Description:

The SureStepr SD82A/82B are stepper motor drivers with the A4982 chips from Allegro Micro(models vary only in IC package). They are simple to use and operate using an indexer (DIR/STEP) interface to move the stepper motors. The SD82A/82B are drop in replacements for Pololu style footprint drivers including the A4988, A4983 and Stepsticks (motor pinouts are different see FIG. 1).

The SD82A/82B has a distinct design feature not found on similar drivers, the components are mounted on the underside of the PCB. The driver chip has a heat pad at the bottom of case that allows heat to be drawn away from it. By having the parts at the bottom you can now attach a heatsink that is thermally connected to the heat pad thereby cooling the chip better compared to attaching the heat sink on top of the IC, Heat dissipation will be different for every setup but a heat sink may not be required for current limits of 1.2Amps and below, assess your install if you require one. The SD82A/82B also uses a 4 layer PCB with 2oz copper thickness which helps in moving heat away from the chip.

The SD82A/82B comes pre-soldered with special 0.1" pitch headers that are taller than what is commonly available. This gives more space at the bottom to protect the parts from shorting into something and allows air to flow more freely on the underside of the board(see FIG. 2).

CAUTION: SENSITIVE DEVICES

- Static sensitive - Handle with care, remove from packaging when ready to mount only.
- Do not power up without steppers motors connected. May damage drivers specially at higher motor voltages.
- Check mounting orientation before inserting. Drivers will be damaged when improperly inserted, can potentially damage your main circuitry too.
- Turn off power when connecting/disconnecting motors, Do not insert driver when main board is powered.
- Chip, heat pad and heat sink can get really hot, avoid touching while in operation.
- Use higher motor voltage with care. At such levels the drivers can be damaged with spikes that exceed the 35v limit of the allegro chip.
- Install heatsink with adhesive thermal pad, ensure that it does not come in contact with pins or vias directly.

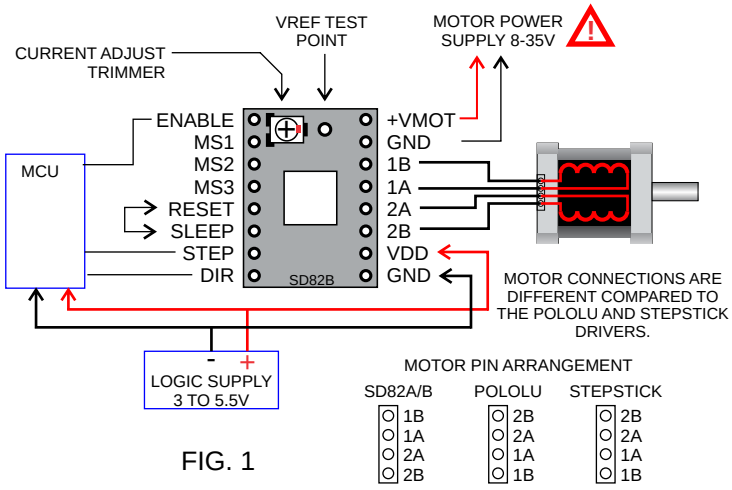

FIG. 1

Features and specs:

- Made with 4 Layer 2oz copper RoHS
- 1, 1/2, 1/4 and 1/16 Microstepping
- Up to 2A drive current
- PTC/Zener Protected Logic supply
- Bottom mounted parts for better heat dissipation
- Larger heat sink mounting area
- Low current micro-stepping capability
- Easy to use DIR/Step insterface

Driver Chip: Allegro A4982 with over current and over temp protection.SD82A (QFN) SD82B(TSSOP)
Current Motor Supply : 2A max
Motor Voltage: 35V max
Logic Supply: 3 to 5.5V max

Micro-stepping:

This table shows how you can change the micro-stepping settings of the driver. On most controllers "H"(high) corresponds to a jumper in place and "L"(low) means no jumper installed. MS 3 is unconnected.

MS1	MS2	Microstep Resolution
L	L	Full Step
H	L	Half Step
L	H	Quarter Step
H	H	Sixteenth Step

Low Current micro-stepping:

The SD82A/B can utilize the low current micro-stepping capabilities of the A4982 chip. By shorting the jumper pads on the bottom side on the PCB(directly under the trimmer), you can activate this setting and allow the driver to run low current steps properly. The jumper shorts ROSC pin to ground.

See A4982 spec sheet for more information or go to the SureStepr SD82A/B product page for a link to an informative article describing the low current micro-stepping feature of the AllegroMicro stepper drivers.

Current limit:

The current limit can be adjusted by measuring VREF and turning the trimmer (see FIG.1). Connect the + of the voltmeter to VREF and the [-] lead to GND and read the value. The SD82A/B uses a 0.05 ohm current sense resistor so current limit can be computed as follows:

Current Limit = VREF x 2.5

You can also approximate the current limit by the position of the red marked point on the trimmer. Pointing to the center as shown on FIG. 1 with get you 1 to 1.2 Amps, counter clockwise to reduce and clockwise to increase. DO NOT EXCEED YOUR MOTOR'S CURRENT RATING.

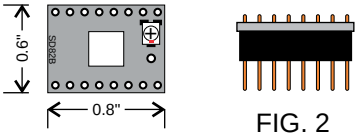

FIG. 2