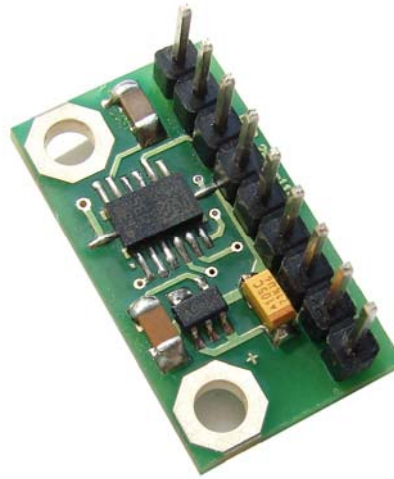# LSM303DLHC e-Compass 3 axis Accelerometer and 3 axis Magnetometer Module

Introduction

The LSM303DLHC is a digital 3 axis accelerometer and 3 axis magnetometer with I2C interface. It has full-scale acceleration range of ±2g to ±16g and full scale magnetic field range of ±1.3 to ±8.1 gauss. All the full scale ranges are user selectable. Module has on board low drop voltage regulator which takes input supply in the range of 3.6V to 6V DC. Board has two mounting holes. All 9 pins of the module are arranged in single line. LSM303DLHC's I2C serial bus interface supports standard (100 KHz) and fast mode (400 kHz). It is most suitable for tilt compensated compass, quadrotor and robotics application. For LSM303DLHC application interface example available based on LPC2148 ARM7 microcontroller. LSM303DLHC has application example based on LPC2148 ARM7 microcontroller.

Applications

- Robotics
- Compensated compass
- Position detection
- Motion-activated functions
- Pedometer
- Display orientation
- Gaming and virtual reality input devices
- Impact recognition and logging
- Vibration monitoring and compensation

LSM303DLHC Module Features

- Onboard 3.3V Low Drop voltage regulator with input range of 3.6V to 6V.
- Logic supply voltage range of 1.8 to 3.3V. Logic supply pin is accessible through 9 pin header
- Dimensions: 0.9"(L) X 0.5"(W)
- 2 x Mounting holes
- 3 magnetic field channels and 3 acceleration channels
- ± 1.3 to ±8.1 gauss magnetic field full-scale
- ±2g/±4g/±8g/±16g selectable full-scale
- 16 bit data output
- I2C serial interface
- Analog supply voltage 2.16 V to 3.6 V
- Power-down mode/ low-power mode
- 2 independent programmable interrupt generators for free-fall and motion detection
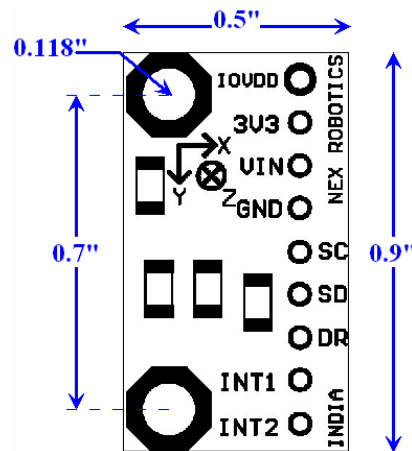- Embedded temperature sensor
- 6D/4D orientation detection

Dimensions

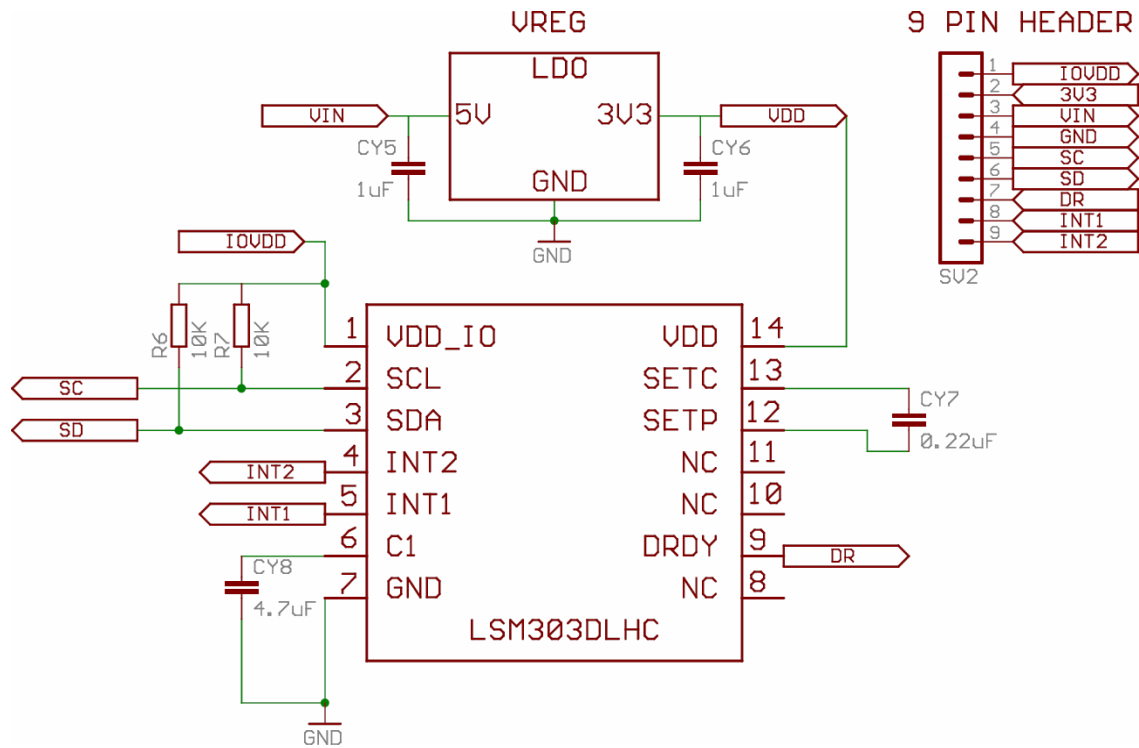

Figure1: Dimensions

Schematic

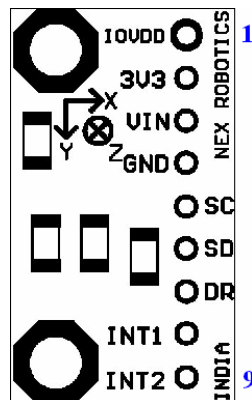**Figure 2: Schematic of LSM303DLHC Module**

Pin Description

Figure 3: Pin Description of LSM303DLHC Module

Pin No.	Name	Description
1	IOVDD*	Logic supply from external source (1.8 -3.3V)
2	3V3*	3.3V/40mA LDO output
3	VIN	Input supply from external source (3.3 – 6.0V)
4	GND	Ground
5	SC	I2C Clock
6	SD	I2C Data
7	DR	Data Ready
8	INT1	Interrupt 1
9	INT2	Interrupt 2

Table 1: Pin Description of LSM303DLHC Module

I2C interface between MMA8451Q and 3.3V microcontroller
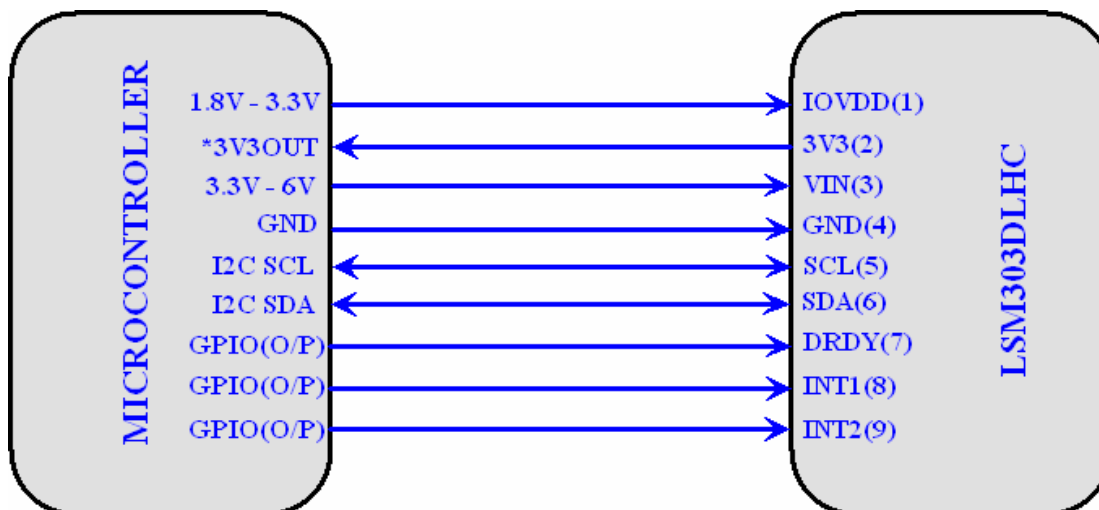
Figure 4: Interfacing Example

Note:

1. 3V3OUT is capable of delivering 3.3V@ 40mAmps. It can be used to set up pull ups for I/O pins related to LSM303DLHC. It should not be used for other purposes.