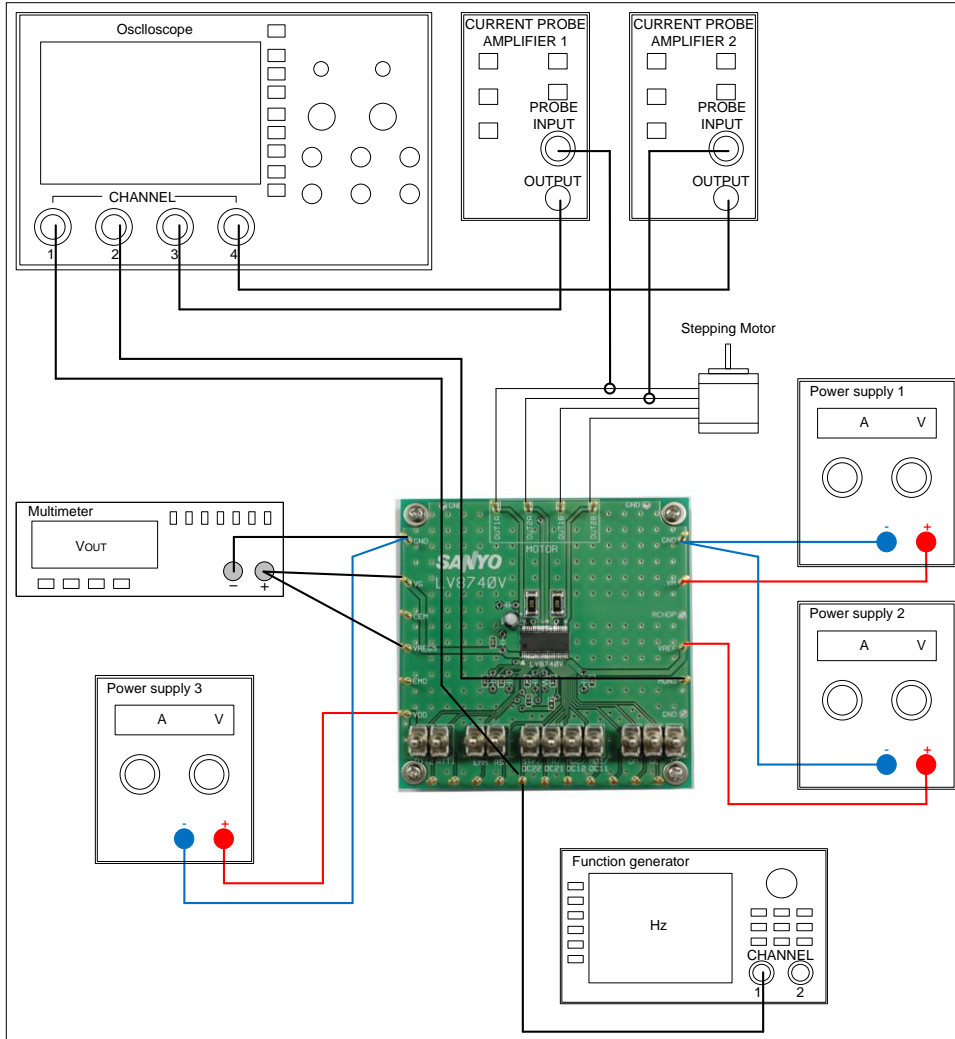


# Test Procedure for the LV8740VGEVB Evaluation Board



**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	-
LV8740V 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

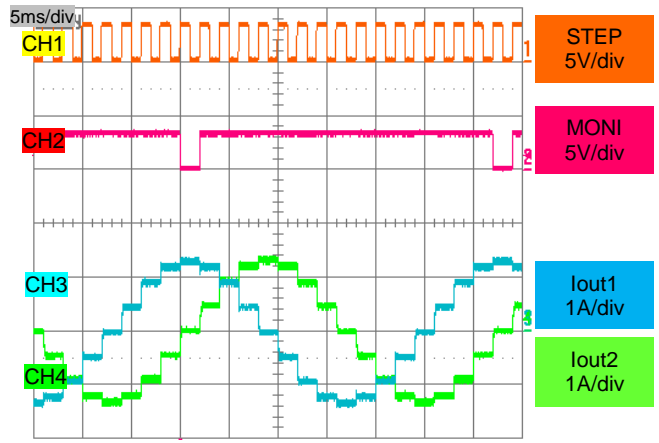
- Upper Side: High (VDD)
- Middle: Open, enable to external logic input
- Lower Side: Low (GND)

### Operations Guide

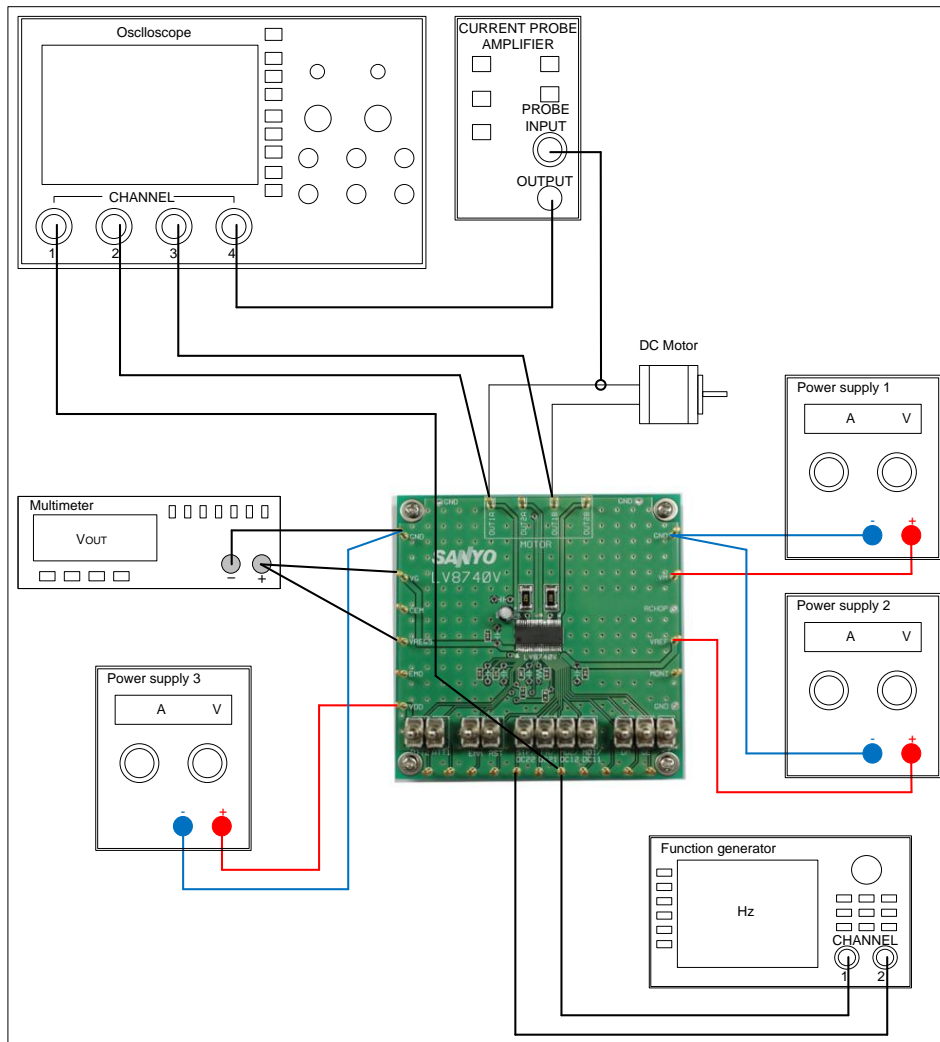
1. **Initial Condition Setting:** Set “Open” the toggle switch STP/D22, and “Open or Low” the other switches.
  2. **Motor Connection:** Connect the Motors between OUT1A and OUT1B, between OUT2A and OUT2B.
  3. **Power Supply:** Supply DC voltage to VM, VREF and VDD.
  4. **Ready for Operation from Standby 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 STEP/DC22.
  6. **Other Setting:** (See Application Note for detail)
    - i. ATT1, ATT2: Motor current attenuation.
    - ii. EMM: Short circuit protection mode change.
    - iii. RST/BLK: Initial Mode.
    - iv. FR/DC21: Motor rotation direction (CW/CCW) setting.
    - v. MD1/DC11, MD2/DC12: Excitation mode.
    - vi. OE/CMK: 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 ST=H,DM=L EMM=L,RST=L,OE=L ATT1=ATT2=L, FR/DC21=L MD1/DC11=MD2/DC12=H STP/DC22=500Hz(Duty50%)	VREG5=4.5V to 5.5V 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	-
LV8740V 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/BLK: 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
VM=24V,VDD=3.3V,VREF=1.5V ST=H,DM=H EMM=L,RST=L,OE=L ATT1=ATT2=L, FR/DC21=STP/DC22=L MD1/DC11=H MD2/DC12=100kHz(Duty50%)	VREG5=4.5V to 5.5V VG=28V to 29.8V

