

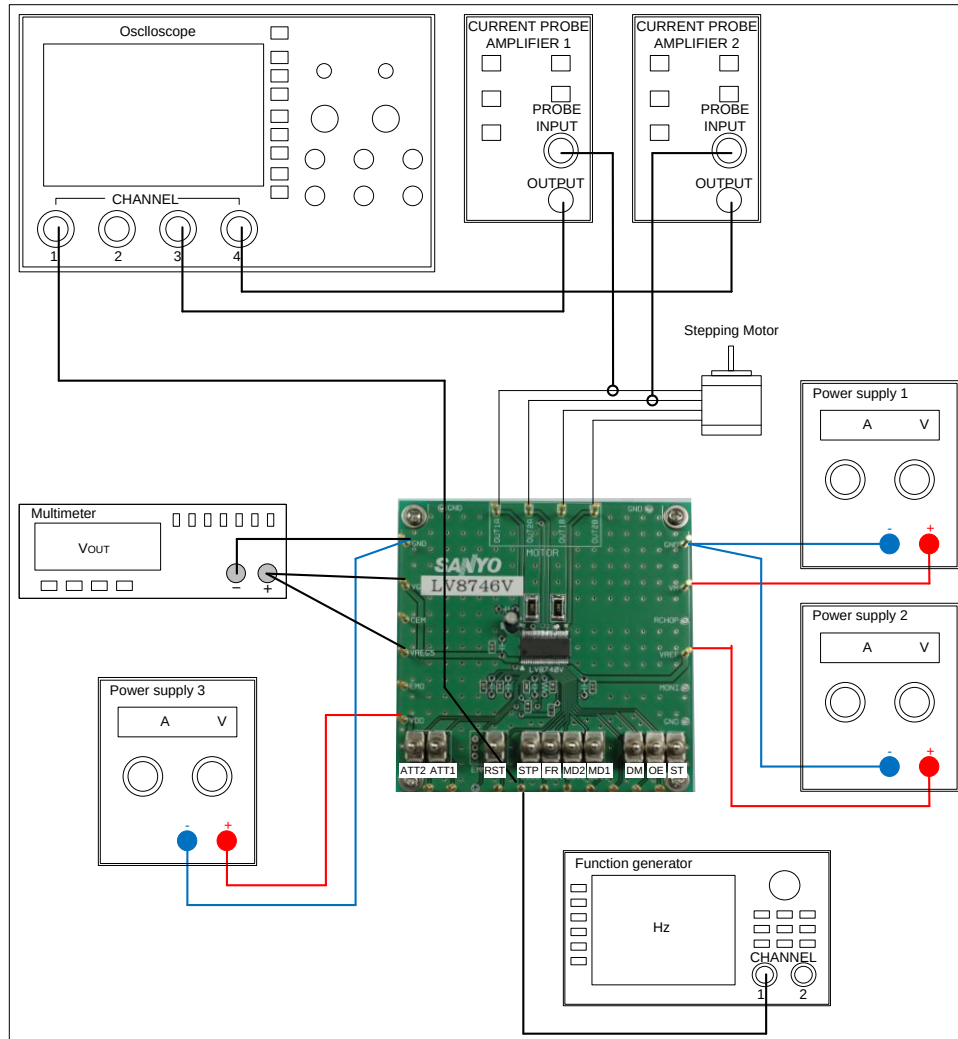
# Test Procedure for the LV8746VGEVB Evaluation Board



**SANYO Semiconductors**

An ON Semiconductor Company

## For Clock Input Control



**Table1: Required Equipment**

| Equipment                | Efficiency |
|--------------------------|------------|
| Power supply1            | 35V-5A     |
| Power supply2            | 5V-0.5A    |
| Power supply3            | 10V-1A     |
| Function generator       | 200kHz     |
| Multimeter               | -          |
| Oscilloscope             | 4 channel  |
| Current probe1           | -          |
| Current probe2           | -          |
| LV8746V Evaluation Board | -          |
| Stepping Motor           | 35V-3A     |

## Test Procedure:

1. Connect the test setup as shown above.
2. Set it according to the following specifications.

### Supply Voltage

- VM (9 to 35V): Power Supply for LSI
- VREF (0 to 3V): Const. Current Control for Reference Voltage
- VDD (2 to 5V): Logic “High” voltage for toggle switch

### Toggle Switch State

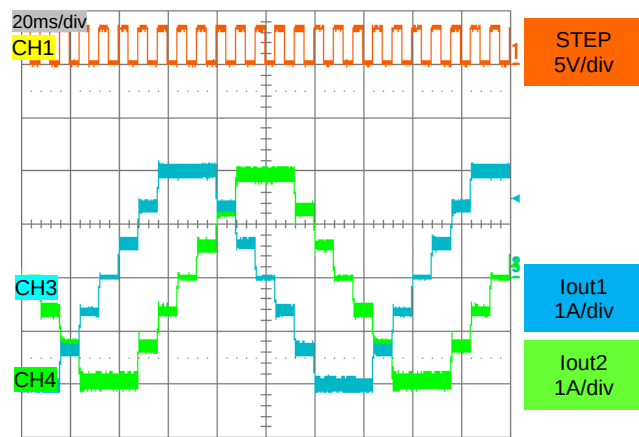
- Upper Side: High (VDD)
- Middle: Open, enable to external logic input
- Lower Side: Low (GND)

### Operations Guide

1. **Initial Condition Setting**: Set “Open” the toggle switch STP/I01, and “Open or Low” the other switches.
  2. **Motor Connection**: Connect the Motors between OUT1A and OUT1B, between OUT2A and OUT2B.
  3. **Power Supply**: Supply DC voltage to VM, VREF and VDD.
  4. **Ready for Operation from Standby State**: Turn “High” the ST terminal toggle switch. Channel 1 and 2 are into full-step initial position (100%, -100%).
  5. **Motor Operation**: Input the clock signal into the terminal STP/I01.
  6. **Other Setting**: (See Application Note for detail)
    - i. ATT1, ATT2: Motor current attenuation.
    - ii. EMM: Short circuit protection mode change.
    - iii. RST/PH1: Initial Mode.
    - iv. FR/I11: Motor rotation direction (CW / CCW) setting.
    - v. MD1/I02, MD2/PH2: Excitation mode.
    - vi. OE/I12: Output Enable.
3. Check VREG5 and VG terminal voltage at multimeter.
  4. Check the STEP/DC22 and MONI terminal voltage at scope CH1 and CH2, and the output current waveform at scope CH3 and CH4.

**Table2: Desired Results**

| INPUT                                                                                                                                          | OUTPUT                                |
|------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------|
| VM=24V,VDD=3.3V,VREF=1.5V<br>ST=H,DM=L<br>EMM=L,RST/PH1=L,OE/I12=L<br>ATT1=ATT2=L,<br>FR/I11=L<br>MD1/I02=MD2/PH2=H<br>STP/I01=500Hz (Duty50%) | VREG5=4.5V to 5.5V<br>VG=28V to 29.8V |



For Parallel Input Control

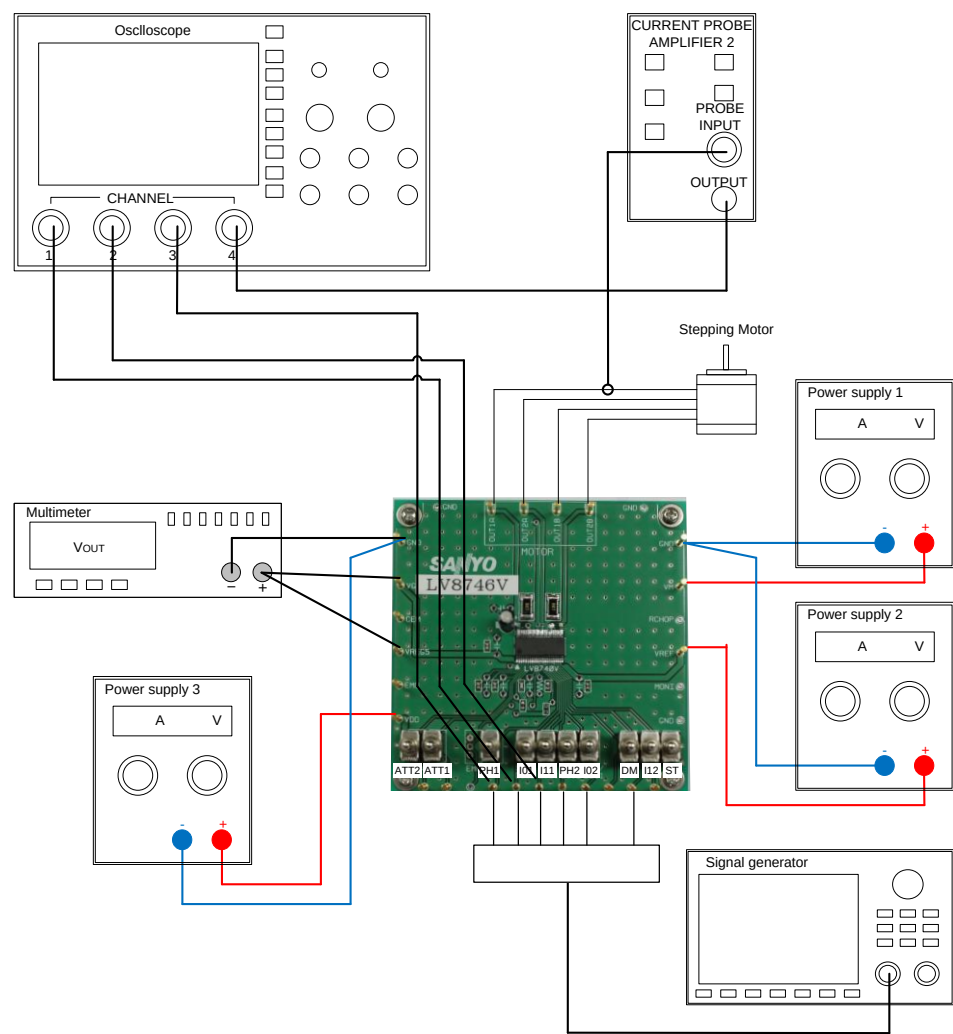


Table3: Required Equipment

| Equipment                | Efficiency |
|--------------------------|------------|
| Power supply1            | 35V-5A     |
| Power supply2            | 5V-0.5A    |
| Power supply3            | 10V-1A     |
| Function generator       | 200kHz     |
| Multimeter               | -          |
| Oscilloscope             | 4 channel  |
| Current probe            | -          |
| LV8746V Evaluation Board | -          |
| DC Motor                 | 35V-3A     |

## Test Procedure:

1. Connect the test setup as shown above.
2. Set it according to the following specifications.

### Supply Voltage

- VM (9 to 35V): Power Supply for LSI
- VREF (0 to 3V): Const. Current Control for Reference Voltage
- VDD (2 to 5V): Logic “High” voltage for toggle switch

### Toggle Switch State

- Upper Side: High (VDD)
- Middle: Open, enable to external logic input
- Lower Side: Low (GND)

### Operations Guide

1. **Initial Condition Setting:** Set “Open” the toggle switch DM, and “Open or Low” the other switches.
  2. **Motor Connection:** Connect the Motor(s) between OUT1A and OUT1B, between OUT2A and OUT2B.
  3. **Power Supply:** Supply DC voltage to VM, VREF and VDD.
  4. **Ready for Operation from Standby State:** Turn “High” the ST and DM terminal toggle switch.
  5. **Motor Operation:** Set STP/I01, FR1/I11, RST/PH1, MD1/I02, OE/I12 and MD2/PH2 terminals according to the purpose.
  6. **Other Setting:** (See Application Note for detail)
    - i. ATT1, ATT2: Motor current attenuation.
3. Check VREG5 and VG terminal voltage at multimeter.
  4. Check the STP/I01, FR1/I11 and RST/PH1; terminal voltage at scope CH1, CH2 and CH3, and the output current waveform at scope CH4.
  5. Switch to channel 2(MD1/I02, OE/I12, MD2/PH2) as well as channel 1(STP/I01, FR1/I11, RST/PH1) and measure it.

**Table4: Desired Results**

| INPUT                                                        | OUTPUT                                |
|--------------------------------------------------------------|---------------------------------------|
| VM=24V,VDD=3.3V,VREF=1.5V<br>ST=H,DM=H<br>EMM=L,ATT1=ATT2=L, | VREG5=4.5V to 5.5V<br>VG=28V to 29.8V |

