

SGX Gas Sensor break-out board



Description

The **SGX Gas Sensor break-out** board is an adapter board designed to facilitate the test and evaluation of the *SGX6410* or *SGX4410* Gas sensor.

The SGX Gas Sensor Evaluation Board is a low-power, low-voltage platform designed for evaluating and integrating indoor air-quality gas-sensing applications.

The board incorporates a MEMS-based metal-oxide (MOx) gas-sensing element together with signal-conditioning electronics and an integrated microcontroller. It processes the sensor signal and provides calibrated digital output, reducing the need for additional gas-sensing data processing on the user's MCU. The board supports evaluation of gas-sensing and IAQ capabilities.

Features

- Possibility of working with either *SGX6410* or *SGX4410* at a time through populating only one sensor in addition to a *MVH4001D* Humidity sensor.
- Supports both I²C Standard Mode 100kHz and I²C Fast Mode 400kHz.
- *SGX6410* also supports communication through UART.

Applications

- Indoor air quality monitoring.
- Detection of hazardous fumes and unhealthy conditions.
- Smart environmental control for HVAC systems and air purifiers.

Board Content

- *SGX6410* Gas sensor.
- *MVH4001D* Humidity sensor.
- *SGX4410* Gas sensor (Not Fitted).

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1.0 I²C Wiring Diagram with Host MCU



Important Equipment Warning: Only one sensor must be populated on the Board SGX6410 or SGX4410 as the INT pin in both sensors is configured as output push pull, as also the RESET pin is connected to both sensors' footprints, which means it must be used for only one sensor.

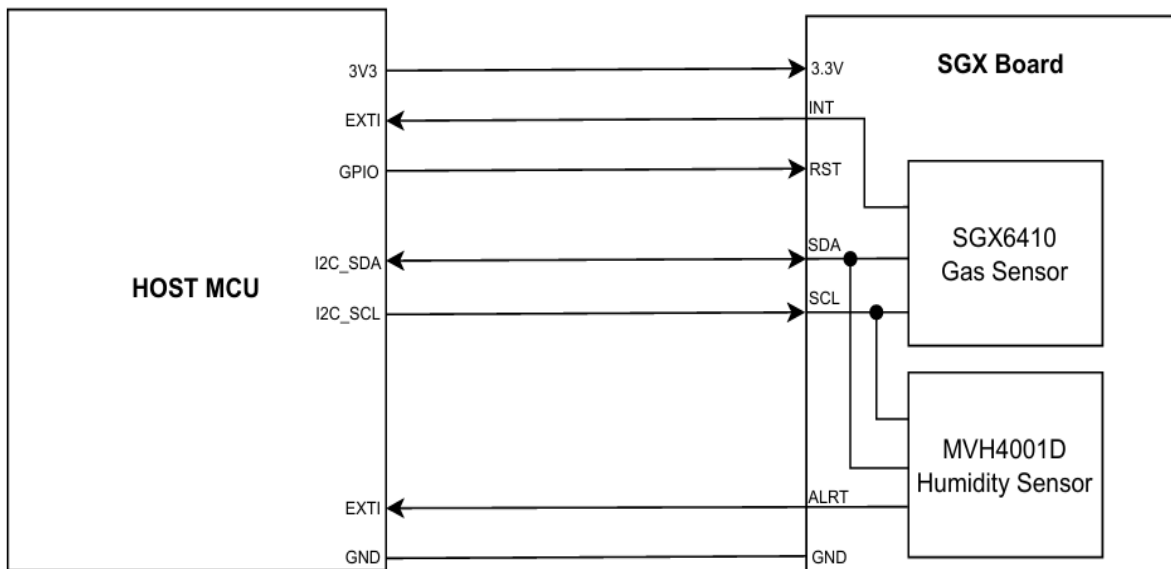


Figure 1. Wiring Diagram

2.0 I²C Solder Jumper Settings

I²C Pull-up resistors are disconnected by default (Connect them through the I²C-PU SB if the host board doesn't support I²C Pull-up resistors) as shown in [Figure 2](#).

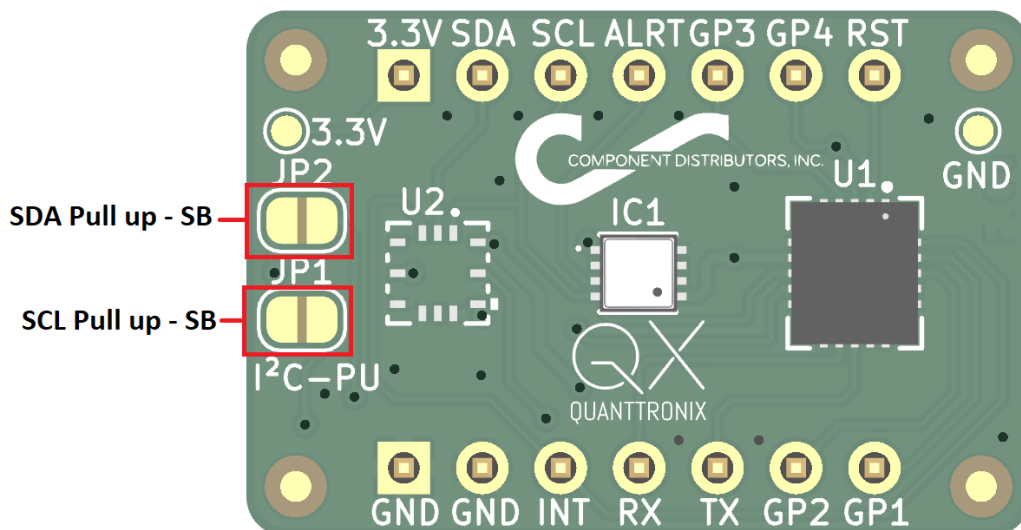


Figure 2. I²C Pull up Solder Jumpers

3.0 Pins Related to SGX6410 Sensor

PIN NAME	DESCRIPTION
RST	External reset. Active low.
+3.3V	Voltage supply for the SGX6410.
GND	Ground reference for the SGX6410.
SDA	Serial data for the I ² C interface.
SCL	Serial clock for the I ² C interface.
TX	TXD of UART interface.
RX	RXD of UART interface.
GP1	General purpose I/O. This can be an input or output.
GP2	General purpose I/O. This can be an input or output.
GP3	General purpose I/O. Set to always input.
GP4	General purpose I/O. Set to always input.
INT	Interrupt. Push-pull output. High when data is available and low when data is read out.

4.0 Pins Related to SGX4410 Sensor

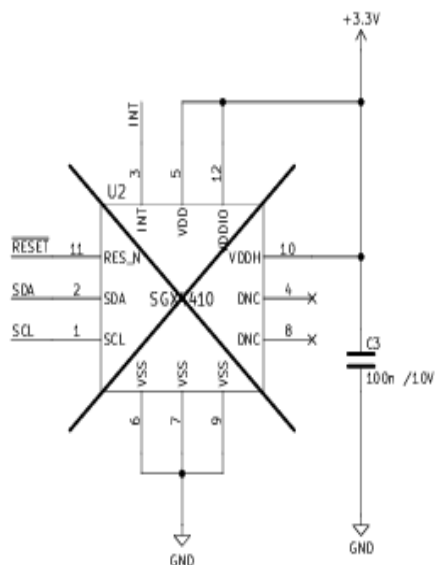
PIN NAME	DESCRIPTION
RST	SGX4410 reset; active low.
+3.3V	Voltage supply for the SGX4410.
GND	Ground reference for the SGX4410.
SDA	Serial data for the I ² C interface.
SCL	Serial clock for the I ² C interface.
INT	Interrupt signal (push-pull): - HIGH when a measurement is running. - LOW when a measurement has finished. Note: Use edge detection on falling edge!

5.0 Pins Related to MVH4001D Sensor

PIN NAME	DESCRIPTION
+3.3V	Positive supply.
GND	Negative supply or ground.
SDA	Serial data for the I ² C interface.
SCL	Serial clock for the I ² C interface.
ALERT	Digital output indicating an alarm condition. Leave floating if unused.

6.0 Schematic Diagram

Gas Sensor SGX4410



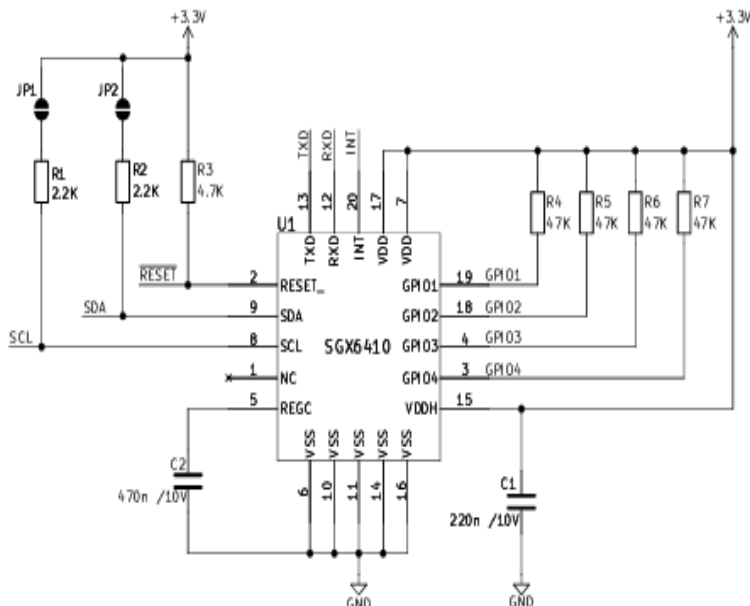
Circuit Reference

IPEAK = 16.32mA

I2C Slave Address = 0x32

Only one to be populate SGX6410 or SGX4410

Gas Sensor SGX6410



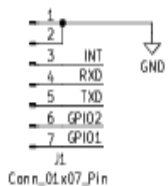
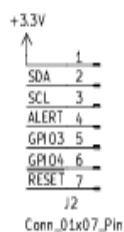
Circuit Reference

IPEAK = 23.6mA

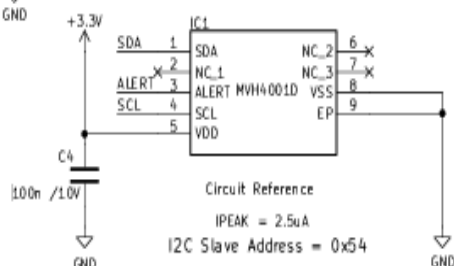
I2C Slave Address = 0x38

Only one to be populate SGX6410 or SGX4410

Connectors



Humidity Sensor MVH4001D

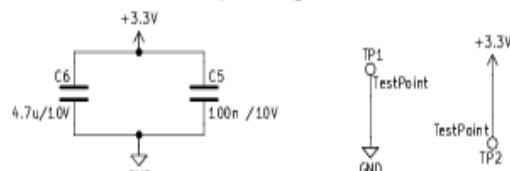


Circuit Reference

IPEAK = 2.5uA

I2C Slave Address = 0x54

Power Decoupling Test Points



7.0 Revision History

Date	Revision	Change
23-Sep-2026	1	Initial Release.