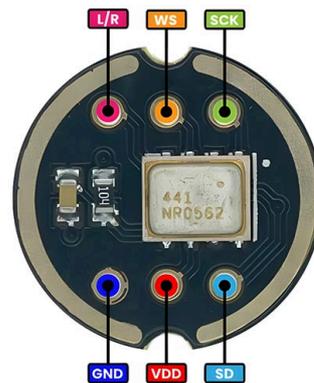COMPONENTS 101 (/)

INMP441 MEMS High Precision Omnidirectional Microphone Module

27 October 2023 - 0 Comments

(/sites/default/files/components/INMP441-module.jpg)

INMP441 Microphone

(/sites/default/files/component_pin/INMP441-Pinout.jpg)

INMP441 Microphone Pinout

The INMP441 mems sensor is a high-performance, low-power digital I2S output omnidirectional MEMS microphone. Built on a compact footprint, this module is specifically designed for advanced audio and voice recognition applications. With its inherent low-noise and high Signal-to-Noise Ratio (SNR) attributes, it offers crystal-clear audio capture even in challenging environments. Its compatibility with the I2S interface, a standard used for transmitting digital audio between devices, ensures that it can be integrated into a diverse range of audio processing setups. The **INMP441 microphone module** is an invaluable component for developers looking to incorporate superior audio input capabilities into their projects.

INMP441 Pinout

The INMP441 microphone modules have six pins, three on each side as shown in the above pinout image. The **inmp441 pins** on the module are spaced in such a way that it can be easily mounted on a breadboard. The pin definition for INMP441 microphone module is shown below.

PIN	FUNCTION
SCK	Serial-Data Clock for I²S Interface

SD	Serial-Data Output for I²S Interface. This pin tri-states when not actively driving the appropriate output channel.
WS	Serial Data-Word Select for I²S Interface
L/R	Left/Right Channel Select. When set low, the microphone outputs its signal in the left channel of the I²S frame. When set high, the microphone outputs its signal in the right channel.
VDD	Power, 1.8 V to 3.3 V
GND	Ground.

Features of INMP441Microphone Module

- Digital I²S Interface with High-Precision 24-Bit Data
- High SNR of 61 dBA
- High Sensitivity of -26 dBFS
- Flat Frequency Response from 60 Hz to 15 kHz
- Low Current Consumption of 1.4 mA
- High PSR of -75 dBFS
- Small 4.72 × 3.76 × 1 mm Surface-Mount Package
- Compatible with Sn/Pb and Pb-Free Solder Processes
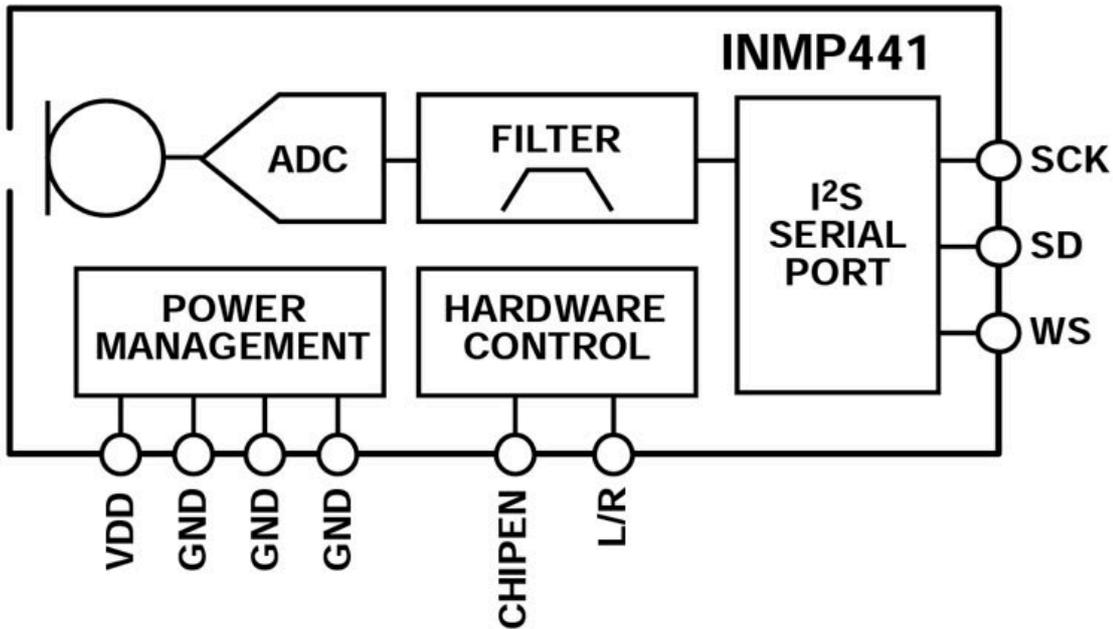- RoHS/WEEE Compliant

Other Popular MEMS Microphones

ICS-43434, SPH0645, MSM261S4030H0

Note: Complete technical details can be found in the **INMP441 microphone datasheet** at this page's end.
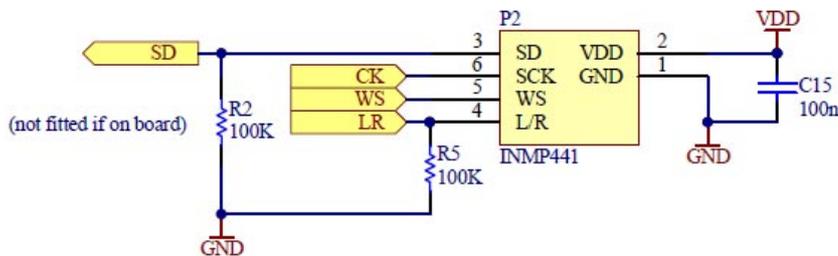
-52%

US $10.41   US

Functional Block Diagram of INMP441 MEMS Microphone

The above image shows the functional block diagram of an INMP441 MEMS microphone. The INMP441 sensor contains a MEMS sensor, signal conditioning, an ADC, anti-aliasing filters, power management, and an industry-standard 24-bit I2S interface all in a small and compact package.

INMP441 Module Schematic Diagram

The image below shows the schematic diagram of INMP441 module. Schematics itself is pretty simple. Only a filter capacitor and two pull down resistors are used.
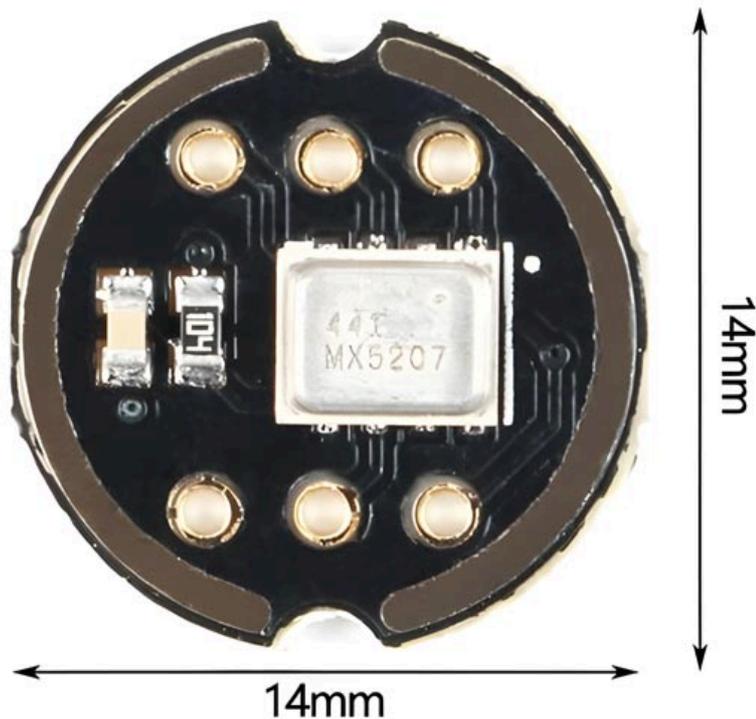

APPLICATIONS

- Teleconferencing Systems
- Remote Controls
- Gaming Consoles
- Mobile Devices
- Laptops
- Tablets
- Security Systems

2D-Model and Dimensions

Below is the 2D CAD drawing of **INMP441 module** along with its dimensions in millimeters. The dimensions can be used to create custom footprints of the module and be used for PCB or CAD modeling.

Component Datasheet

INMP441 Datasheet

(https://components101.com/sites/default/files/component_datasheet/INMP441.pdf)

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