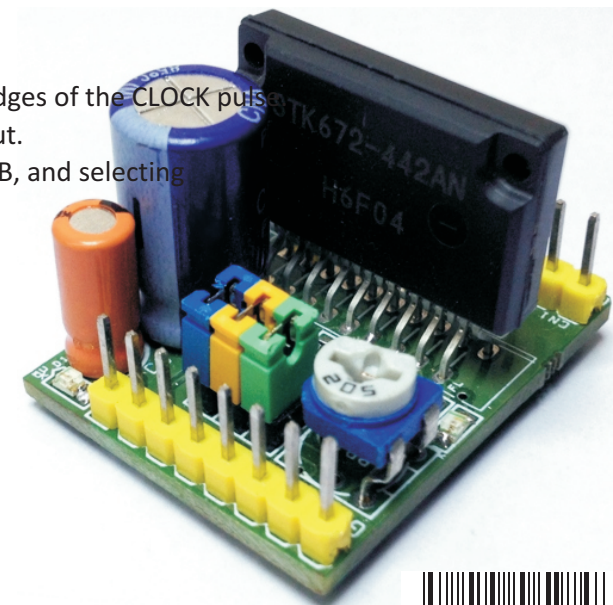


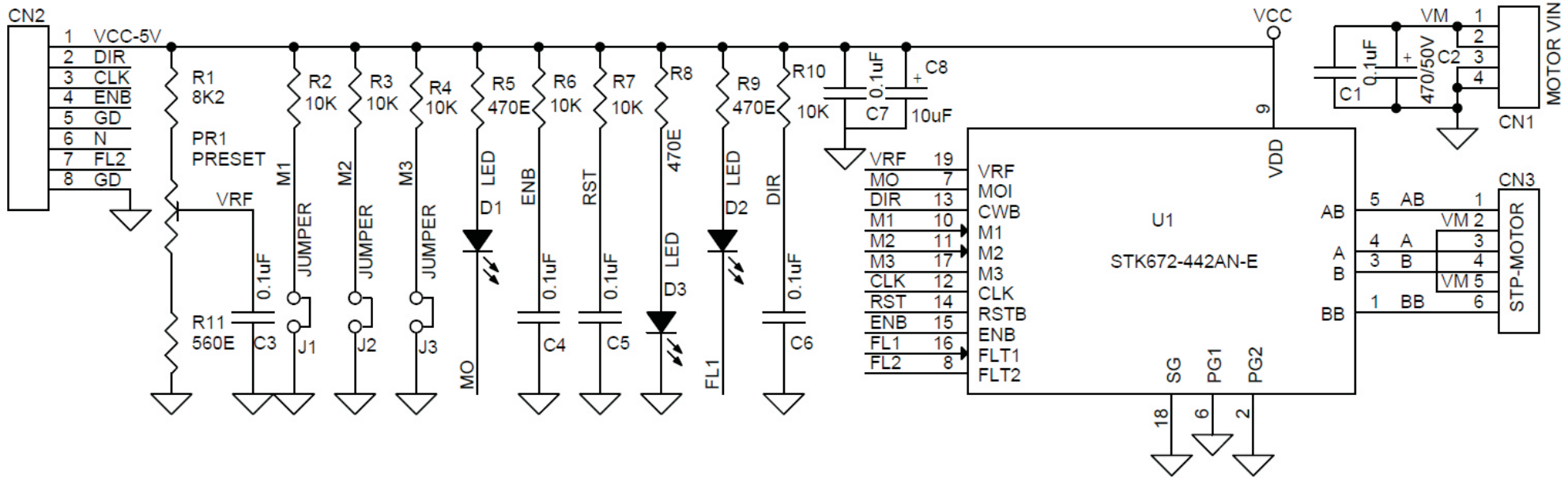
3.5A Unipolar Stepper Motor Driver

Unipolar stepper motor driver can drive unipolar motor up to 3.5A and supply range 10 To 50V DC. The board has been designed using STK672-442AEN IC. The STK672-442AN is a hybrid IC for use as a unipolar, 2-phase stepper motor driver with PWM current control with Micro-stepping.

Features

- Supply Up to 50V DC Input
- Logic Supply 5V DC Input
- Load Current 3.5Amps
- Stepper Motor: 5 Wires, 6 Wires, 8 Wires (Unipolar)
- Built-in over current detection function, over heat detection function (Output Off)
- Fault 1 signal (Active Low) is output when overcurrent or over heat is detected
- Fault 2 signal is used to output the result of activation of protection circuit detection at 2 levels.
- Built-in power on reset function
- A Micro-step sin wave driven driver can be activated merely by inputting an external clock.
- The Switch timing of the 4-phase distributor can be switched by setting an external pin (Mode3) to detect either the rise or fall, or rise only, of clock input.
- The Enable pin can be used to cut output current while maintaining the excitation mode.
- With a wide current setting range, power consumption can be reduced during standby.
- No Motor noise during hold mode due to external excitation current control.
- Incorporating a current detection resistor (0.122Ω: resistor tolerance ±2%), motor current can be set using two external resistors.
- Phase is maintained even when the excitation mode is switched. Rotational direction switching function
- External pins can be used to select 2, 1-2 (including pseudo-micro), W1-2, 2 W1-2, or 4W1-2 excitation.
- Clock Input : Input frequency 20Khz when using both edge, Or 50Khz when using one edge
- Minimum pulse width 20us When using both edge Or 10us when using one edge
- M3: Jumper J3-Open the excitation phase moves one step at a time at the rising edge of the CLOCK pulse.
- M3: Jumper J3-Closed the excitation phase moves alternately one step at a time at the rising and falling edges of the CLOCK pulse.
- Do not Change direction during the 7us interval before and after the rising and falling edges of CLOCK input.
- Enable : Normally High for Normal Operation, Pull down control of excitation drive output A, AB, B, and BB, and selecting operation/hold status inside the HIC





Function Table

M2	0	0	1	1	CLOCK Edge Timing for Phase Switching	
M1	0	1	0	1		
M3	1	2-phase excitation selection	1-2-phase excitation ($I_{OH}=100\%$)	W1-2 phase excitation	2W1-2 phase excitation	CLOCK rising edge
	0	1-2 phase excitation ($I_{OH}=100\%, 71\%$)	W1-2 phase excitation	2W1-2 phase excitation	4W1-2 phase excitation	CLOCK both edges

$I_{OH}=100\%$ results in the V_{ref} voltage setting, I_{OH} .

During 1-2 phase excitation, the hybrid IC operates at a current setting of $I_{OH}=100\%$ when the CLOCK signal rises. Conversely, pseudo micro current control is performed to control current at $I_{OH}=100\%$ or 71% at both edges of the CLOCK signal.

CN 1 : Supply Input up to 50V DC

CN2 : 1 Pin 5V DC, 2 Pin Direction, 3 Pin Clock Input, 4 Pin Enable, 5 Pin GND, 6 NC, 7 Pin FLT2, 8 Pin GND

CN3 : Stepper Motor Connection

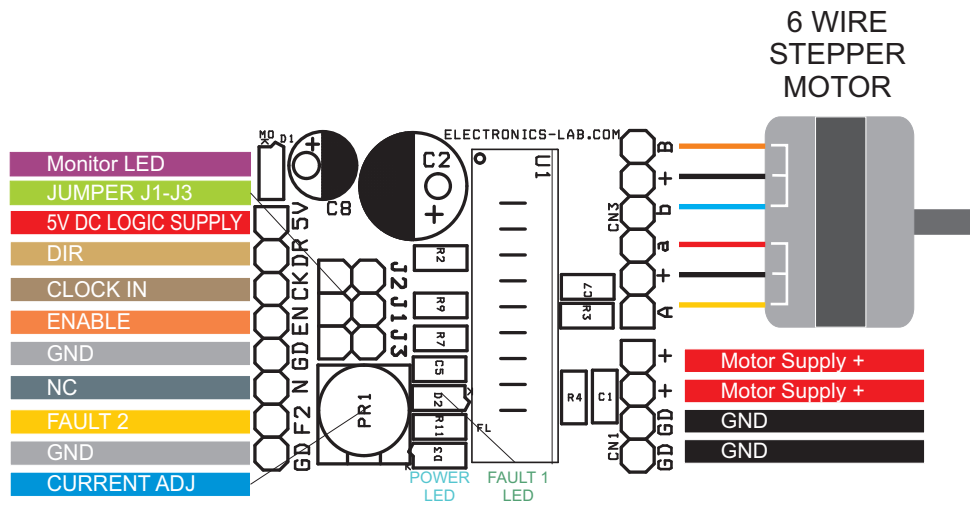
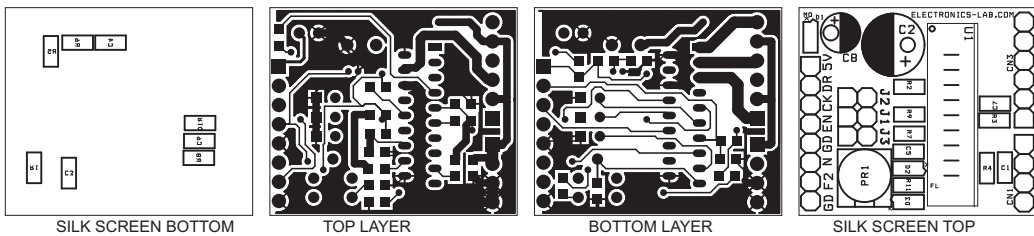
D1 LED : Excitation Monitor (Motor Pulse Indicator)

D3 LED : Power LED

D2 LED : Fault 1 LED On When Over Current, Over Heat

Jumper J1, J2 Micro-Stepping

Jumper J3 The Switch timing of the 4-phase distributor can be switched by setting an external pin (Mode3) to detect either the rise or fall, or rise only, of clock input.



BOM			
SR.	QNTY.	REF.	DESC.
1	1	CN1	4 PIN HEADER CONNECTOR
2	1	CN2	8 PIN HEADER CONNECTOR
3	1	CN3	6 PIN HEADER CONNECTOR
4	6	C1,C3,C4,C5,C6,C7	0.1uF SMD 0805
5	1	C2	470/50V
6	1	C8	10uF /50V
7	3	D1,D2,D3	LED SMD 0805
8	3	J1,J2,J3	JUMPER
9	1	PR1	5K TRIMMER POT
10	1	R1	8K2 SMD 0805
11	6	R2,R3,R4,R6,R7,R10	10K SMD 0805
12	3	R5,R8,R9	470E SMD 0805
13	1	R11	560E SMD 0805
14	1	U1	STK672-442AN-E

