

LV8806QAGEVB

LV8806QA 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.



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EVAL BOARD USER'S MANUAL

Test Procedure (for quick evaluation)

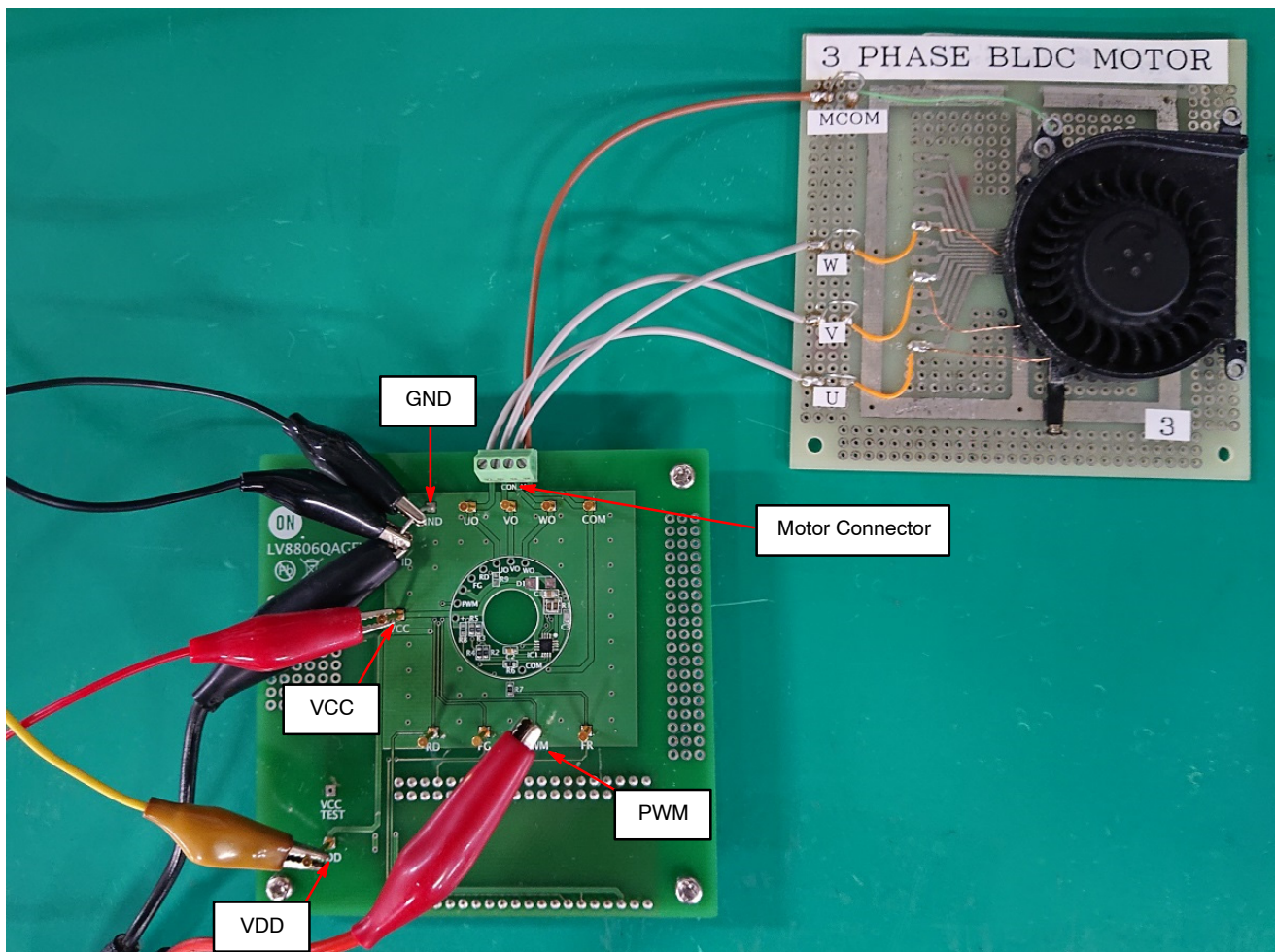


Figure 1. Example of Setting for Quick Evaluation

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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 resistors for FG / RD output. |

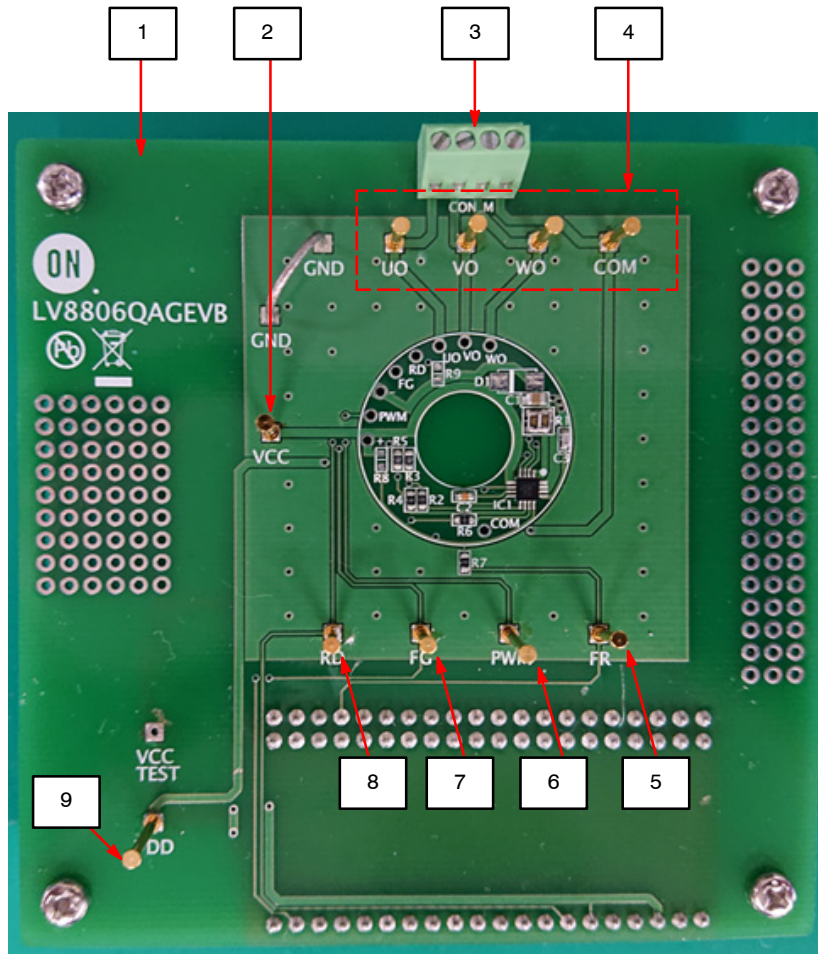


Figure 2. Top view of LV8806QA Evaluation Board

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APPLICATION DIAGRAM

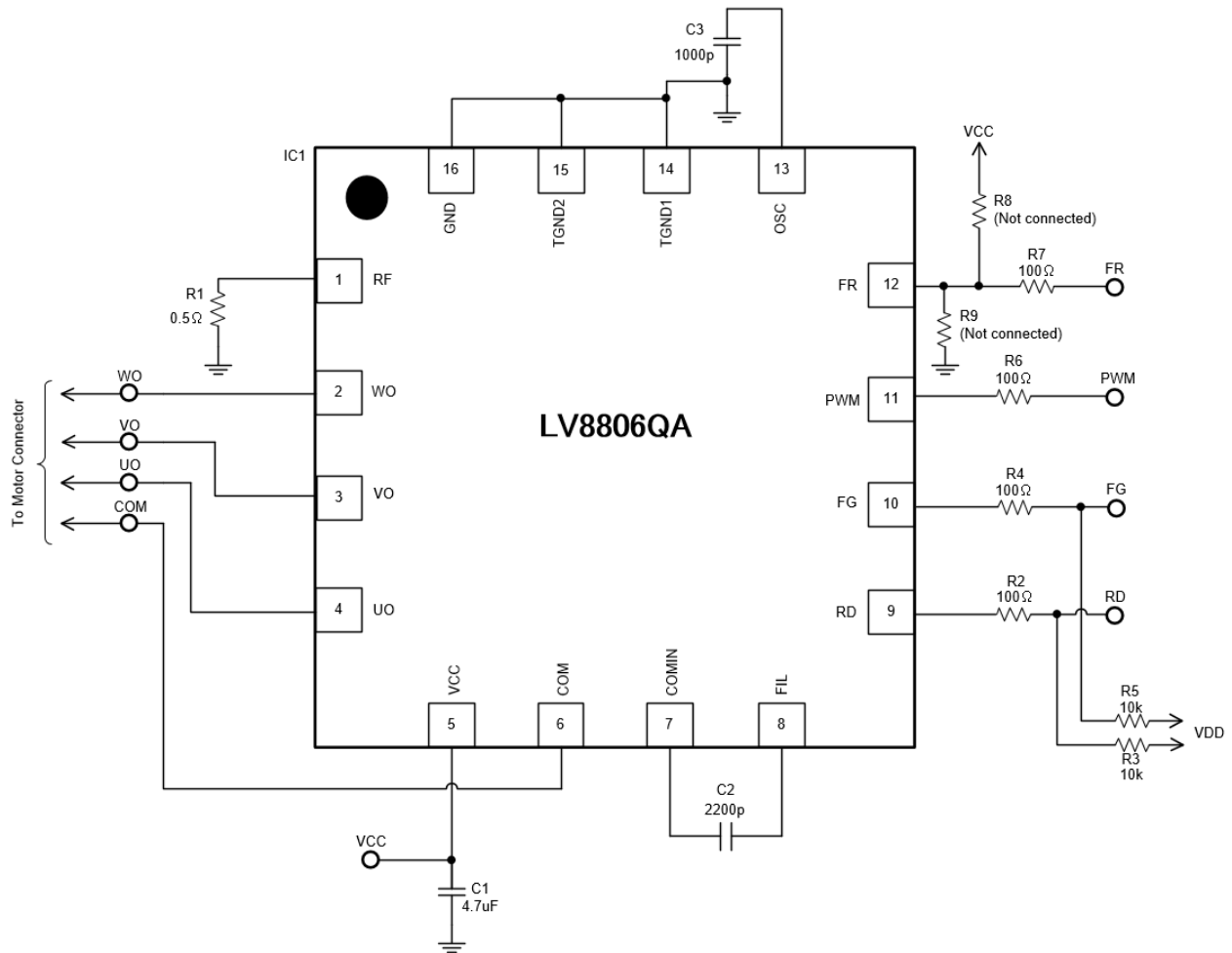


Figure 3. LV8806QA Evaluation Board Schematic

Table 2. COMPONENT LIST OF LV8806QA EVALUATION BOARD

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

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WAVEFORMS

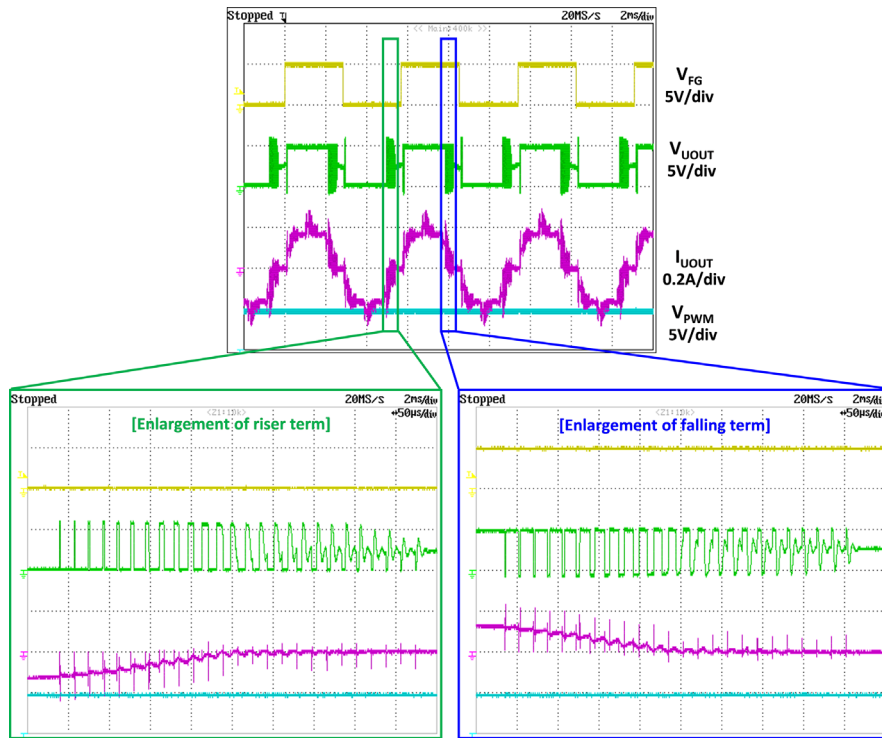


Figure 4. The Image of Waveforms of Example 1
(PWMIN Duty-cycle = 100%, VDD = 5 V)

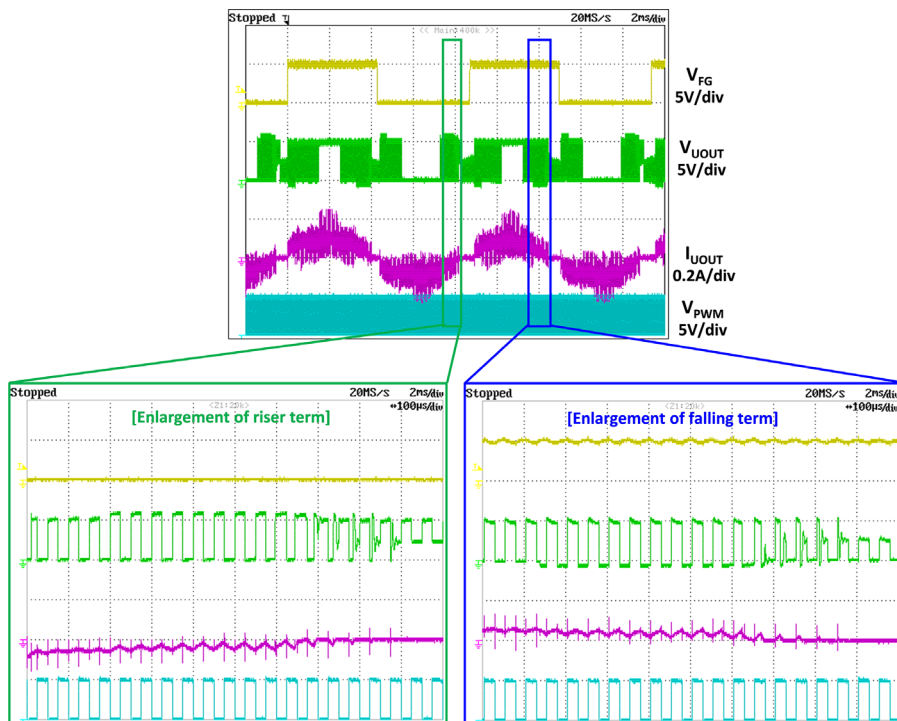


Figure 5. The Image of Waveforms of Example 2
(PWMIN Duty-cycle = 50%, VDD = 5 V)

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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.