TLV493D-A1B6 3DSense Shield2Go

Quick Start
V1.0.0

Introduction

The 3D magnetic sensor TLV493D-A1B6 offers accurate three-dimensional sensing with extremely low power consumption in a small 6-pin package.
With its magnetic field detection in x, y, and z-direction the sensor reliably measures three-dimensional, linear and rotation movements. Applications include joysticks, control elements (white goods, multifunction knops), or electric meters (anti tampering) and any other application that requires accurate angular measurements or low power consumptions.
The integrated temperature sensor can furthermore be used for plausibility checks.

Key features are 3D magnetic sensing with a very low power consumption during operations. The sensor has a digital output via 2-wire based standard I2C interface up to 1 MBit/sec and 12 bit data resolution for each measurement direction (Bx, By and Bz linear field measurement up to +-130mT).

Link to Datasheet, User Manual, and Product Page

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Evaluation Board Notes

Information

- Supply voltage is typ. 3.3 V, please refer to the TLV493D-A1B6 datasheet for more details about maximum ratings
- Pin out on top (head) is directly connected to the pins of the TLV493D-A1B6 sensor
- The break out board is compatible with Infineon's offer of joysticks, rotation knobs and additional supplies for the 3D magnetic sensor portfolio
- If head is broken off, only one capacitor is connected to the TLV493D-A1B6 sensor
- Software compatible with Arduino and library fully integrated into the Arduino IDE
- Sensor has different I2C addresses, please refer to the User Manual for more information
- Sales Name S2GO_3D-SENSE_TLV493D and OPN S2GO3DSENSETLV493DTOBO1

Ensure that no voltage applied to any of the pins exceeds the absolute maximum rating of 3.5 V

Breakable Head

Link to Board Page

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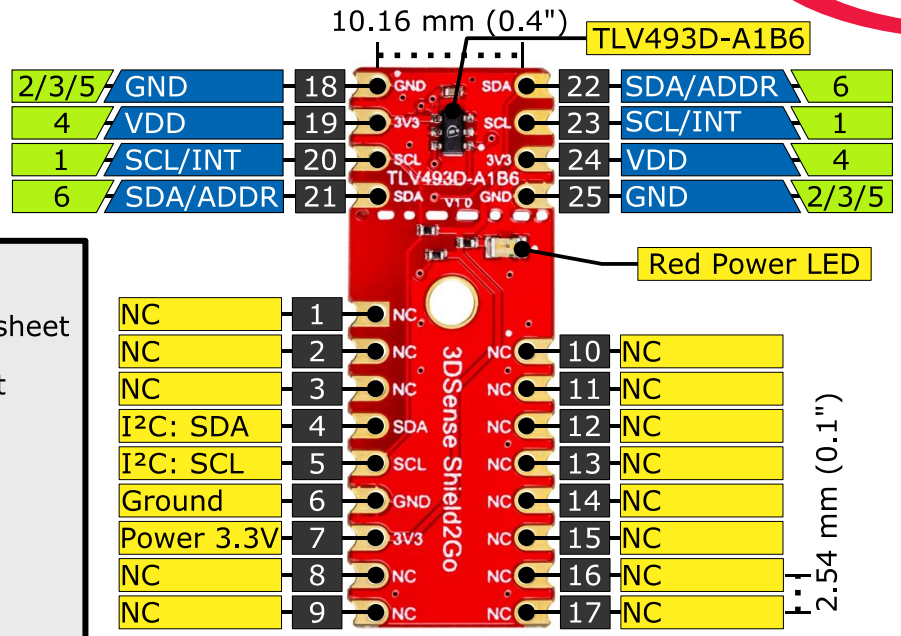
Evaluation Board PCB Details

The

TLV493D-A1B6 3DMagnetic Shield2Go



Ground pins on board connected with each other.

Legend

- Information
- Labelling of Pins in Datasheet
- Pin Number in Datasheet
- Physical Pin Number
- Warning
- Additional Information
- NC Not Connected

V1.0.0

The maximum voltage on any pin is 3.5 V.

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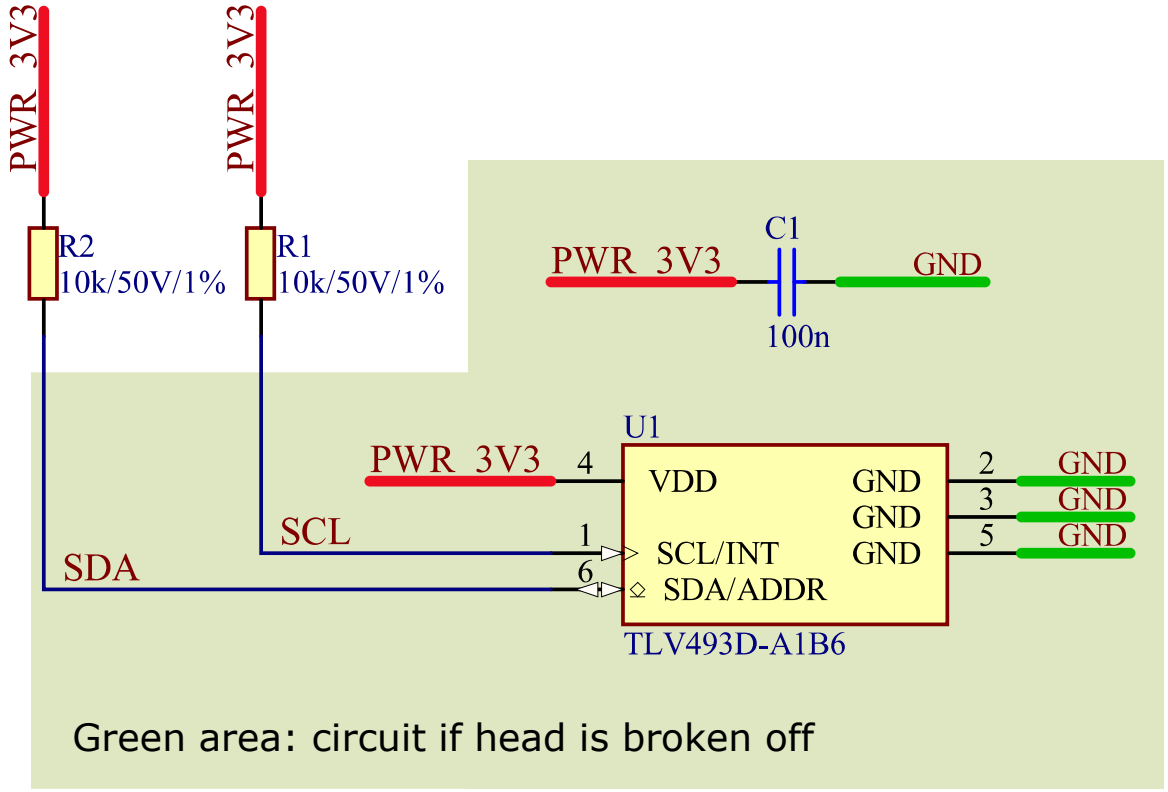
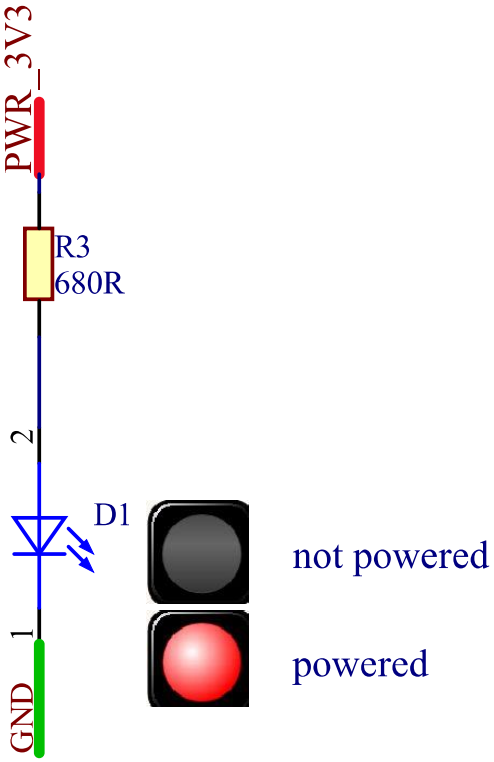
Evaluation Board Schematic

TLV493D-A1B6 Sensor



Power Status Indication



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Arduino: The Arduino IDE

Arduino IDE

Arduino is a hardware-software prototyping environment IDE developed by arduino.cc:

- Installation Details for Windows:
  Click here
- Installation Details for Linux:
  Click here
- Installation Details for Mac OS:
  Click here
- Installation Details for Portable IDE:
  Click here

Arduino Quick Start

- What is Arduino? Click here
- Extended information about the Arduino environment. Click here
- How to import libraries? Click here
- How to install additional boards? Click here
- Problems related to Arduino? Click here for troubleshooting

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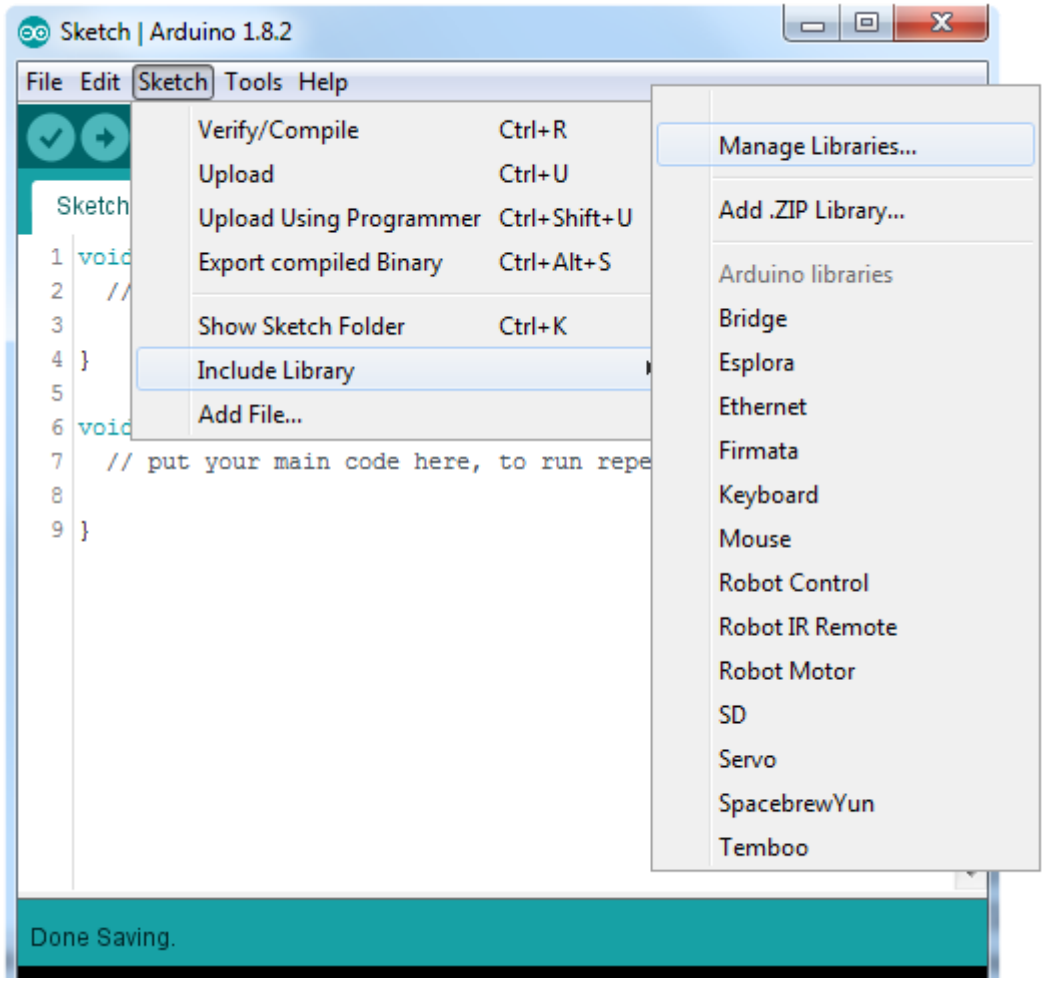
How to download the library for Arduino - 1

Notes

- Open the Arduino IDE
- Navigate to *Sketch – Include Library – Manage Libraries*
- The Arduino library manager will be opened (see next slide for further instructions)
- Additional notes for installation can be found in the GitHub, e.g. if the library manager is not used



https://github.com/Infineon/TLV493D-A1B6-3DMagnetic-Sensor

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How to download the library for Arduino - 2

Notes

- The Arduino library manager is a comprehensive tool to install external libraries for Arduino
- Search for *TLV493D-A1B6* in the *Filter your search…* field
- Select as *Type: All* and *Topic: All* when searching for *TLV493D-A1B6*
- As shown in the picture, please choose the respective library and install it
- Regularly check your installed libraries for updates
- In case of problems, please visit also our GitHub repository and open an issue to get further help

https://github.com/Infineon/TLV493D-A1B6-3DMagnetic-Sensor

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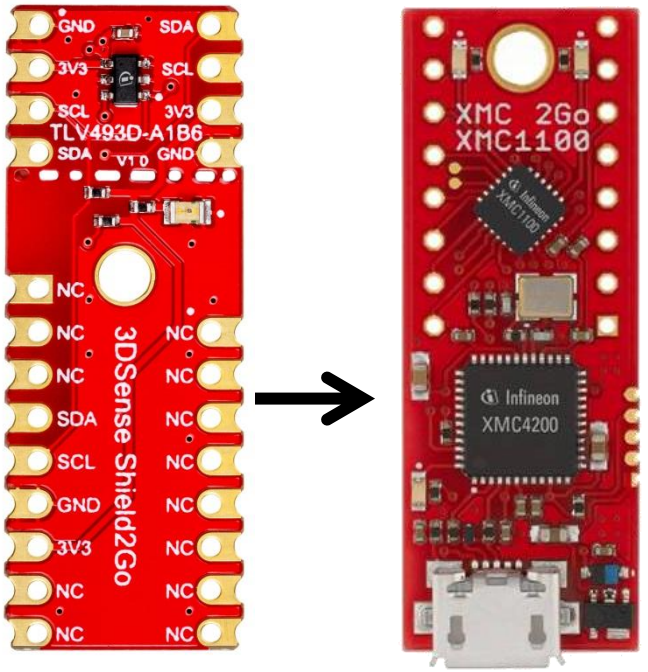
Example with XMC 2Go

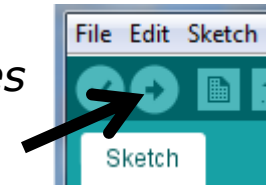
Notes

- The Shield2Go form factor of the Shield2Go evaluation board is directly compatible with the XMC 2Go board
- Stack the TLV493D-A1B6 3DSense Shield2Go board on top of the XMC 2Go as shown in the picture
- The additional pin on the left-top side (designated with NC) is left floating
- Using the XMC-for-Arduino Arduino integration, the Arduino library for the TLV493D-A1B6 can be directly used



Steps

- Open one of the examples for the TLV493D-A1B6 from *File – Examples* and select as board *XMC1100 XMC2Go*
- Connect the stacked boards to the PC and press the *Upload* button
- Select the related COM port from *Tools – Port* and open the serial monitor with the set baud rate (see sketch/code with Serial.begin(<BAUDRATE>);)



https://github.com/Infineon/XMC-for-Arduino
https://github.com/Infineon/TLV493D-A1B6-3DMagnetic-Sensor

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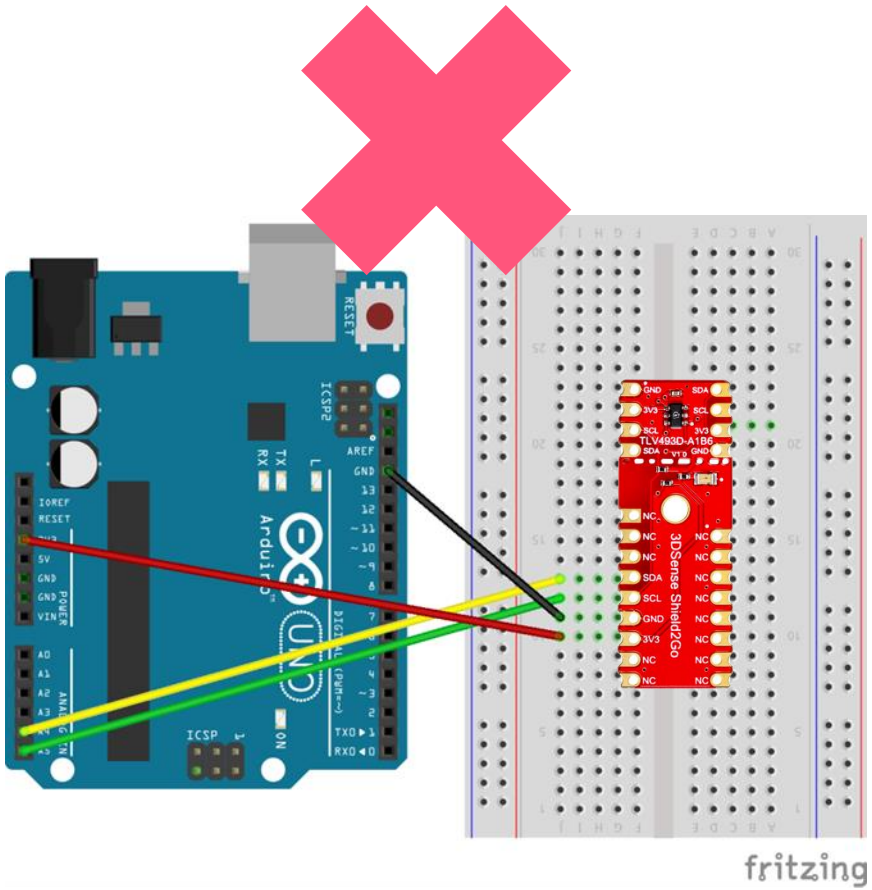
Important Warning

Important Warning

- The TLV493D-A1B6 has a maximum rating of 3.5 V on any pin
- Third party boards with 5 V logic, e.g. the Arduino Uno, cannot be connected to the TLV493D 3DSense Shield2Go board directly.
- Even if the power is connected to the 3.3 V pin, the interface lines, e.g. SDA/SCL, will still be driven by 5 V
- Please use appropriate level shifting for these boards



Not possible

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