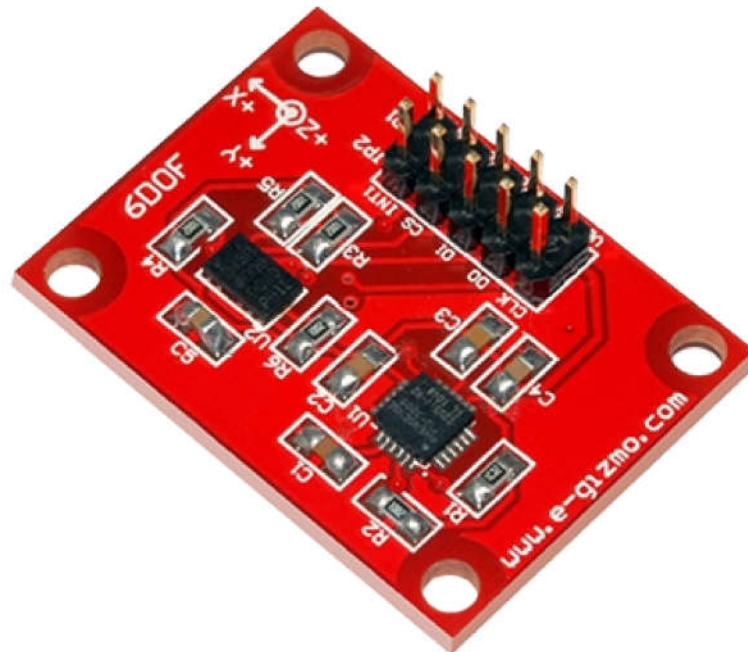


# 6DOF

(6 Degrees of Freedom)

Hardware Manual Rev 1r0

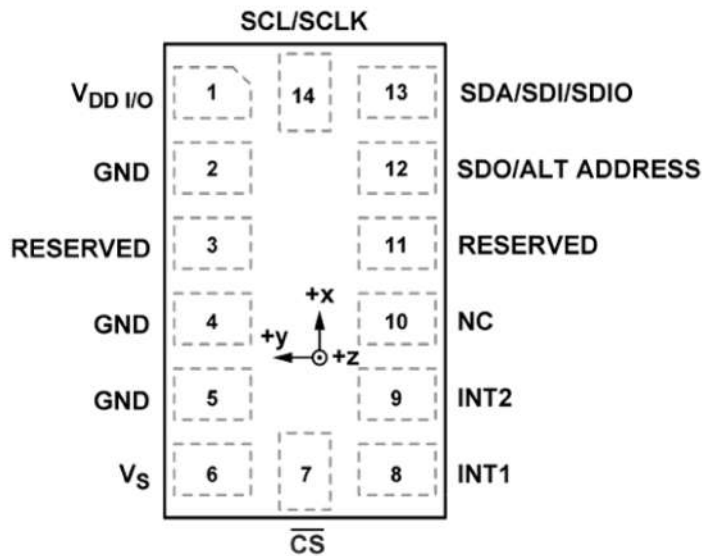
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## Features and Specifications

The 6DOF (six degrees of freedom) features a combination of an accelerometer and a gyroscope together in one break-out board. Chips can also be used individually by the use of I2C or SPI interface. Works in +3.3V logic.

# IC Specifications

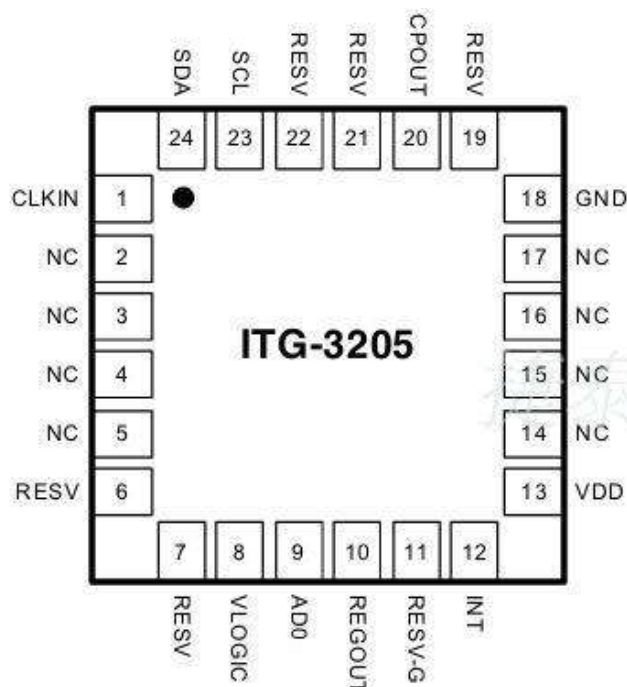


**Figure 1.** ADXL345 Pin ID Illustration

## ADXL345

accelerometer

- Built in motion detection
- Selectable bandwidth
- Flexible interrupt modes
- Tap/double tap detection
- Free-fall detection



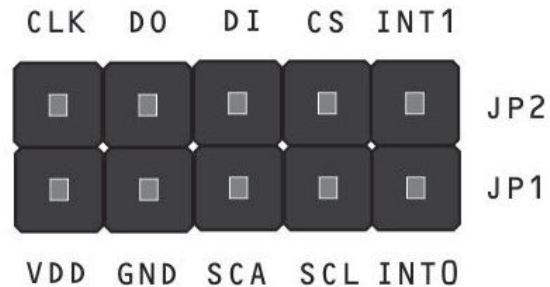
**Figure 2.** ITG3205 Pin ID Illustration

## ITG3205

gyroscope

- Digital output X, Y, and Z axis angular sensors
- Programmable interrupt mode
- Digitally adjustable low pass filter

# Pin Assignments



**Figure 1.** JP1 and JP2 Pin I.D. Illustration

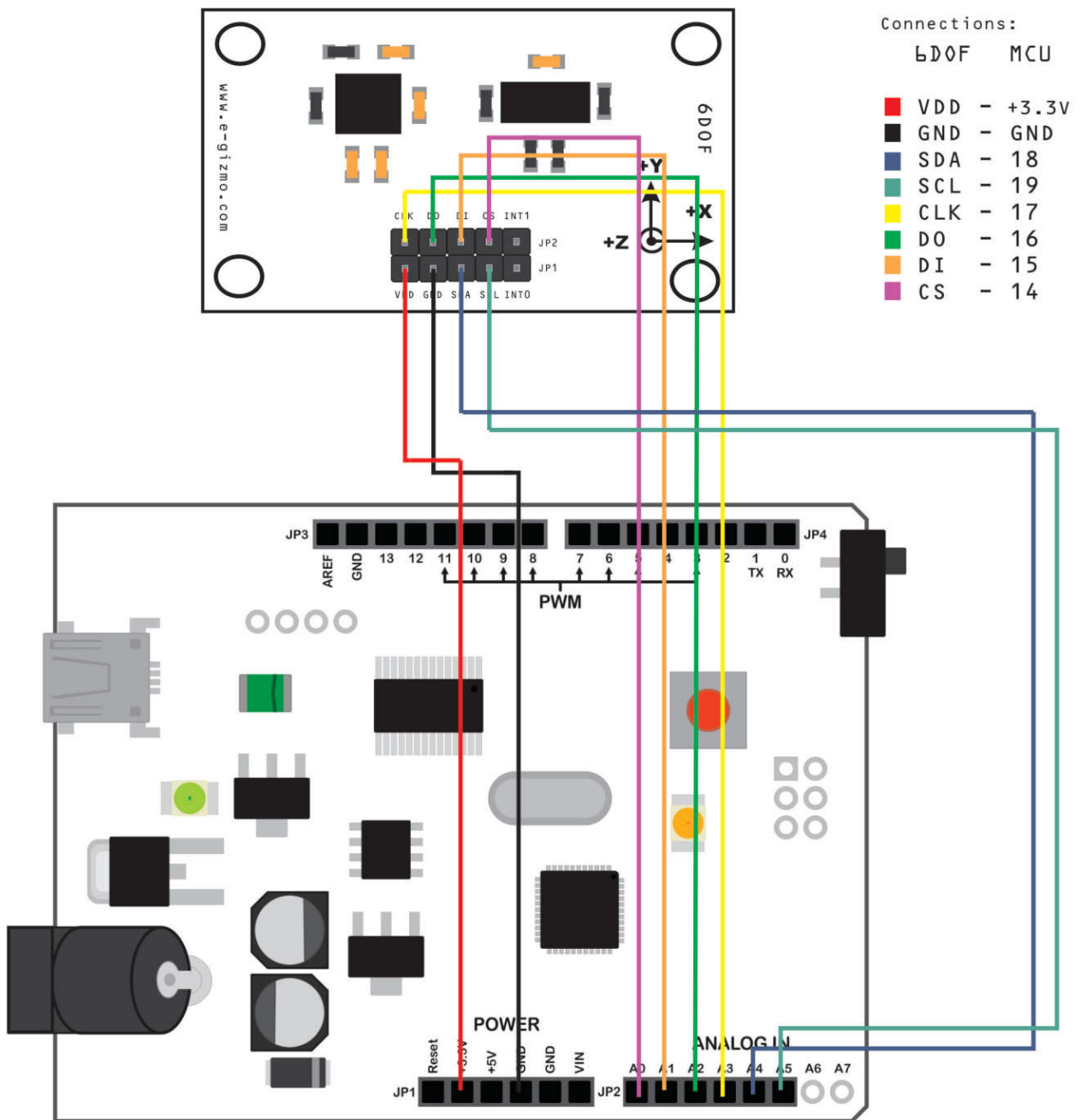
**Table 1.** JP1 Pin descriptions

Pin I.D.	Descriptions
VDD	+3.3V supply
GND	Ground
SDA	I2C serial data ADXL345/ITG3205
SCL	I2C serial clock ADXL345/ITG3205
INT0	Interrupt 0 output

**Table 2.** JP2 Pin descriptions

Pin I.D.	Descriptions
CLK	Clock
DO	Data out
DI	Data in
CS	Chip Select
INT1	Interrupt 1 output

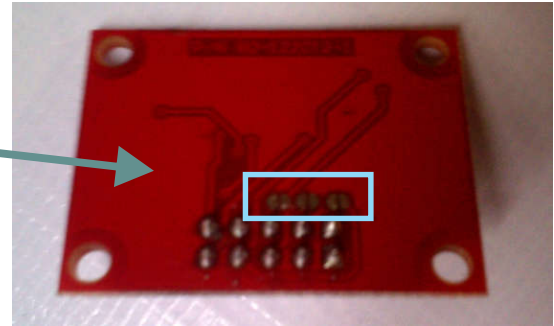
# Sample wiring diagram for Gizduino



**Figure 2.** 6DOF Sample Wiring Connections

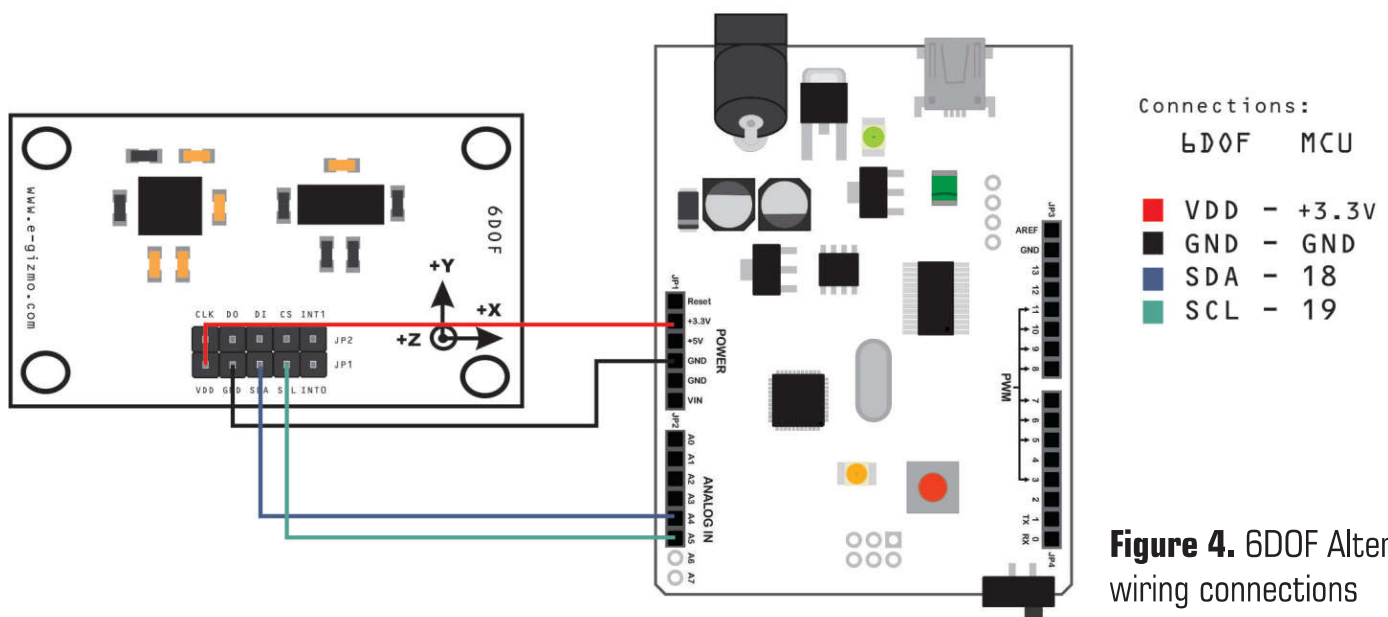
# Alternative connection using I2C

**Short/solder** these three soldering pads in order to use both IC's simultaneously using I2C addressing.



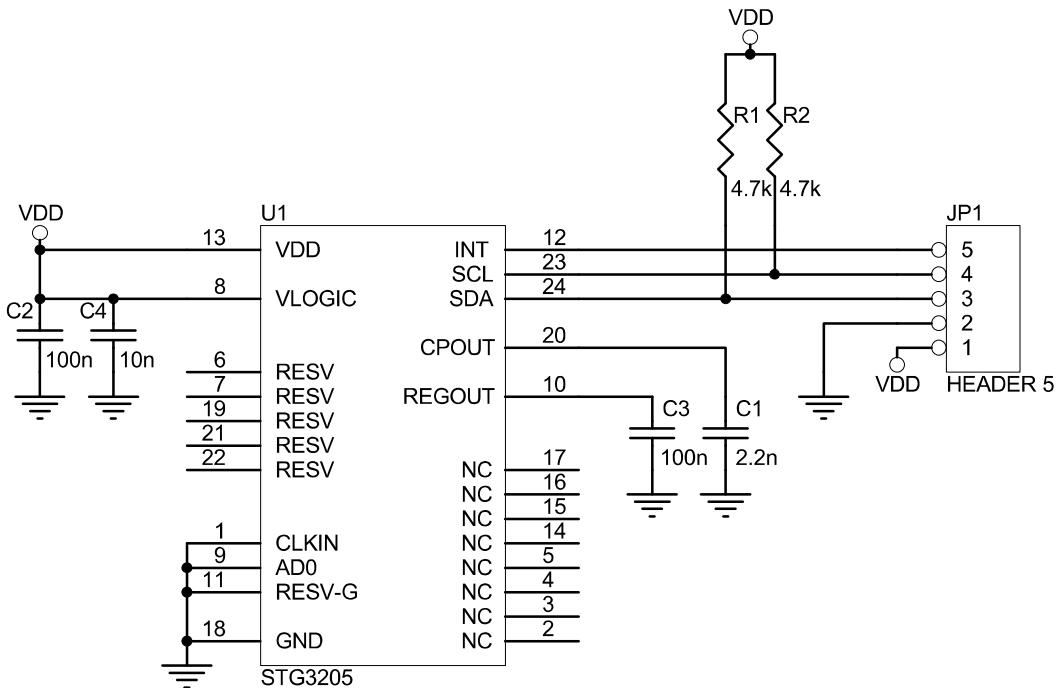
**Figure 3.** 6DOF Soldering pads

This configuration is done to save pins when using an MCU. This procedure is **optional** but provides convenience for the user when programming. I2C addresses are 0x68 and 0x1D for ITG3205 and ADXL345

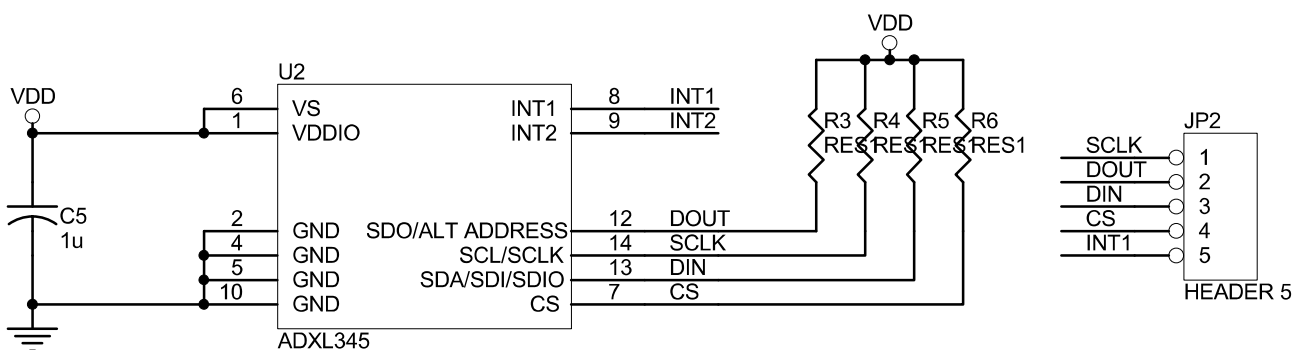


**Figure 4.** 6DOF Alternate wiring connections

# Schematic Diagram

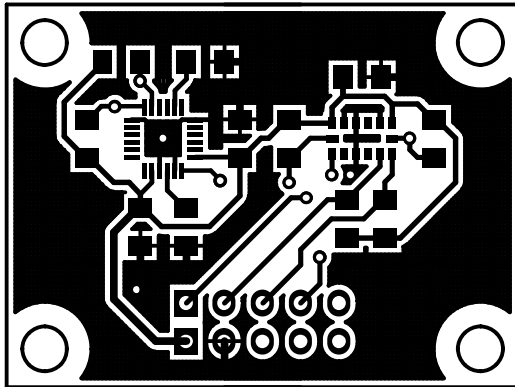


**Figure 5.** 6DOF Schematic Diagram for JP1

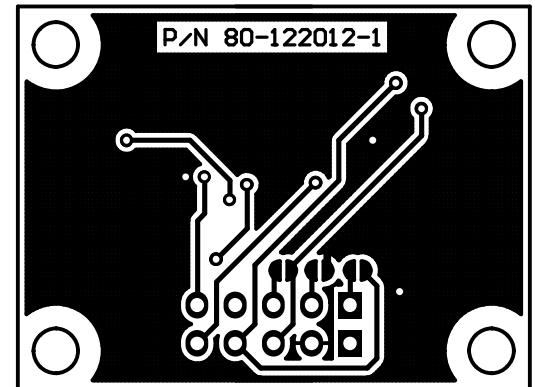


**Figure 6.** 6DOF Schematic Diagram for JP2

# PCB Board Presentation

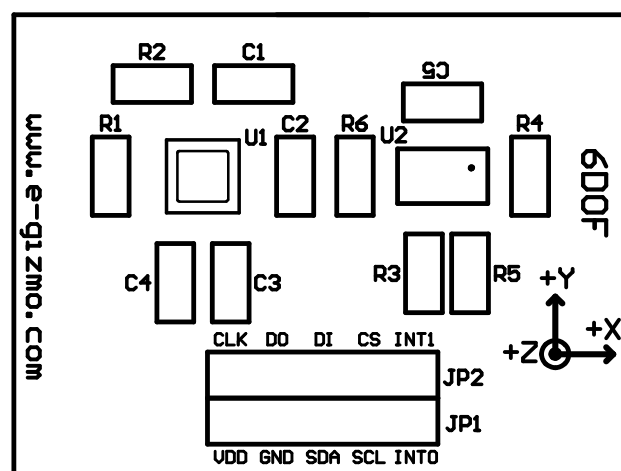


**Figure 7.** 6DOF Front PCB Copper Pattern



**Figure 8.** 6DOF Back PCB Copper Pattern

## Parts Placement



**Figure 9.** 6DOF Silkscreen Layout