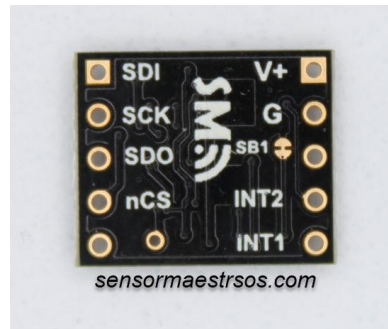
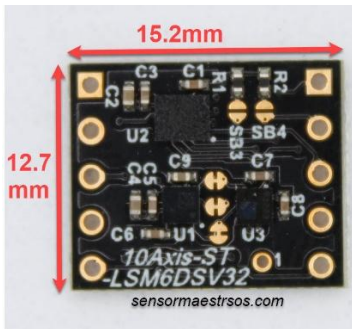


12.7x15.2mm 10 DOF LSM6DSV32, LIS2MDL, LPS22HH



Features

- LSM6DSV32, LIS2MDL, LPS22HH Onboard
 - LSM6DSV32 Acts as Master I2C. LIS2MDL and LPS22HH are I2C Slaves
 - I2C/SPI Interface to LSM6DSV32(Default = SPI)
 - Use Solder Bridges for I2C Operation
 - 12.7x15.2mm Breakout Board
- LSM6DSV32: 6-Axis IMU(Accel/Gyro)
 - Accel $\pm 4/6/16/32$ g full scale
 - Gyro $\pm 125/250/500/1000/2000/4000$ dps FS
 - 4.5KB FIFO
 - SPI/I2C(Default = I2C)
 - 2 Interrupt Lines
 - Embedded Sensor Fusion
 - Programmable Finite State Machine
 - ML Core w/exportable features/filter for AI apps
 - Built In Functions: Pedometer, Tilt, Significant Motion Detection, Finite State Machine, Machine Learning core, Adaptive Self-Configuration
 - 650uA Combo High Performance Mode
 - ODR Rates: 7.5, 15, 30, 60, 120, 240, 480, 960, 1920, 3840, 7680Hz
 - 2.5x3.0x0.8mm package
 - 1.7-3.6V
- LIS2MDL: 3-Axis Magnetometer
 - ± 50 gauss magnetic dynamic range
 - SPI/I2C (Default = I2C)
 - 16bit data output
 - ODR Rates: 10,20,50,100Hz
 - 2.0x2.0x0.7mm package
 - 1.7-3.6V
- LPS22HH Pressure Sensor
 - 260-1260 hPa absolute pressure range
 - Absolute Pressure Accuracy: 0.5 hPa
 - Low pressure sensor noise: 0.65Pa
 - High-performance TCO: 0.65 Pa/°C
 - Embedded Temp Compensation
 - 24bit data output
 - ODR 1-200Hz
 - SPI/I2C (Default = I2C)
 - Embedded FIFO
 - 2.0x2.0x0.7mm package
 - 1.7-3.6V
- **OPEN SOURCE Nordic nRF FIRMWARE COMING SOON!!**
 - **Application utilizing on-board Sensor Fusion Output from LSM6DSV32**
 - **Application utilizing Open-Source Sensor Fusion Library**

Applications

- Wearables
- Motion Tracking and Gesture Recognition
- Dead-Reckoning
- EIS and OIS for Camera application
- Augmented Reality(AR) / Virtual Reality(VR)
- Indoor Navigation
- IoT Applications
- Smart Toys and Smart Sporting Goods



smMOTN-10DOF-ST-LSM6DSV32

Description:

The smMOT-10DOF-ST-LSM6DSV32 breakout board features the 6-Axis Accel/Gyro LSM6DSV32, the 3-Axis Magnetometer LIS2MDL, and the LPS22HH Pressure sensor all on a micro-sized 12.7x15.2mm breakout board. The LSM6DSV32 acts as a I2C Master to the LIS2MDL and LPS22HH sensors. The LSM6DSV32 can be configured for a SPI or I2C interface. The breakout board is configured by default for a SPI interface to the LSM6DSV32 but can easily be re-configured for an I2C interface using the solder bridges that are on the board SB3/SB4. The board allows for separate VDD and VDDIO voltages by default VDD is connected to VDDIO through a solder bridge SB1. The board also maps out both LSM6DSV32 Interrupt Pins. The smMOT-10DOF-ST-LSM6DSV32 breakout board can be used with the smWSP-ARD Rapid Prototyping platform and can be used in the smBLOCK SPI or the smBLOCK I2C1(if it was re-configured to use I2C).

Design Services

Custom Embedded PCB/Software, Wireless/Mobile Applications, and general design services can be provided by Sensor for your own application. To have Sensor Maestros review your project needs please go to www.sensormaestros.com and fill out a Project Questionnaire form on the Design Services page.

LSM6DSV32 Datasheet:

<https://www.st.com/resource/en/datasheet/lsm6dsv32x.pdf>

LIS2MDL Datasheet:

<https://www.st.com/resource/en/datasheet/lis2mdl.pdf>

LPS22PHH Datasheet:

<https://www.st.com/resource/en/datasheet/lps22hh.pdf>

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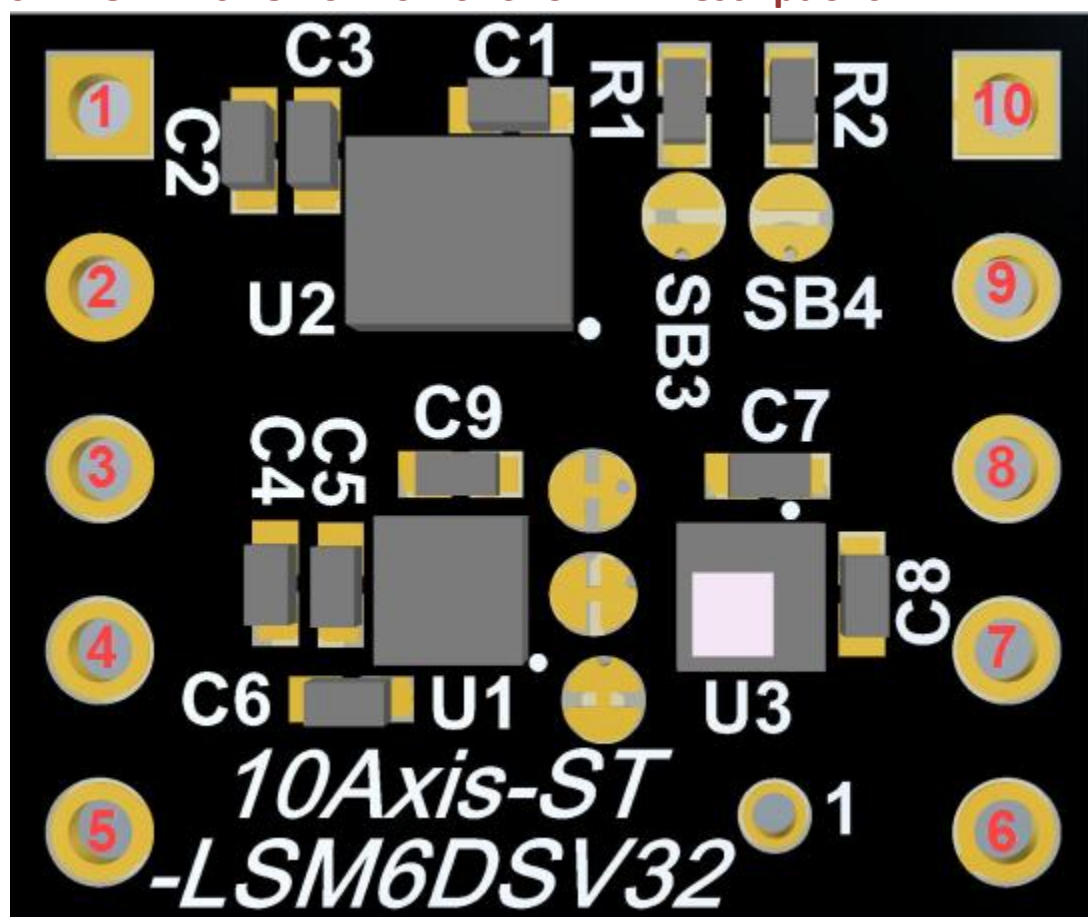
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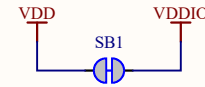


smMOTN-10DOF-ST-LSM6DSV32 Pin Descriptions

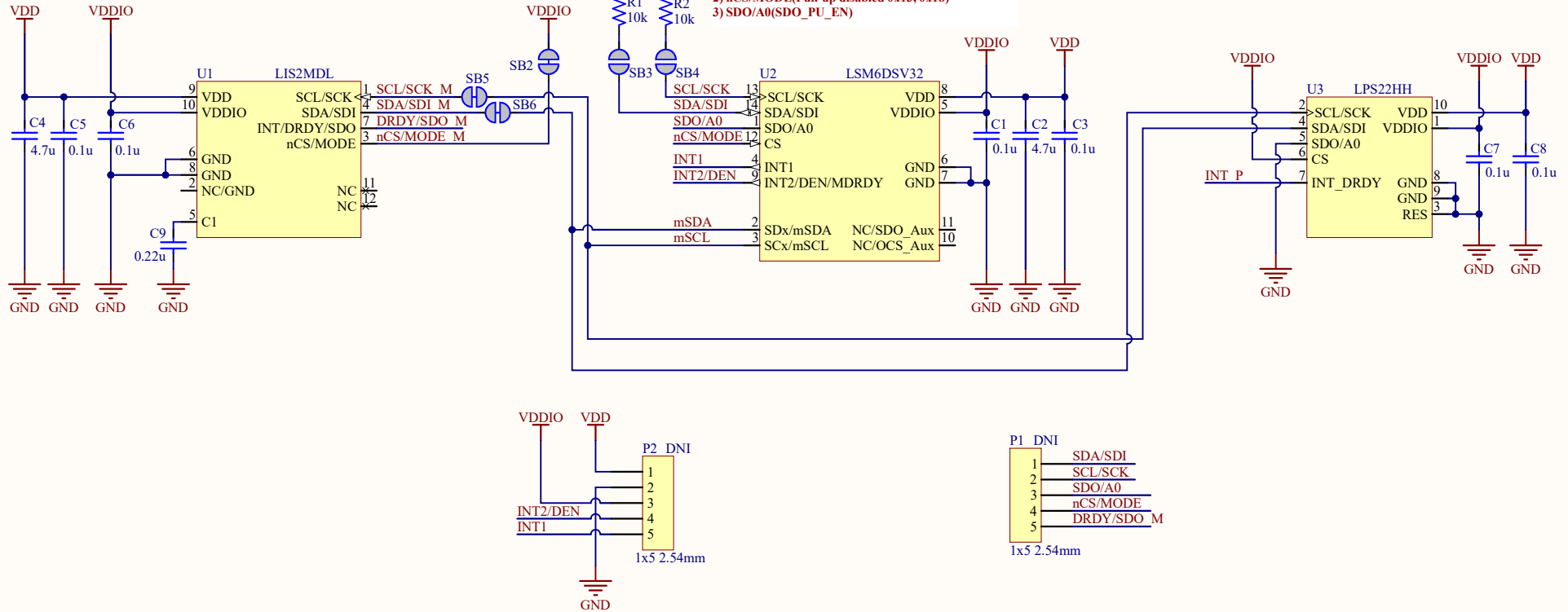


Pin	Name	Type	Function
1	VDD	Power	Power Supply, 1.7-3.6V
2	GND	Power	Ground. Connect to System GND.
3	VDDIO	Power	ALL: VDD for GPIO. VDDIO is tied to VDD by default through SB1. Cut SB1 trace and provide separate VDD to VDDIO if different GPIO voltage is needed.
4	INT2/DEN	I/O	LSM6DSV32: Programmable Interrupt 2 (INT2) / Data enable(DEN). Default is output force to GND
5	INT1	Output	LSM6DSV32: Programmable Interrupt 1. Default output forced to GND
6	DRDY/SDO_M	I/O	LIS2MDL: Interrupt/data-ready signal OR SDO line for 4-wire SPI operation
7	CS/Mode	Input	LSM6DSV32: Chip Select for SPI. 1=Enable 0 = Disable
8	SDO/A0	I/O	LSM6DSV32: SPI Mode = Serial data output I2C Mode = LSB of I2C Address
9	SCL/SCK	I/O	LSM6DSV32: SPI & I2C Mode = Serial Clock
10	SDA/SDI	I/O	LSM6DSV32: SPI Mode = Serial Data Input I2C Mode = Serial Data

LIS2MDL = 0011110b(0x3D = Read) : (0x3C = Write)
LPS22HH = 1011100b (A0 tied to GND)



LSM6DSO:
Internal Pull-ups available on:
1) mSDA, mSCL(SHUB_PU_EN)
2) nCS/MODE(Pull-up disabled 0x13, 0x18)
3) SDO/A0(SDO_PU_EN)



Title **smMOTN-10Axis-ST-LSM6DSV32**

Sensor Maestros LLC

Size: **Letter**

Number:

Revision: 1.0

Sensors That Make Sense

Date: 1/13/2025

Time: 10:21:17 PM Sheet 1 of 1

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