Sensors / Microphone / Sound

Adafruit I2S MEMS Microphone Breakout - SPH0645LM4H

Product ID: 3421

$6.95

1

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Description

Listen to this good news - we now have a breakout board for a super tiny **I2S** MEMS microphone. Just like 'classic' electret microphones, MEMS mics can detect sound and convert it to voltage, but they're way smaller and thinner. This microphone doesn't even have analog out, it's purely digital. The I2S is a small, low-cost MEMS mic with a range of about 50Hz - 15KHz, good for just about all general audio recording/detection.

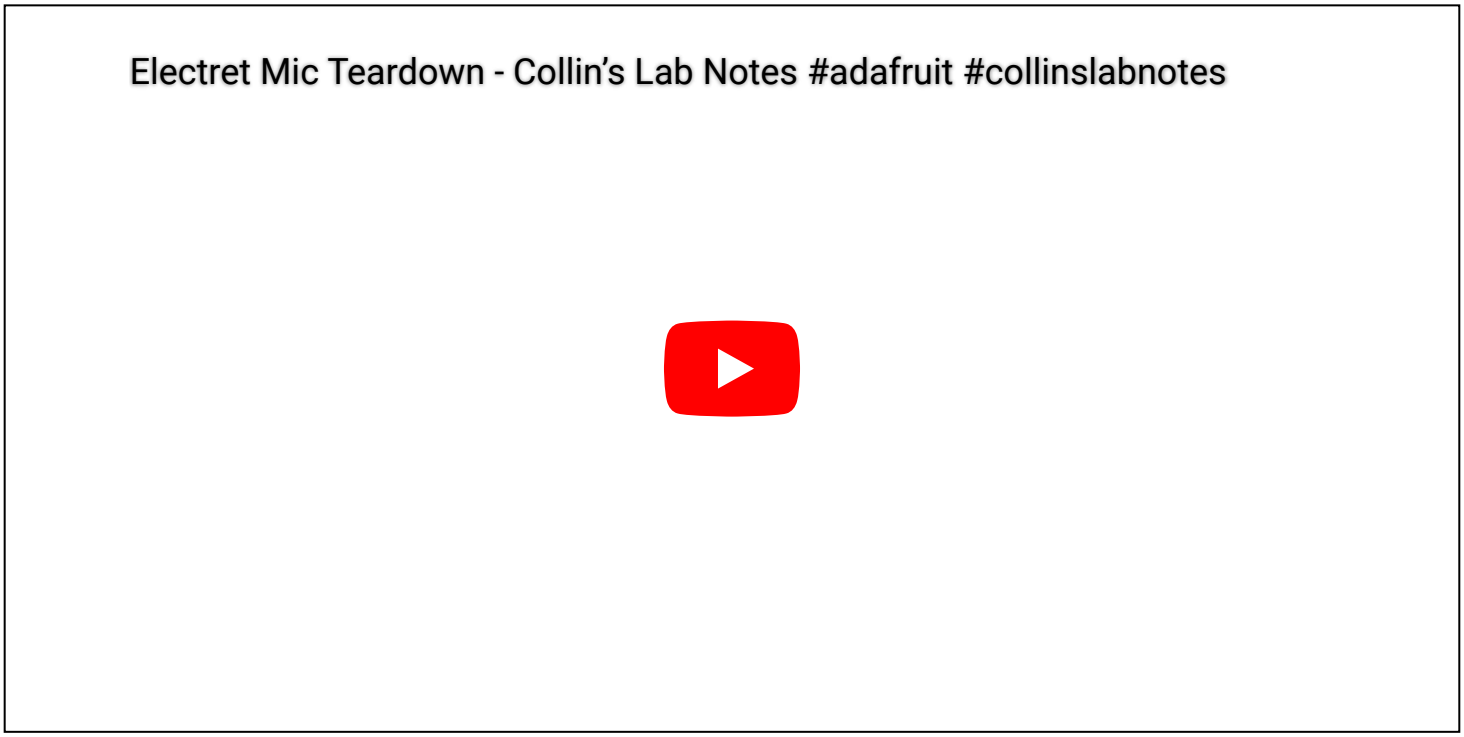
For many microcontrollers, adding audio input is easy with one of our analog microphone breakouts. But as you get to bigger and better microcontrollers and microcomputers, you'll find that you don't always have an analog input, or maybe you want to avoid the noise that can seep in with an analog mic system. Once you get past 8-bit micros, you will often find an **I2S** peripheral, that can take *digital audio data* in! That's where this **I2S Microphone Breakout** comes in.

Instead of an analog output, there are three digital pins: Clock, Data, and Left-Right (Word Select) Clock. When connected to your microcontroller/computer, the 'I2S Controller' will drive the clock and word-select pins at a high frequency and read out the data from the microphone. No analog conversion required!

The microphone is a single mono element. You can select whether you want it to be on the Left or Right channel by connecting the Select pin to power or ground. If you need stereo, pick up two microphones! You can set them up to be stereo by sharing the Clock, WS, and Data lines but having one with Select to ground, and one with Select to high voltage.

This I2S MEMS microphone is bottom ported, so make sure you have the hole in the bottom facing out towards the sounds you want to read. It's a 1.6-3.6V max device only, so not for use with 5V logic (it's really unlikely you'd have a 5V-logic device with I2S anyways). Many beginner microcontroller boards *don't* have I2S, so make sure it's a supported interface before you try to wire it up! This microphone is best used with Cortex M-series chips like the Arduino Zero, Feather M0, or single-board computers like the Raspberry Pi.

For code, libraries, wiring examples, CAD files, Fritzing, and more, check out the guide!



Technical Details

For code, libraries, wiring examples, CAD files, Fritzing and more, check out the guide!

Revision History:

- **As of November 23, 2022** – we've updated this PCB with Adafruit Pinguin to make a lovely and legible silkscreen - you may get the new PCB or the older version with vector fonts - both are identical other than the fancy silkscreen.

Product Dimensions: 16.7mm x 12.7mm x 1.8mm / 0.7" x 0.5" x 0.1"

Product Weight: 0.4g / 0.0oz

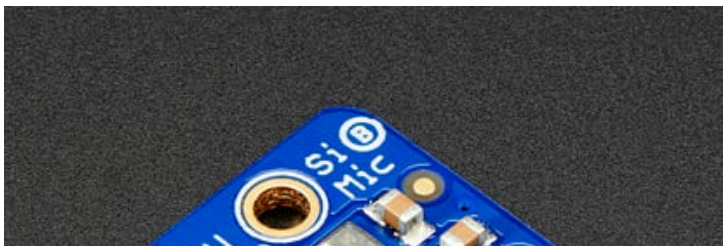
Datasheet

Learn

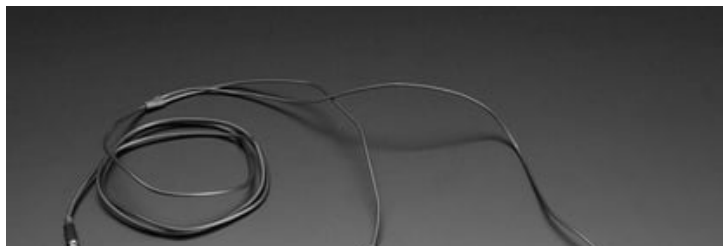
Adafruit I2S MEMS Microphone Breakout

Digital MEMS Mic Madness!

May We Also Suggest...

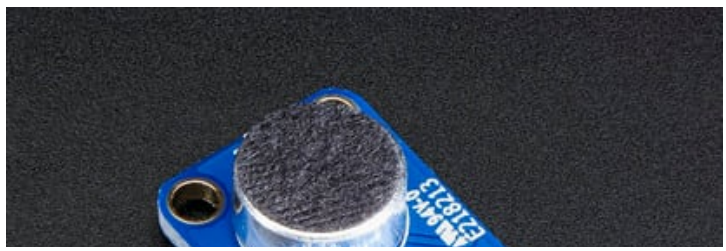


Adafruit Silicon MEMS Microphone Breakout - SPW2430

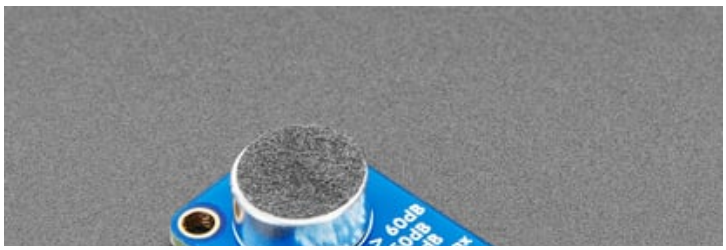


Cell-phone TRRS Headset - Earbud Headphones w/ Microphone

Electret Microphone - 20Hz-20KHz Omnidirectional



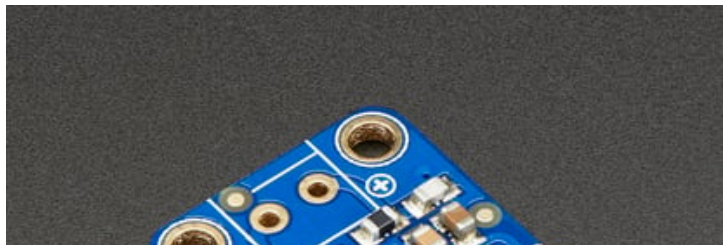
Electret Microphone Amplifier - MAX4466 with Adjustable Gain



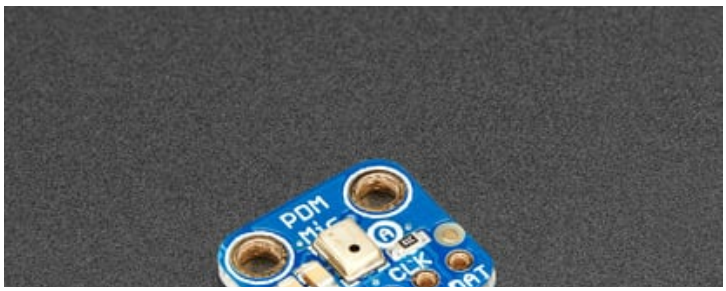
Electret Microphone Amplifier - MAX9814 with Auto Gain Control

Wired Miniature Electret Microphone

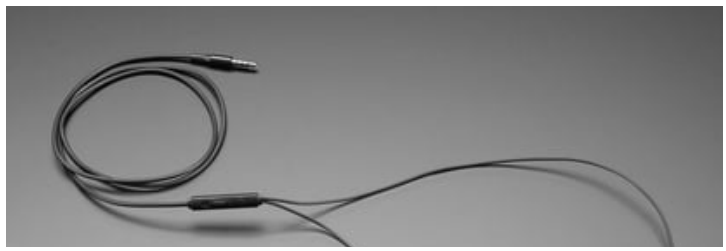
Mini USB Microphone



Adafruit I2S 3W Class D Amplifier Breakout - MAX98357A



Adafruit PDM MEMS Microphone Breakout



Analog Potentiometer Volume Adjustable TRRS Headset

Adafruit PDM Microphone Breakout with JST SH Connector

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