

I²S Output MEMS Microphone Flex Evaluation Board

GENERAL DESCRIPTION

This user guide applies to the following MEMS microphone evaluation boards:

- EV_INMP441-FX
- EV_ICS-43432-FX

These are simple evaluation boards that allows quick evaluation of the performance of the INMP441 and ICS-43432 MEMS microphones. The small size and low profile of the flexible PCB enables direct placement of the microphone into a prototype or an existing design for an in situ evaluation. The board consists of an I²S-output microphone soldered to a flexible PCB. The only other component on the board is a 0.1 μF supply bypass capacitor.

The flex PCB is designed to mate to a ZIF connector with 1.0 mm pin spacing. The Molex 52610-1071 connector is included in the kit with the flex PCB. The flex PCB can be mated to the connector by first pulling out the connector's tan clamp, inserting the flex PCB, and then pushing the clamp closed. Wires can be soldered directly to this connector's pins or it can be mounted directly on a rigid PCB for evaluation. It is recommended to use 28 AWG or smaller wire for soldering to this connector's pins. The PCB thickness at the pin edge is 0.3 mm.

TABLE 1. PIN FUNCTION DESCRIPTIONS

Wire Color	Microphone Pin	Description
1	GND	Ground
2	SD	Serial digital output signal for I ² S interface
3	SCK	Serial clock for I ² S interface
4	WS	Word select for I ² S interface
5	L/R	Left/right channel select
6	GND	Ground
7	VDD	Power supply (1.8-3.3 V and 2 mA maximum)
8	GND	Ground
9	CHIPEN (INMP441) CONFIG (ICS-43432)	Chip enable Set to GND
10	GND	Ground

The only functional difference between the boards with the two different microphones mounted is the function of pin 9 on the connector. On the EV_INMP441-FX, this pin is an active-high enable for the microphone. For the EV_ICS-43432-FX, this pin should be set to ground. All pin function descriptions are described in Table 1.

EVALUATION BOARD CIRCUIT

Figure 1 and Figure 2 show the schematics of the evaluation boards, and Figure 3 and Figure 4 show the flex board layouts. See the respective microphone data sheets for complete descriptions and specifications of the microphones.

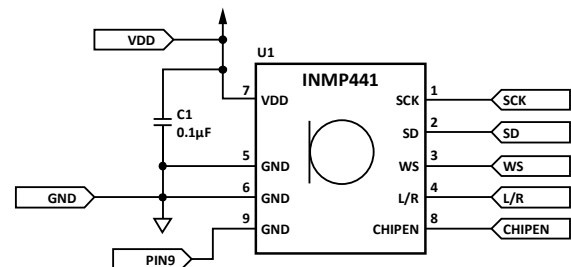


Figure 1. EV_INMP441-FX Evaluation Board Schematic

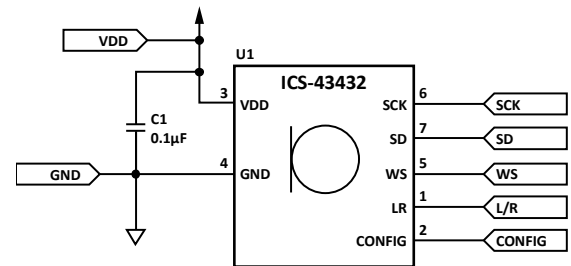


Figure 2. EV_ICS-43432-FX Evaluation Board Schematic

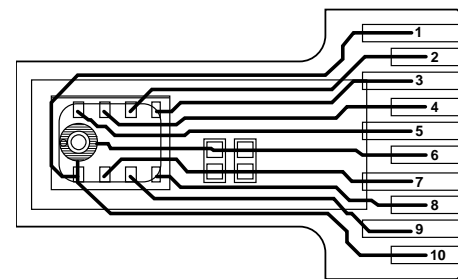


Figure 3. EV_INMP441-FX Evaluation Board Layout (Top View)

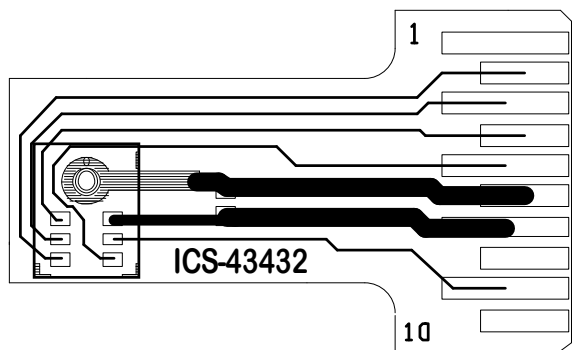


Figure 4. EV_ICs-43432-FX Evaluation Board Layout (Top View)

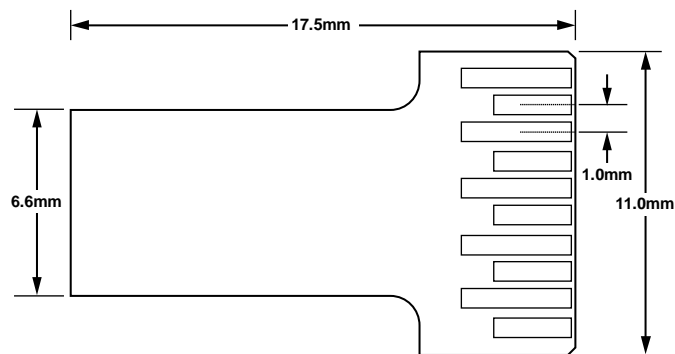


Figure 5. Evaluation Board Dimensions in Millimeters

EVALUATION BOARD PHOTOGRAPHS

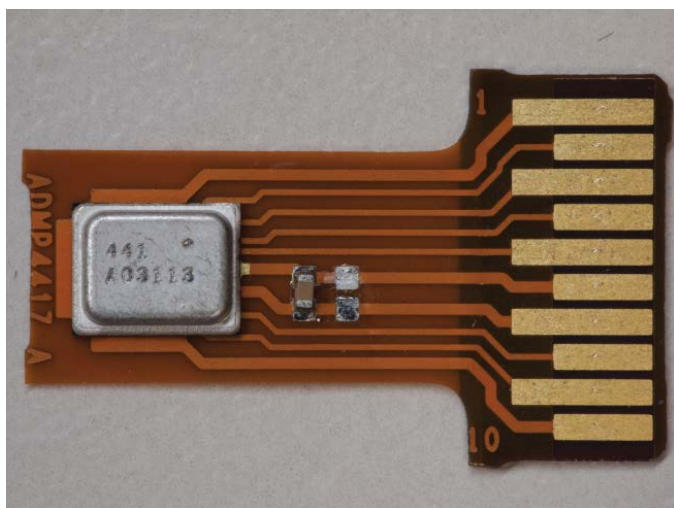


Figure 6. EV_INMP441-FX Top View

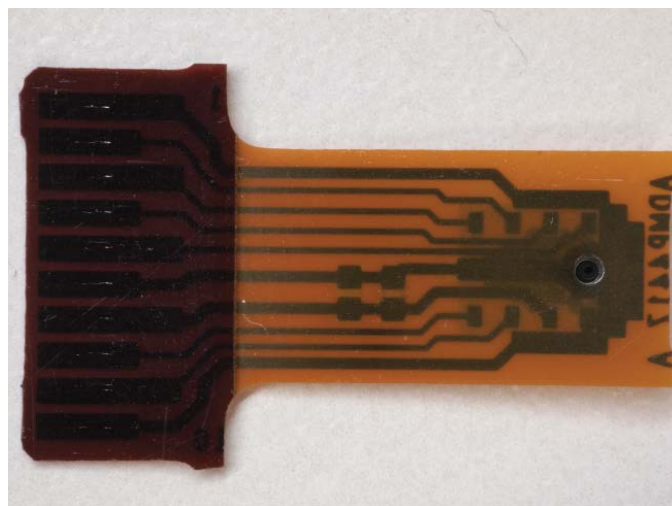


Figure 8. EV_INMP441-FX Bottom View

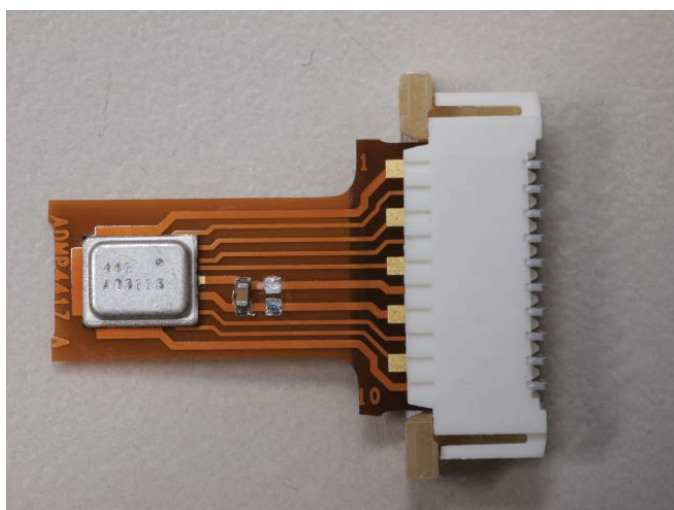


Figure 7. EV_INMP441-FX Flex PCB with Molex ZIF Connector

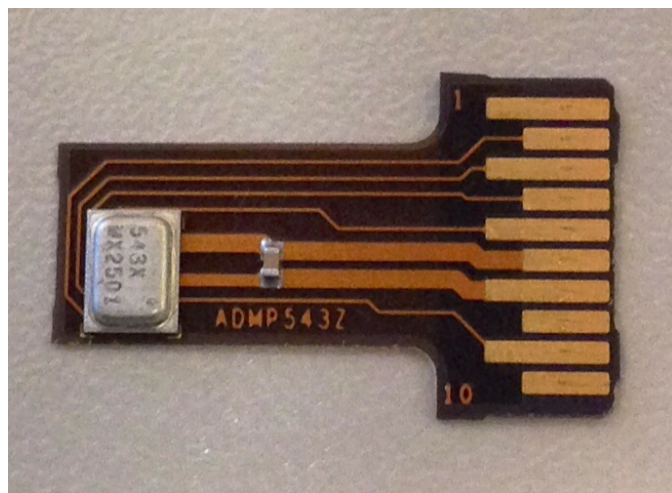


Figure 9. EV_IC5-43432-FX Top View

REVISION HISTORY

Revision Date	Revision	Description
07/23/2014	1.2	Initial Release

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