Test Procedure for the STK673-011GEVB Evaluation Board

[Supply Voltage] Vcc1 (10 to 30V) : Power Supply for stepping motor
Vref (0 to 2.5V) : Const. Current Control for Reference Voltage
Vcc2 (5V) : Power Spply for internal logic IC

[Slide Switch State] ON Side: Low (GND)
OFF Side: High (5V pull up resistors)

[Operation Guide]

1. Motor Connection:
   Connect the stepping motor to U,V,W.

2. Initial Condition Setting:
   Set “ON” the slide switch Reset, and set “ON or OFF” ModeA to ModeB depend on step mode, and set “ON or OFF” CW/CCW, and set low clock.

3. Power Supply:
   At first, supply DC voltage to Vcc2, and VREF.
   Next, supply DC voltage to Vcc1.

4. Ready for Operation from Standby State:
   Turn “OFF” the slide switch Reset.

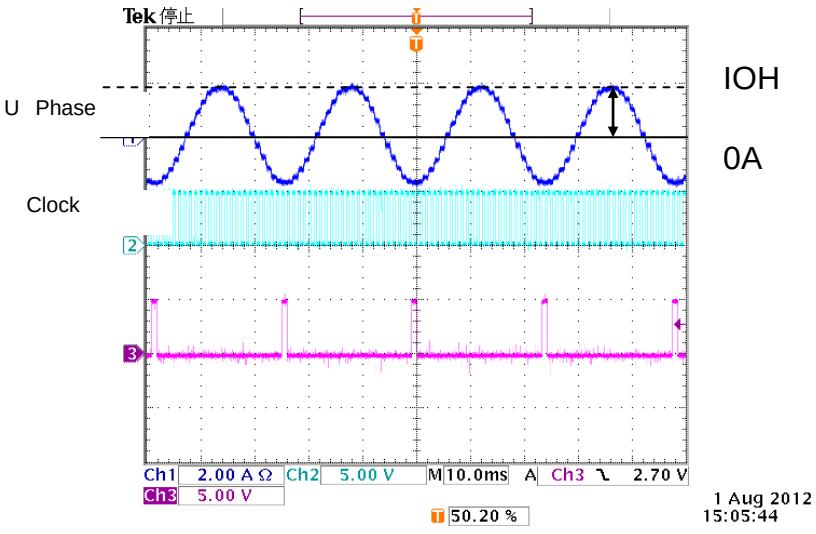
5. Motor Operation: Input the Clock signal into the terminal Clock.

[Setting the motor current]

The motor current IOH is set by the Vref voltage on the hybrid IC pin 10. The following formula gives the relationship between IOH and Vref.

STK673-010(-011)-E

IO peak = Vref ÷ K, K = 0.63 (V/A)
Where Vref ≤ 0.5 × VCC2
Vref = VCC2 × Rox ÷ (R01 + Rox)
Rox = (R02 × 4.0kΩ) ÷ (R02 + 4.0kΩ)
In case of IOH=1.7A, Vref=1.7 × 0.63=1.071V
Wave of IOH



Notes in design:

(1) **Allowable operating range**

Operation of this product assumes use within the allowable operating range. If a supply voltage or an input voltage outside the allowable operating range is applied, an overvoltage may damage the internal control IC or the MOSFET.
If a voltage application mode that exceeds the allowable operating range is anticipated, connect a fuse or take other measures to cut off power supply to the product.

(2)**Input pins**

If the input pins are connected directly to the PC board connectors, electrostatic discharge or other overvoltage outside the specified range may be applied from the connectors and may damage the product. Current generated by this overvoltage can be suppressed to effectively prevent damage by inserting 100Ω □to 1kΩ □resistors in lines connected to the input pins. Take measures such as inserting resistors in lines connected to the input pins.

(3) **Power connectors**

If the motor power supply VCC is applied by mistake without connecting the GND part of the power connector when the product is operated, such as for test purposes, an overcurrent flows through the Vcc1 decoupling capacitor, C1, to the parasitic diode between the Vcc2 of the internal control IC and GND, and may damage the power supply pin block of the internal control IC.

(4)**Input signal lines**

Do not use an IC socket to mount the driver, and instead solder the driver directly to the PC board to minimize fluctuations in the GND potential due to the influence of the resistance component and inductance component of the GND pattern wiring.
To reduce noise caused by electromagnetic induction to small signal lines, do not design small signal lines(sensor signal lines, and 5V power supply signal lines) that run parallel in close proximity to the motor output line U (Pin 4,23), V(Pin 6,24),W (Pin 5,25) phases.