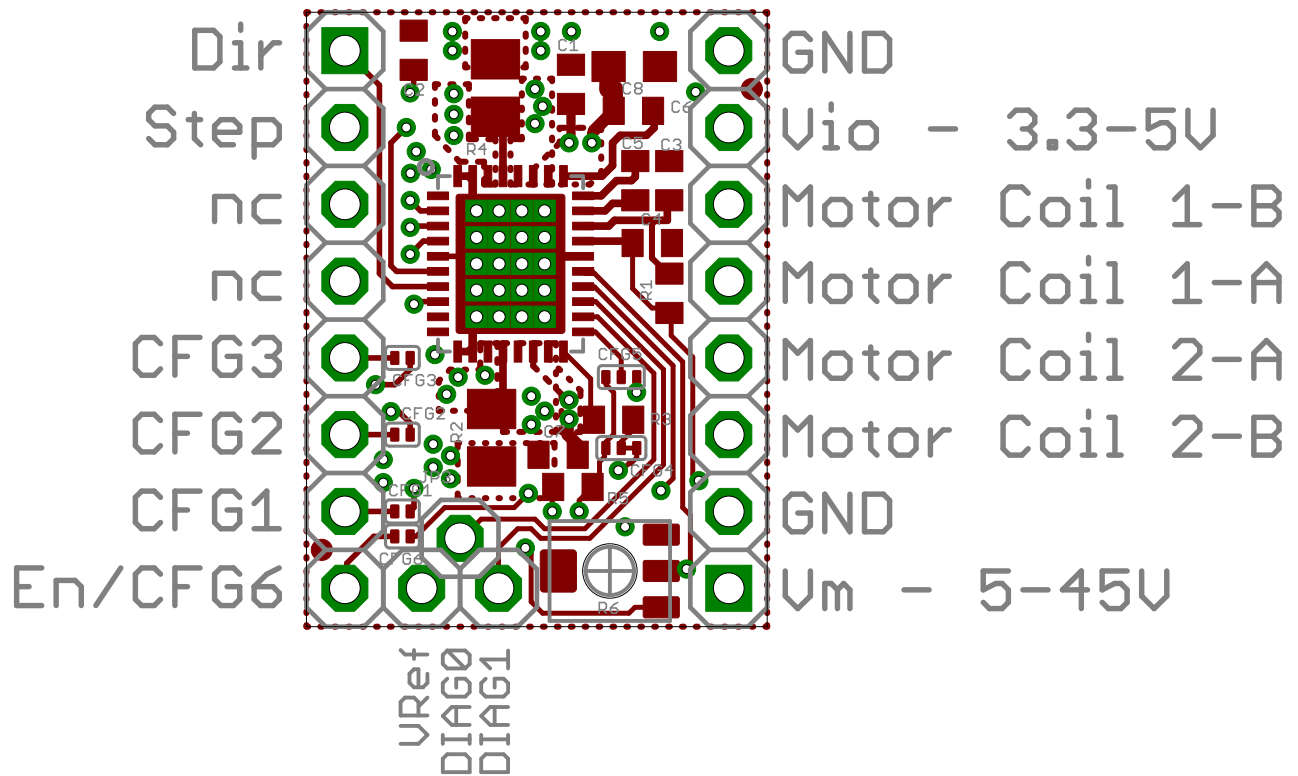


CFG2	CFG1	Steps	Interpolation	Chopper	Mode
GND	GND	1	No		spreadCycle
GND	Vio	2	No		spreadCycle
GND	Open	2	Yes	256	spreadCycle
Vio	GND	4	No		spreadCycle
Vio	Vio	16	No		spreadCycle
Vio	Open	4	Yes	256	spreadCycle
Open	GND	16	Yes	256	spreadCycle
Open	Vio	4	Yes	256	spreadCycle
Open	Open	16	Yes	256	stealthChop

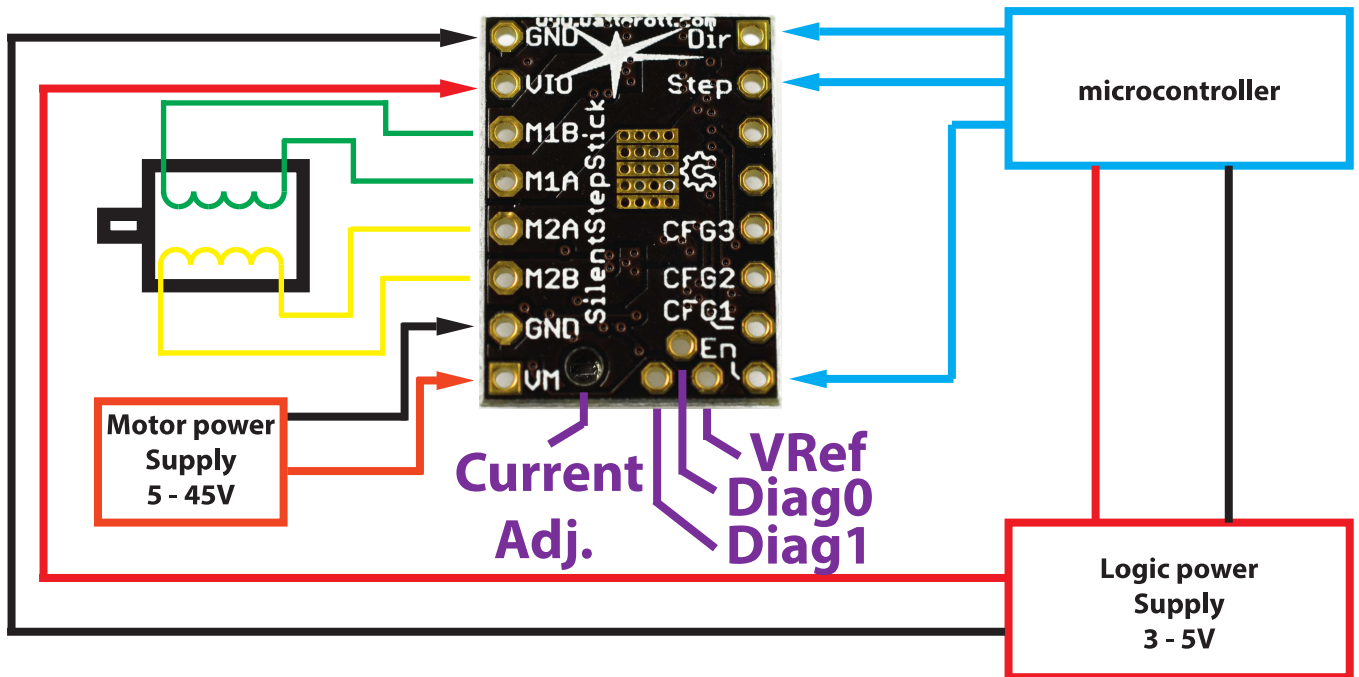


Component Side View (Bottom)

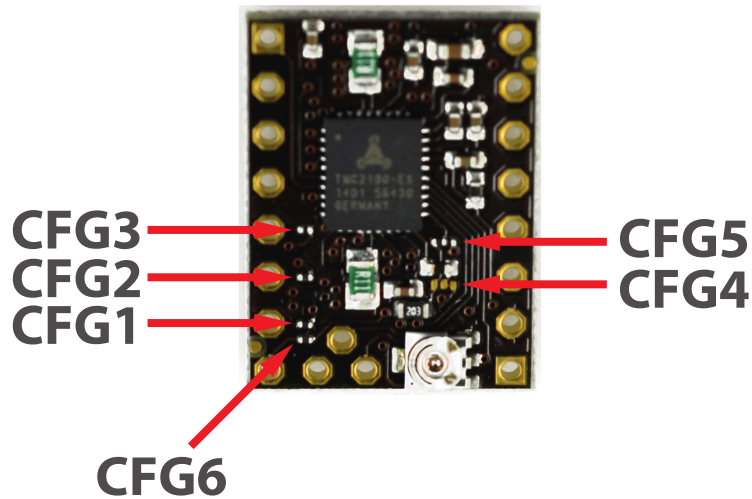


SilentStepStick

1. Pin out



2. Jumper settings



Jumper

CFG1
CFG2
CFG3
CFG4
CFG5
CFG6

Default

Closed
Closed
Open
GND
VCC
Closed

3. Pin configuration

CFG0 - Chopper off time

The jumper is set to GND / 140 TCLK (recommended, most universal choice)

CFG1 & CFG2 - microstep settings for the step input

CFG1	CFG2	microsteps	Interpolation	Chopper Mode
GND	GND	1 (Full-step)	None	spreadCycle
VCC	GND	2 (Half-step)	None	
Open	GND	2 (Half-step)	Yes - 256μSteps	
GND	VCC	4 (Quarter-step)	None	
VCC	VCC	16 (μ-Steps)	None	
Open	VCC	4 (Quarter-step)	Yes - 256μSteps	
GND	Open	16 (μ-Steps)	Yes - 256μSteps	
VCC	Open	4 (Quarter-step)	Yes - 256μSteps	stealthChop
Open	Open	16 (μ-Steps)	Yes - 256μSteps	

stealthChop - for quiet operation and smooth motion

spreadCycle - highly dynamic motor control chopper

CFG3 - current setting

CFG3 is left open, so the current is set by the sense resistor (R_{Sense}) and it can be scaled via Vref (0-2,5V)

Current adjustment

The best way to set the motor current is by measuring the voltage on the Vref pin and adjusting the voltage with the potentiometer.

The max. motor current (I_{RMS}) is set by R_{Sense} (0,11 Ohm), on the board it is 1,77A.

$$I_{RMS} = \frac{V_{FS}}{R_{Sense} + 20mOhm} * \frac{1}{\sqrt{2}} = \frac{0,325V}{0,11\Omega + 0,02\Omega} * \frac{1}{\sqrt{2}} = 1,77A$$

Adjust the current:

$$I_{RMS}' = \frac{V_{ref} * I_{RMS(max)}}{2,5V}$$

Example:

$$I_{RMS}' = \frac{1V * 1,77A}{2,5V} = 0,71A$$

A voltage from 1,0V on Vref pin sets the motor current to 0,71A

External current control

You can control the current also with an analog voltage from 0 - 2,5V. You only have to connect the voltage to the VRef pin and set the potentiometer to max (2,5V).

CFG4 - Chopper Hysteresis

CFG4 is set to GND, so the hysteresis is set to 4% of the full scale current it is the most common choice

CFG5- Chopper blank time

CFG5 is set to VIO, so the blank time is set to 24 clock cycles, it is the most common choice

CFG6 - Enable

GND -> Driver enabled

Vio -> Driver disabled

Open -> Driver enabled with ramp down from 100% to 34% after about 3s

Pin Header

Pin configuration for stealthChop mode with 16 microsteps and interpolation to 256 microsteps.

