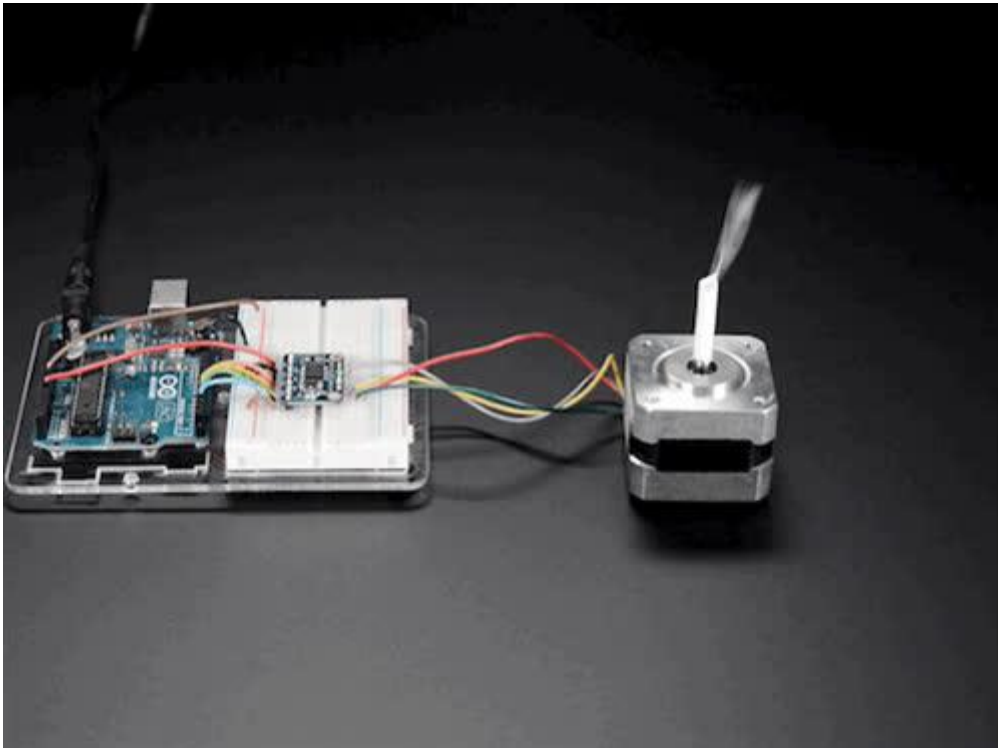




Adafruit TB6612 1.2A DC/Stepper Motor Driver Breakout Board

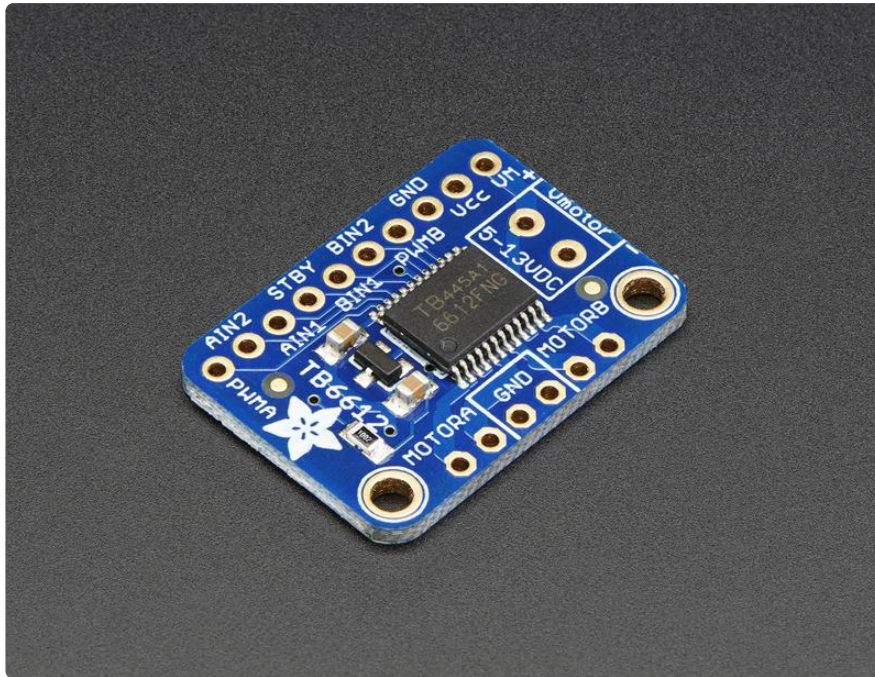
Created by lady ada



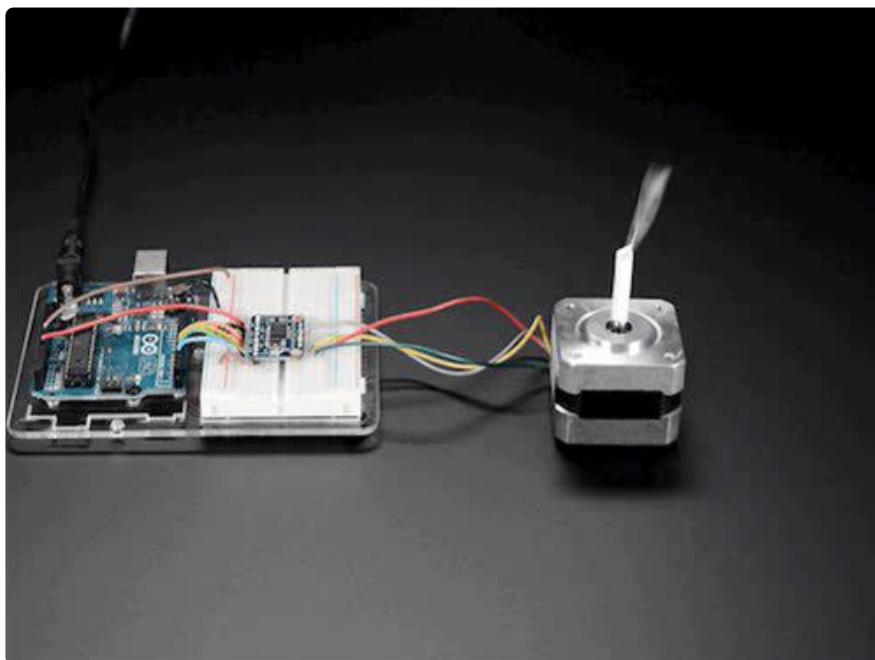
<https://learn.adafruit.com/adafruit-tb6612-h-bridge-dc-stepper-motor-driver-breakout>

Last updated on 2021-11-15 06:26:14 PM EST

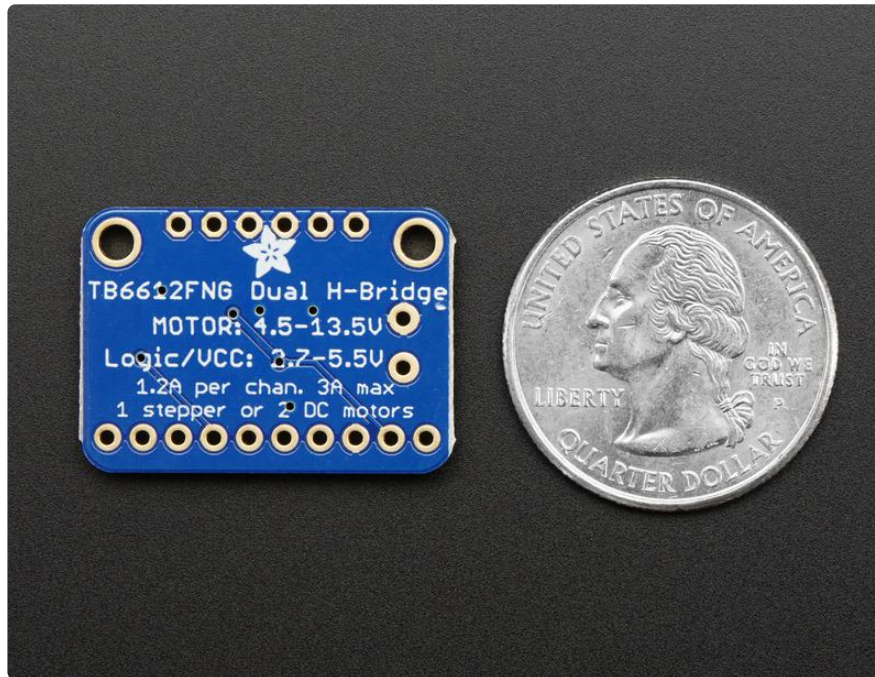
Overview



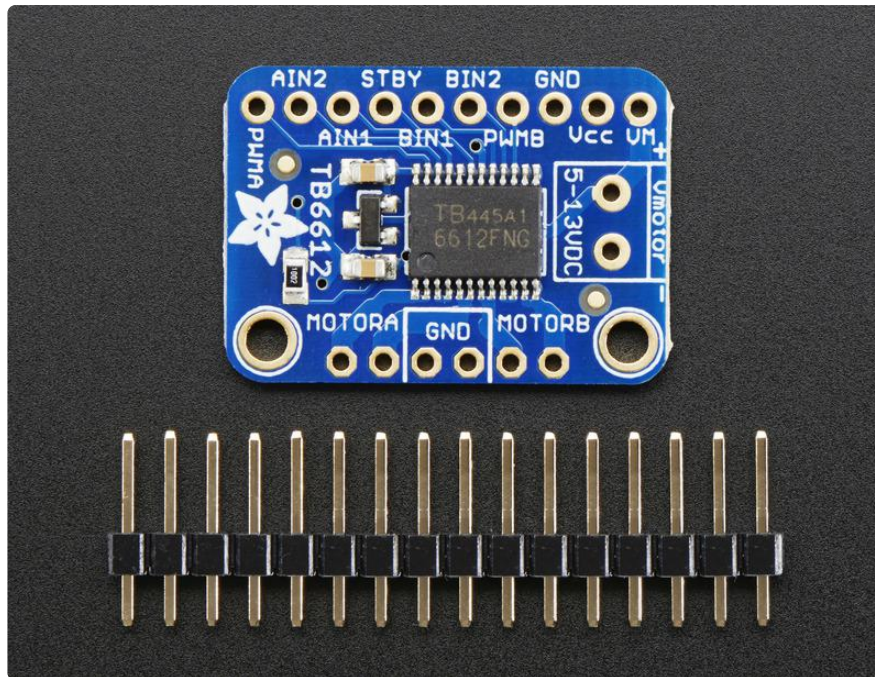
Fire four solenoids, spin two DC motors or step one bi-polar or uni-polar stepper with 1.2A per channel using the TB6612. These are perhaps better known as "[the drivers in our assembled Adafruit Motorshield](http://adafru.it/1438) (<http://adafru.it/1438>) or [Motor HAT](https://adafru.it/eRq) (<https://adafru.it/eRq>)" We really like these dual H-bridges, so if you want to control motors without a shield or HAT these are easy to include on any solderless breadboard or perma-proto.



We solder on TB6612 onto a breakout board for you here, with a polarity protection FET on the motor voltage input and a pullup on the "standby" enable pin. Each breakout chip contains two full H-bridges (four half H-bridges). That means you can drive four solenoids, two DC motors bi-directionally, or one stepper motor. Just make sure they're good for 1.2 Amp or less of current, since that's the limit of this chip. They do handle a peak of 3A but that's just for a short amount of time, about 20 milliseconds. What we like most about this particular driver is that it comes with built in kick-back diodes internally so you don't have to worry about the inductive kick damaging your project or driver!

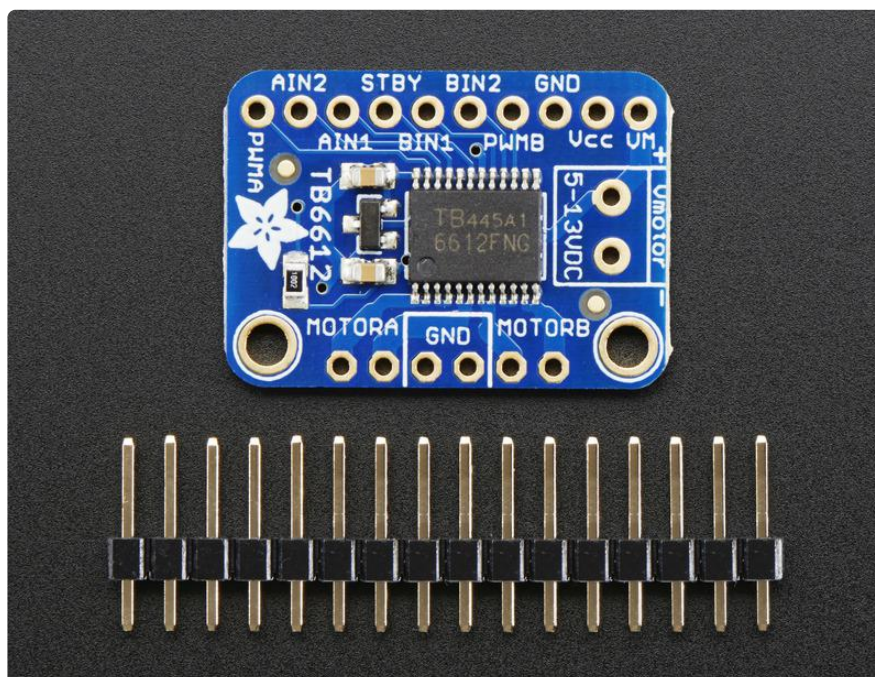


There's two digital inputs per H-bridge (one for each half of the bridge) as well as a PWM input per driver so you can control motor speed. Runs at 2.7V-5V logic. The motor voltage is separate from the logic voltage. Good for motor voltages from 4.5V up to 13.5V! This won't work well for 3V motors.



Comes as one assembled and tested breakout plus a small strip of header. You'll need to do some light soldering to attach the header onto the breakout PCB. Arduino, motors, and power supply not included.

Pinouts



[This motor driver is a fairly simple breakout of the TB6612 motor chip, so do check out the datasheet for the TB6612 for any details you need about pin voltage limits, capacitance, etc! \(https://adafru.it/emK\)](https://adafru.it/emK)

Power Pins

- Vmotor - This is the voltage for the motors, not for the logic level. Keep this voltage between 4.5V and 13.5V. This power supply will get noisy so if you have a system with analog readings or RF other noise-sensitive parts, you may need to keep the power supplies separate (or filtered!)
- Vcc - this is the voltage for the logic levels. Set to the voltage logic you'll be using on your microcontroller. E.g. for Arduinos, 5V is probably what you want. Can be 2.7V to 5.5V so good for 3V or 5V logic
- GND - This is the shared logic and motor ground. All grounds are connected

Signal in Pins

These are all 'Vcc logic level' inputs

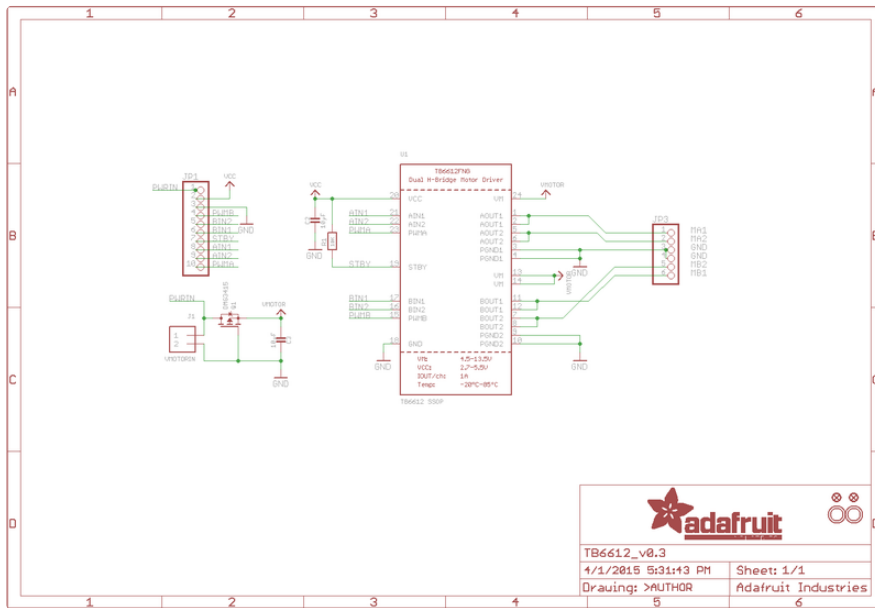
- INA1, INA2 - these are the two inputs to the Motor A H-bridges
- PWMA - this is the PWM input for the Motor A H-bridges, if you don't need PWM control, connect this to logic high.
- INB1, INB2 - these are the two inputs to the Motor B H-bridges
- PWMB - this is the PWM input for the Motor B H-bridges, if you don't need PWM control, connect this to logic high.
- STBY - this is the standby pin for quickly disabling both motors, pulled up to Vcc thru a 10K resistor. Connect to ground to disable.

Motor Out Pins

These are 'Vmotor level' power outputs

- Motor A - these are the two outputs for motor A, controlled by INA1, INA2 and PWMA
- Motor B - these are the two outputs for motor B, controlled by INB1, INB2 and PWMB

Schematic



Fabrication print

Dimensions in inches

