

# IM69D130 Microphone Shield2Go

Quick Start  
V1.0.1

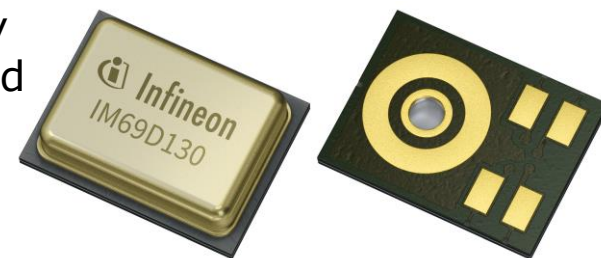


# Introduction

The IM69D130 MEMS microphone is designed for applications where low self-noise (high SNR), wide dynamic range, low distortions and a high acoustic overload point is required. Infineon's Dual Backplate MEMS technology is based on a miniaturized symmetrical microphone design, similar as utilized in studio condenser microphones, and results in high linearity of the output signal within a dynamic range of 105 dB. The microphone distortion does not exceed 1% even at sound pressure levels of 128 dB SPL. The flat frequency response (28 Hz low-frequency roll-off) and tight manufacturing tolerance result in close phase matching of the microphones, which is important for multi-microphone (array) applications.

With its low equivalent noise floor of 25 dB SPL (SNR 69 dB(A)) the microphone is no longer the limiting factor in the audio signal chain and enables higher performance of voice recognition algorithms. The digital microphone ASIC contains an extremely low-noise preamplifier and a high-performance sigma-delta ADC. Different power modes can be selected in order to suit specific current consumption requirements.

Each IM69D130 microphone is calibrated with an advanced Infineon calibration algorithm, resulting in small sensitivity tolerances ( $\pm 1$  dB). The phase response is tightly matched ( $\pm 2^\circ$ ) between microphones, in order to support beamforming applications.



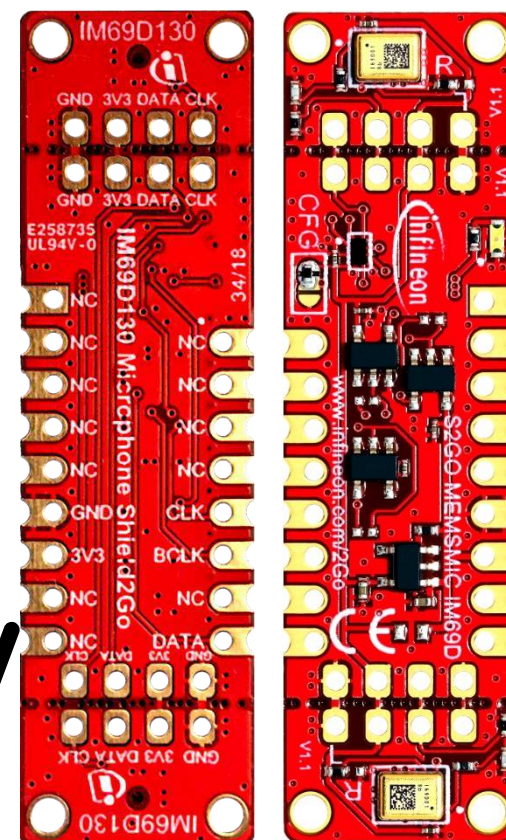
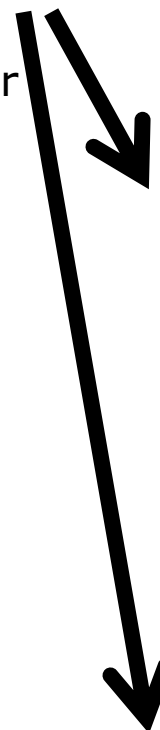
Link to [Datasheet](#) and [Product Page](#)

# Evaluation Board Notes

## Information

- Supply voltage is typ. 3.3 V for any pin, please refer to [IM69D130 datasheet](#) for more details about maximum ratings of the IM69D130 microphone itself (if microphone parts are broken off)
- Pin out on top and bottom is directly connected to the pins of the IM69D130 with channel select L/R if broken off
- If microphone parts are broken off, all pins of the IM69D130 except the SELECT one (preselected via 0 Ohm resistors) are available
- Software compatible with Arduino and examples fully integrated into the Arduino IDE
- Sales Name S2GO MEMSMIC IM69 and OPN S2GOMEMSMICIM69DTOBO1

Breakable



Ensure that no voltage applied to any of the pins exceeds the absolute maximum rating of the IM69D130 of 4 V

Link to [Board Page](#)

# Evaluation Board PCB Details

The

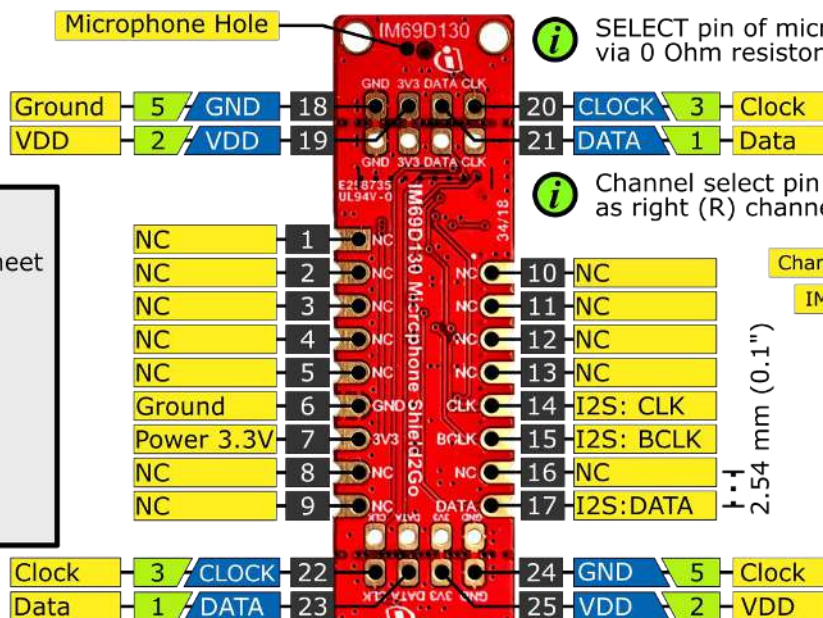
## IM69D130 Microphone Shield2Go



- i** Ground pins on board connected with each other.
- i** Components are mounted on the backside as microphones holes are on the front side.

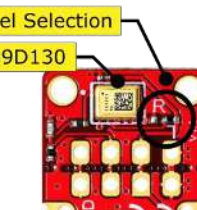
### Legend

<span style="background-color: yellow; border: 1px solid black; display: inline-block; width: 10px; height: 10px;"></span>	Information
<span style="background: linear-gradient(to right, blue 49%, white 49% 51%, white 51%); border: 1px solid black; display: inline-block; width: 10px; height: 10px;"></span>	Labelling of Pins in Datasheet
<span style="background: linear-gradient(to right, yellow 49%, white 49% 51%, white 51%); border: 1px solid black; display: inline-block; width: 10px; height: 10px;"></span>	Pin Number in Datasheet
<span style="background-color: black; color: white; border: 1px solid black; display: inline-block; width: 10px; height: 10px;"></span>	Physical Pin Number
	Warning
<b>i</b>	Additional Information
<span style="background-color: yellow; border: 1px solid black; padding: 2px;">NC</span>	Not Connected



**i** SELECT pin of microphones connected via 0 Ohm resistors to GND or VDD.

**i** Channel select pin of microphone set as right (R) channel on top.



**i** Back side of the board.

**i** The board uses an ADAU7002 to convert PDM to I2S.

The maximum voltage on any pin is typically 3.3 V - please refer to the schematics for the respective connections.

**i** The microphone and ADAU7002 VDD voltage level is 1.8 V which is level shifted to the board voltage of 3.3 V.

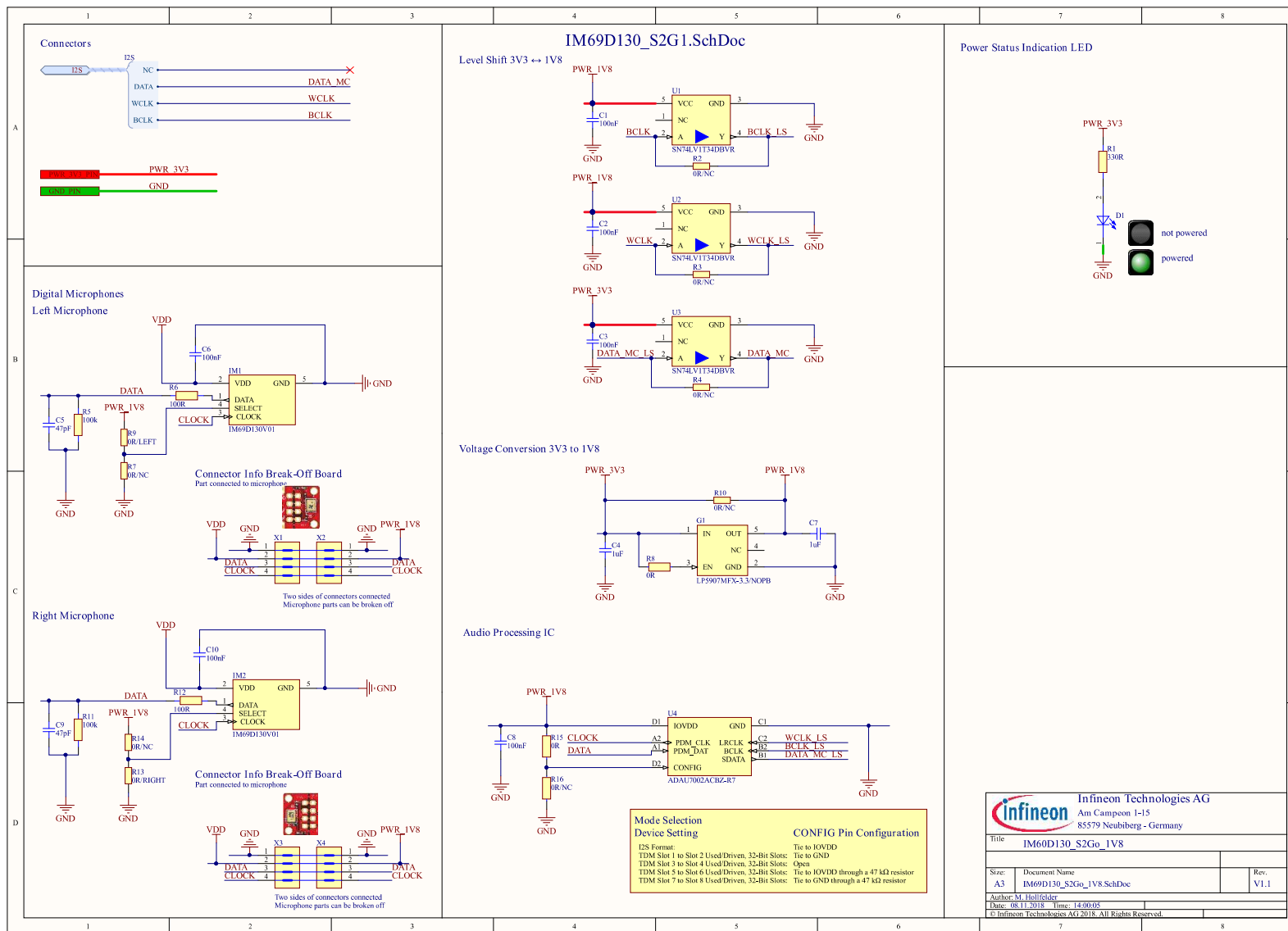
**i** The I2S pins have 3.3 V voltage logic level.

**i** Channel select pin of microphone set as left (L) channel on bottom.

V1.0.0

[www.infineon.com](http://www.infineon.com)

# Evaluation Board Schematic



# Arduino: The Arduino IDE

## Arduino IDE



Arduino is a hardware-software prototyping environment IDE developed by [arduino.cc](http://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](#)

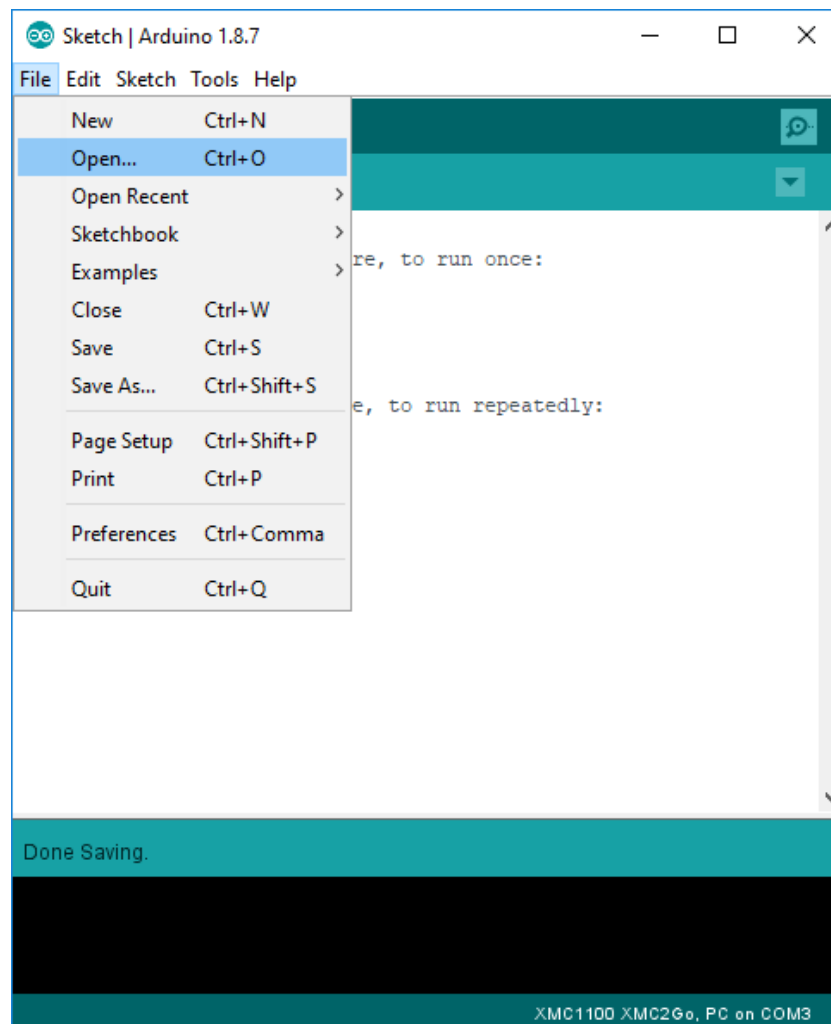
## Arduino Quick Start

- 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

# Generic examples for IM69D130 for Arduino

## Notes

- Download the examples from the repository [here](#)
- Download the repository and store the files at a place of your choice
- Open the Arduino IDE
- Navigate to *File – Open*
- Open one of the *.ino* files of the downloaded examples
- Additional notes for installation can be found in the GitHub repository in the README.md



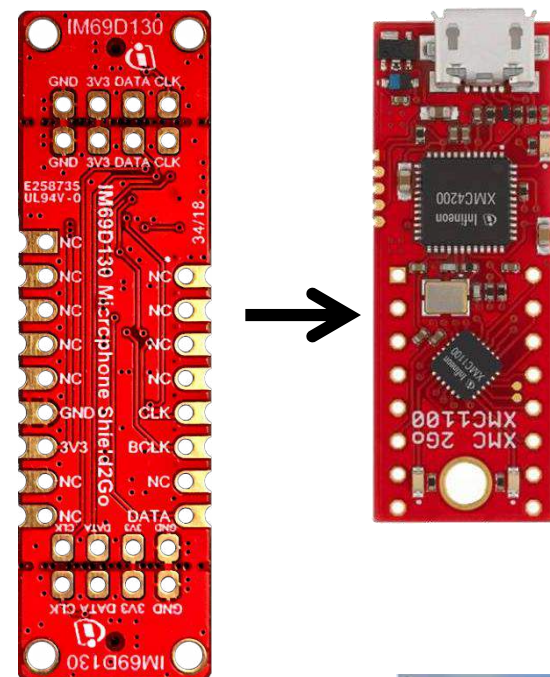
<https://github.com/Infineon/IM69D130-Microphone-Shield2Go/>



# Example with XMC 2Go

## Notes

- The Shield2Go form factor of the Shield2Go evaluation board is directly compatible with the [XMC 2Go](#) board
- Stack the IM69D130 Microphone 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 examples](#) for the IM69D130 can be directly used



## Steps

- Open one of the examples for the IM69D130 from *File – Open* 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 or plotter with the set baud rate (see sketch/code with `Serial.begin(<BAUDRATE>;)`)



<https://github.com/Infineon/XMC-for-Arduino>

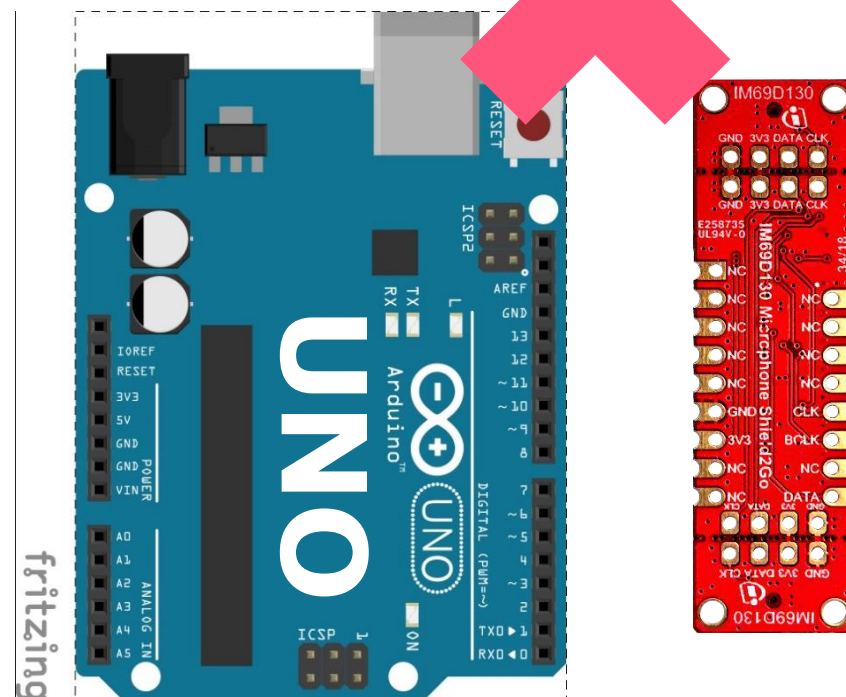
<https://github.com/Infineon/IM69D130-Microphone-Shield2Go/>



# Important Warning

## Important Warnings

- The board has a typical rating of 3.3 V
- The IM69D130 Microphone Shield2Go cannot only be used if the respective microcontroller supports I2S protocol
- Third party boards with 5 V logic cannot be connected to the IM69D130 Microphone Shield2Go board directly, even if the power is connected to the 3.3 V pin as the interface lines, e.g. CLK/DATA, will still be driven by 5 V
- Arduino UNO does not support I2S
- Please use appropriate level shifting for these boards



**Not possible**



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