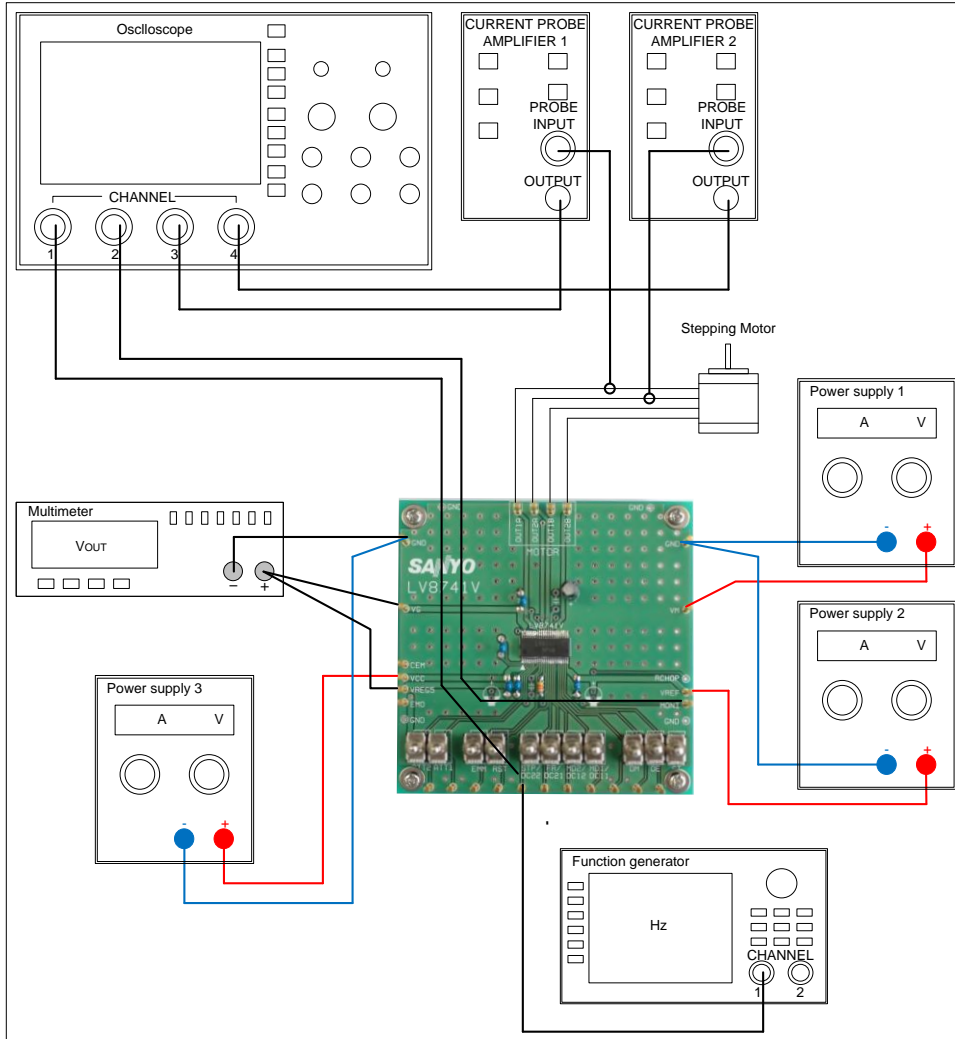


# Test Procedure for the LV8741VGEVB Evaluation Board



**SANYO Semiconductors**  
An ON Semiconductor Company

## For Stepping Motor 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           | -          |
| LV8741V 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

- VCC (2.7 to 5.5V): Logic Supply for LSI
- VM (9 to 35V): Power Supply for LSI
- VREF (0 to 3V): Const. Current Control for Reference Voltage

### Toggle Switch State

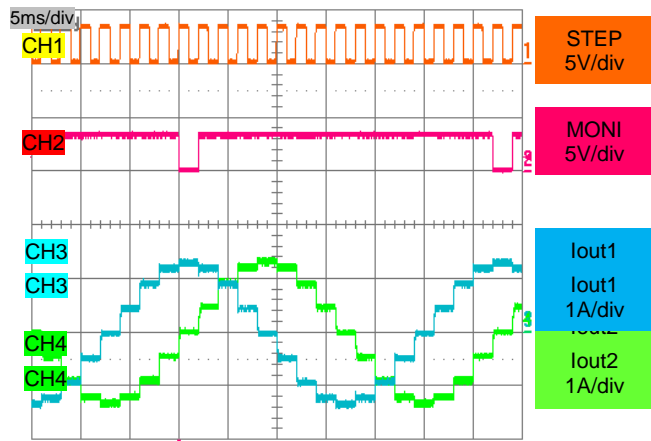
- Upper Side: High (VDD)
- Middle: Open, enable to external logic input
- Lower Side: Low (GND)

### Operations Guide

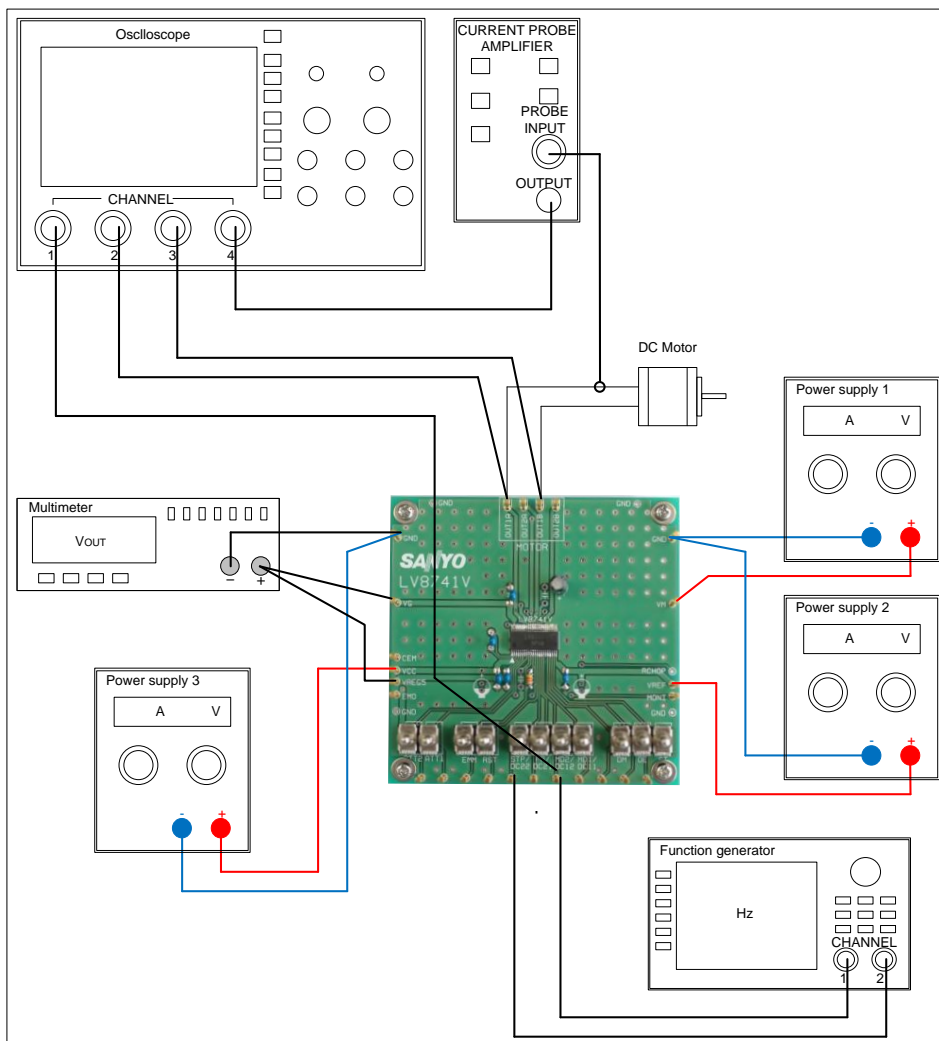
1. **Initial Condition Setting:** Set “Open” the toggle switch STP/D22, and “Open or Low” the other switches.
  2. **Motor Connection:** Connect the Motors between OUT1A and OUT1B, between OUT2A and OUT2B.
  3. **Power Supply:** Supply DC voltage to VCC, VM, and VREF.
  4. **Ready for Operation from Standby State:** Turn “High” the ST terminal toggle switch. After some time passes, turn “High” the OE terminal toggle switch. Channel 1 and 2 are into full-step initial position (100%, -100%).
  5. **Motor Operation:** Turn “High” the RST terminal toggle switch. Input the clock signal into the terminal STP/DC22.
  6. **Other Setting:** (See Application Note for detail)
    - i. ATT1, ATT2: Motor current attenuation.
    - ii. EMM: Short circuit protection mode change.
    - iii. RST: Initial Mode.
    - iv. FR/DC21: Motor rotation direction (CW/CCW) setting.
    - v. MD1/DC11, MD2/DC12: Excitation mode.
    - vi. OE: 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                                   |
|--|--|
| VCC=5V, VM=24V, VREF=0.53V<br>ST=H,DM=L<br>ATT1=ATT2=L,<br>FR/DC21=L<br>MD1/DC11=MD2/DC12=H<br>STP/DC22=500Hz(Duty50%) | VREG5=4.5V to<br>5.5V<br>VG=28V to 29.8V |



## For DC Motor 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            | -          |
| LV8741V 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 MD1/DC11, MD2/DC12, FR/DC21, and STEP/DC22 terminals according to the purpose.
  6. **Other Setting:** (See Application Note for detail)
    - i. ATT1, ATT2: Motor current attenuation.
    - ii. EMM: Short circuit protection mode change.
    - iii. RST: Not performed.
    - iv. OE: Output enable.
3. Check VREG5 and VG terminal voltage at multimeter.
  4. Check the MD2/DC12, OUT1A, and OUT1B terminal voltage at scope CH1, CH2, and CH3, and the output current waveform at scope CH4.
  5. Switch to channel 2(STEP/DC22, OUT2A, OUT2B) as well as channel 1(MD2/DC12, OUT1A, OUT1B) and measure it.

**Table4: Desired Results**

| INPUT  | OUTPUT                                   |
|--|--|
| VCC=5V, VM=24V, VREF=0.9V<br>ST=H,DM=H<br>ATT1=ATT2=L,<br>FR/DC21=STP/DC22=L<br>MD1/DC11=H<br>MD2/DC12=100kHz(Duty50%) | VREG5=4.5V to<br>5.5V<br>VG=28V to 29.8V |

