LV8806QAGEVB

LV8806QA Test Procedure for Quick Evaluation

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EVAL BOARD USER'S MANUAL

Test Procedure (for quick evaluation)

Overview

This Evaluation board is designed to provide an easy and quick development platform for LV8806QA which is 3−phase BLDC motor driver for 5 V class.

Quick Evaluation

The evaluation board is programmed to work standalone without PC. The following operation allows the operation of most motors.

Step 1. Connect a motor to the motor connector.
Step 2. Connect PWM signal to the pin labeled 'PWM'.
Step 3. Connect a power supply to the pin labeled 'VCC'.
Step 4. Connect F/R pin to GND.
Step 5. Turn on power supply and input 5 V to 'VCC'.
Step 6. Turn on power supply and input 5 V to 'VDD'.
Step 7. Input PWM signal.

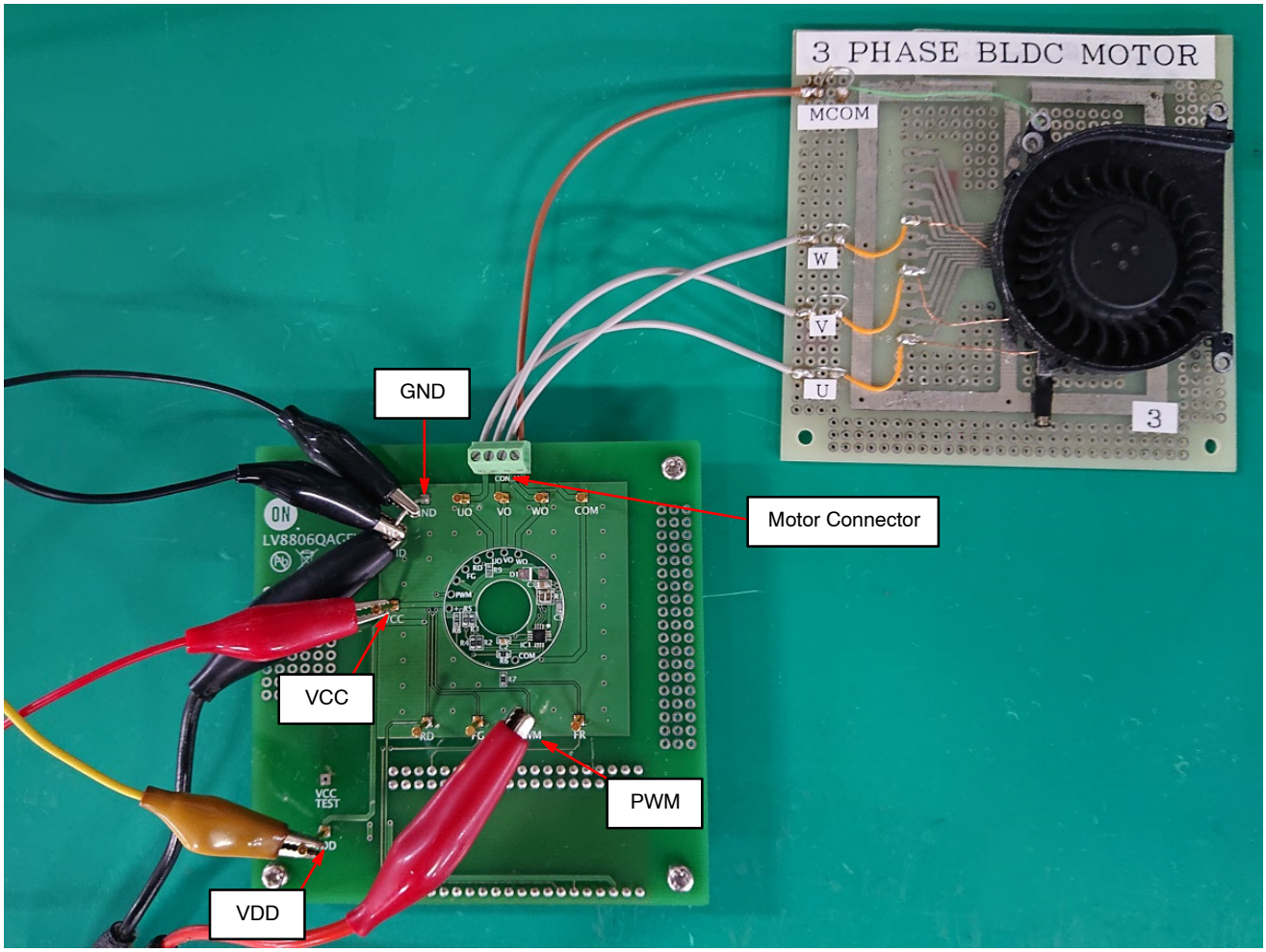

Figure 1. Example of Setting for Quick Evaluation

HARDWARE DESCRIPTION

Table 1. PINS AND CONNECTORS IN LV8806QA EVALUATION BOARD

No.	Name	Description
1	Evaluation board	The evaluation board which works standalone (without the mother board)
2	Pin VCC	To input power supply voltage.
3	Connector	To connect to each motor coil edge (phase).
4	Pin UO/VO/WO/COM	To monitor each phase output of motor coil
5	Pin FR	To connect to GND or VCC to select motor rotation direction. GND: Forward rotation VCC: Revers rotation
6	Pin PWM	To input PWM (rotation speed control) signal. The signal level is: Frequency = 20 kHz, High level = 5 V, Low level = 0 V
7	Pin FG	To monitor FG (motor rotation pulse) signal output.
8	Pin RD	To monitor RD (motor rotation / stop) signal output.
9	Pin VDD	To bias pull−up resisters for FG / RD output.

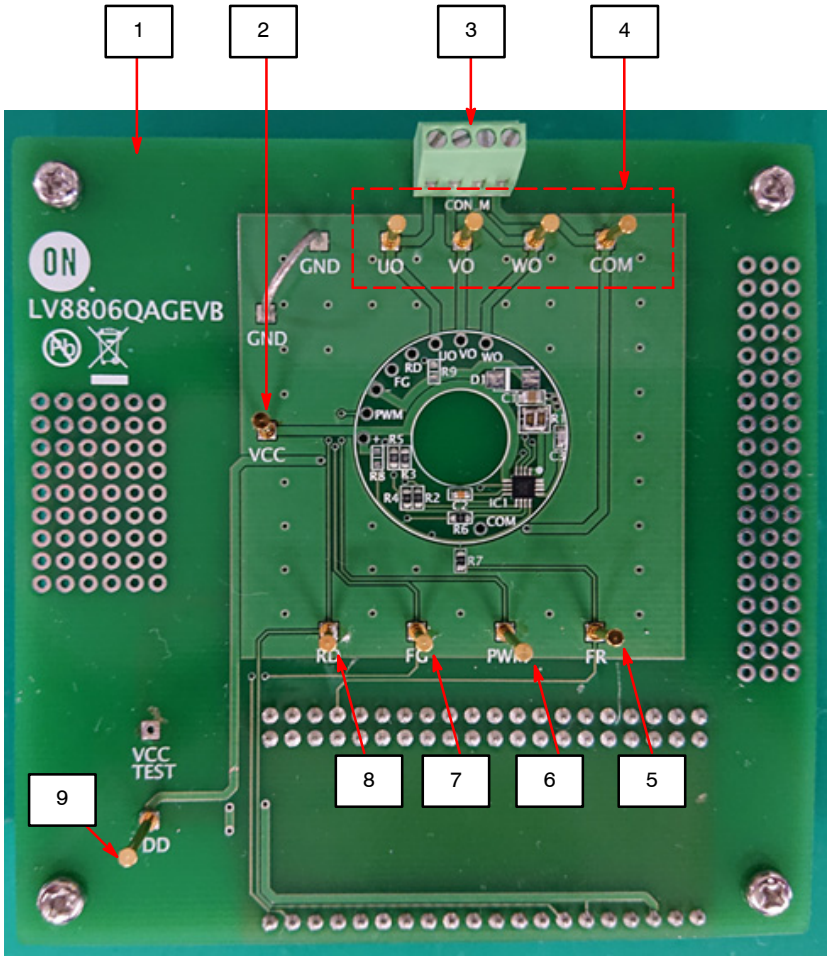

Figure 2. Top view of LV8806QA Evaluation Board

APPLICATION DIAGRAM

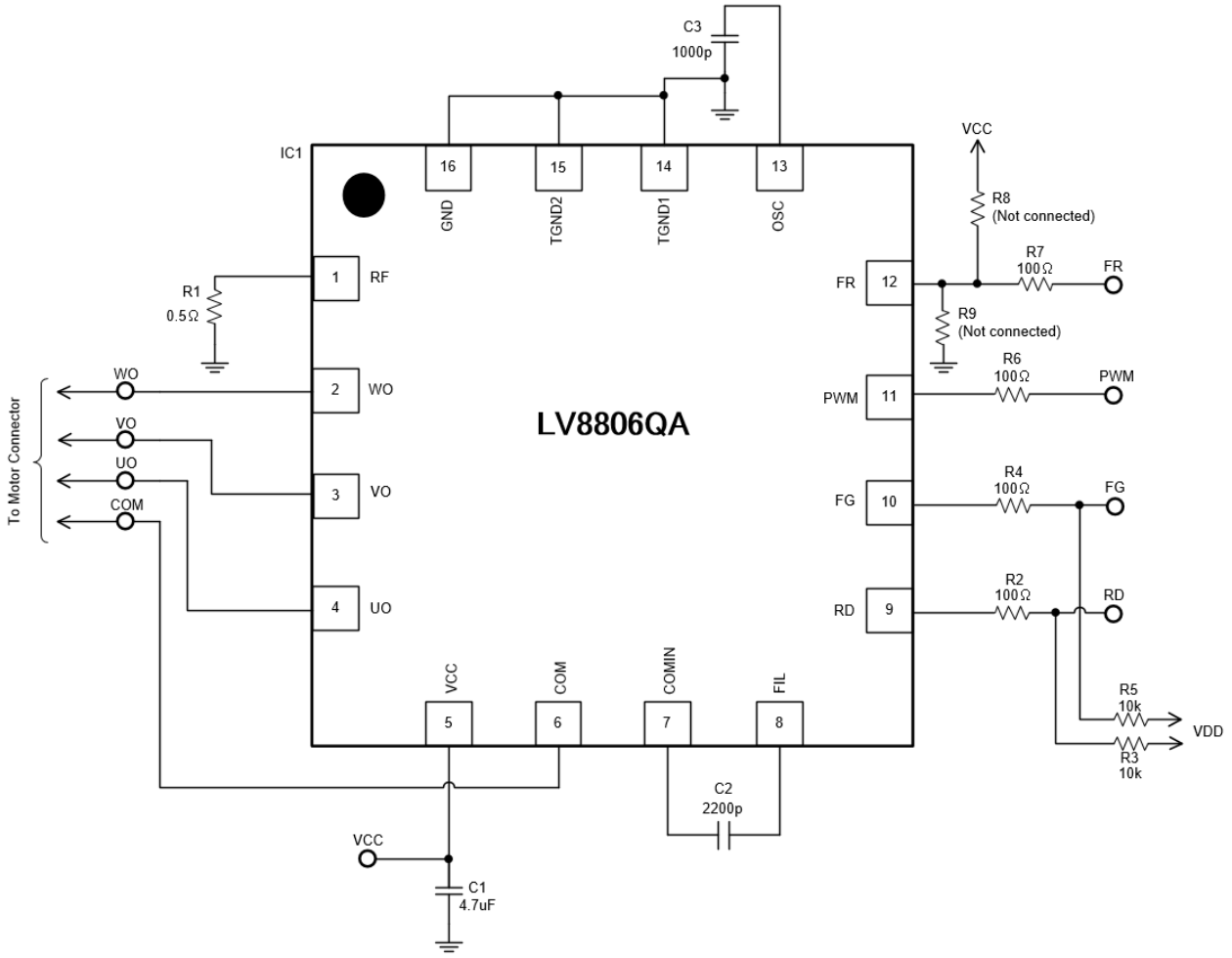

Figure 3. LV8806QA Evaluation Board Schematic

Table 2. COMPONENT LIST OF LV8806QA EVALUATION BOARD

No.	Description	Value
IC1	LV8806QA	(1 device)
C1	VCC bypass capacitor	4.7 μF
C2	Filter for output (U/V/W) signal	2,200 pF
C3	Capacitor for oscillation	1,000 pF
R1	Current sense resister	0.5 Ω (1 Ω //2)
R2	Protection against external pin	100 Ω
R3	Pull−up resister	10k Ω
R4	Protection against external pin	100 Ω
R5	Pull−up resister	10k Ω
R6	Protection against external pin	100 Ω
R7	Protection against external pin	100 Ω
R8	Pull−up resister	Not used
R9	Pull−down resister	Not used

WAVEFORMS

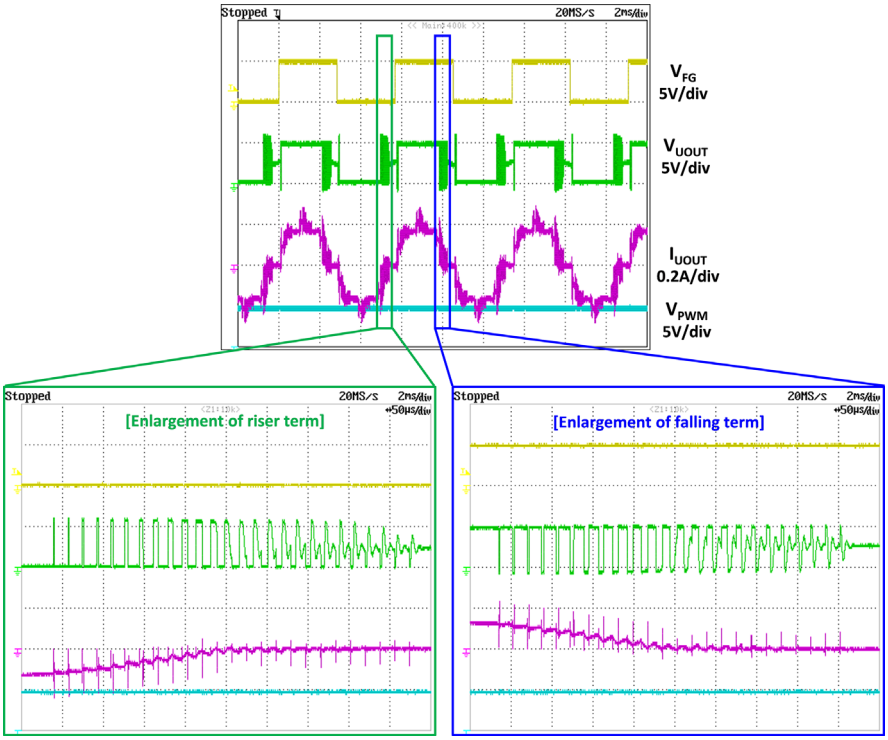

Figure 4. The Image of Waveforms of Example 1
(PWMIN Duty−cycle = 100%, VDD = 5 V)

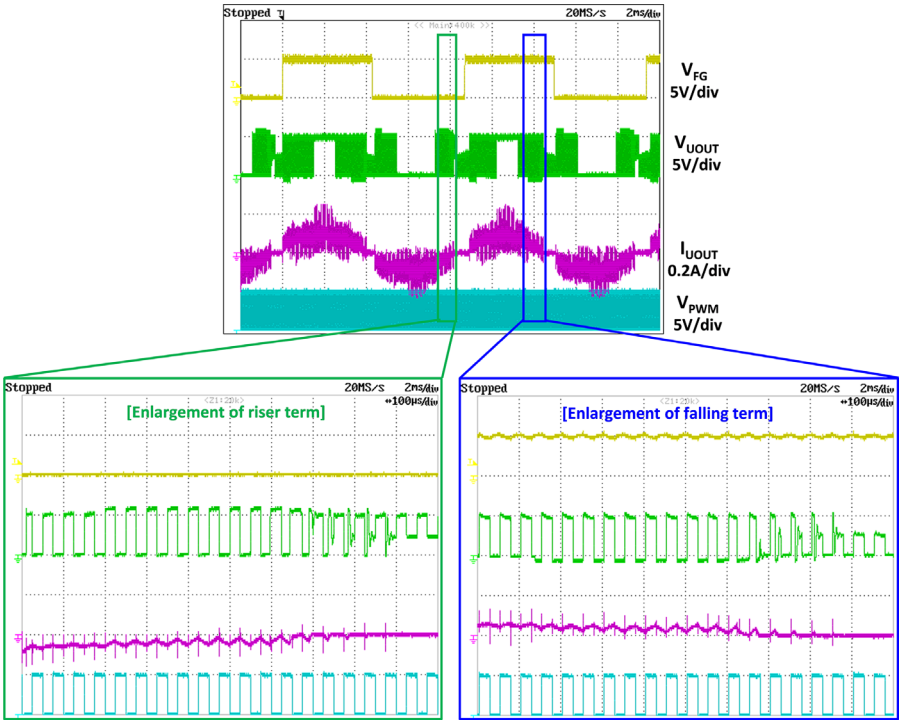

Figure 5. The Image of Waveforms of Example 2
(PWMIN Duty−cycle = 50%, VDD = 5 V)

Detail Description of LV8806QA Operation

Please refer to LV8806QA Application Note:
https://www.onsemi.jp/pub/Collateral/ANDLV8806QA−D.PDF

Cautions

- This is intended for an initial evaluation of LV8806QA. It will not be guaranteed measurement values as full evaluation and validation must be performed on your system independently.
- Never hold the motor with the lead wire or shaft. The motor should be affixed to a stand prior to operation.
- Attach all motor leads prior to application of power.

Safety

- Do not touch the rotating part when the motor is powered. Doing so may result in injury.
- Do not touch conductive parts such as connectors when the motor is powered. Doing so may result in electric shocks.

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