnection.
- 8: In analog mode $I_{LED} = \{(V_{CTRL} 1.2V) / R1\}$ x multiplication ratio (Note: R1 = 86.6K is chosen to set I_{LED} to 20mA when $V_{CTRL} = 3V$). The resistances of R1 and R2 may be lowered to accommodate lower values of V_{CTRL} .

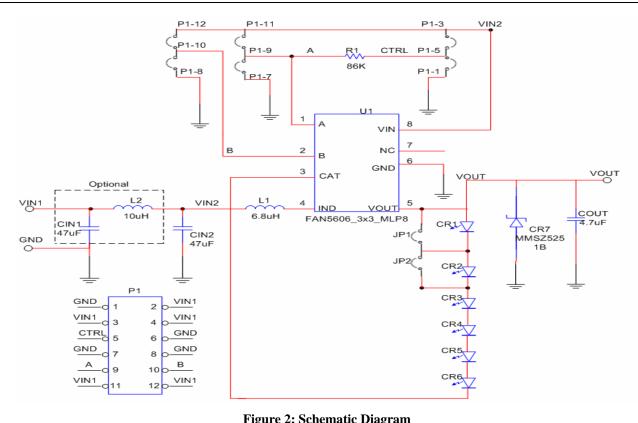


Figure 2: Schematic Diagram

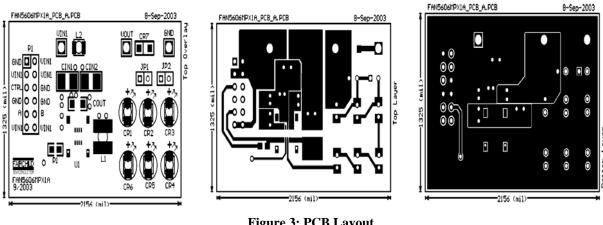


Figure 3: PCB Layout

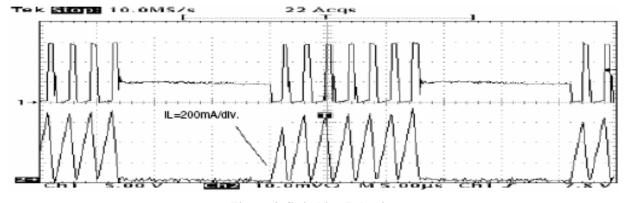


Figure 4: Switching Behavior

Table 1: FAN5606 List of Materials

Description	Qty	Ref.	Vendor	Part Number
Capacitor 4.7uF, 20%,	1	COUT	Kemet	C1206C475K3PACTU
25VDC, X5R, 1206			Panasonic	ECJ-3YB1E475M
Capacitor 47uF, 20%, 6VDC,	1	CIN2		GRMY3ER61A476KE01B
X5R, 1812			MURATA	
Resistor 86.6 K, 1%, 0805	1	R1	Any	
LED Super Bright PLCC-2	6	CR1-CR6	Fairchild	QTPL670C-IW
White				
IC System Regulator MLP-8	1	U1	Fairchild	FAN5606DMPX
3x3, FSID:FAN5606DMPX				
Inductor 6.8uH, 0.72A	1	L1	MURATA	LQH4C6R8M04
Resistor 0 Ohm, 5%, 0805	1	L2	Yageo	9C08052A0R00JLHFT

Table 2: Ordering Information

Product Number	Package Type	Order Code	
FAN5606	8-Lead 3x3mm MLP	FAN5606DMPX	



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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