Analog Output MEMS Microphone Flex Evaluation Board User Guide

GENERAL DESCRIPTION

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

- EVAL-INMP404Z-FLEX
- EVAL-INMP405Z-FLEX
- EVAL-INMP504Z-FLEX
- EVAL-INMP510Z-FLEX
- EVAL-INMP801Z-FLEX
- EV_ICS-40180-FX
- EV_ICS-40310-FX

**THIS IS A SIMPLE EVALUATION BOARD THAT
OF THE PERFORMANCE OF SINGLE-ENDED ANALOG
MICROPHONES. THE SMALL SIZE AND LOW PROFILE
PCB ENABLES DIRECT PLACEMENT OF THE
PROTOTYPE OR AN EXISTING DESIGN FOR AN IN
EVALUATION BOARD CONSISTS OF A BOTTOM PORT
SOLDERED TO A FLEXIBLE PCB WITH COLOR-CODED
THE ONLY OTHER COMPONENT ON THE BOARD IS A
BYPASS CAPACITOR.**

Table 1 describes the functions of the three connection wires. Table 2 describes the functional differences between the different microphones that are used with this flex circuit.

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TABLE 1. PIN FUNCTION DESCRIPTIONS

Wire Color	Microphone Pin	Description
Red	VDD	Power Supply. 1.5 V DC to 3.6 V DC; (0.9 V DC to 1.3 V DC for ICS-40310 and INMP801)
White	OUTPUT	Analog Output Signal
Black	GND	Ground

TABLE 2. MICROPHONE FUNCTIONAL DIFFERENCES

Microphone	Maximum Supply Current	Maximum Output Voltage	Output Impedance	DC Offset
INMP404	250 µA	0.18 V rms	200 Ω	0.8 V
INMP405	250 µA	0.18 V rms	200 Ω	0.8 V
INMP504	225 µA	0.18 V rms	200 Ω	0.8 V
INMP510	250 µA	0.40 V rms	350 Ω	0.7 V
INMP801	23 µA	0.13 V rms	4.5 kΩ	0.57 V
ICS-40180	260 µA	0.40 V rms	350 Ω	0.7 V
ICS-40310	25 µA	0.12 V rms	4.5 kΩ	0.57 V

EVALUATION BOARD CIRCUIT

Figure 1 shows the schematic of the evaluation board, and Figure 2 shows the flex board layout. See the respective microphone data sheets for complete descriptions and specifications of the microphones. Note that the layout for the EV_ICS-40180-FX differs slightly from what is shown in Figure 2 because of this part's different package footprint, but the routing of the three signals is consistent.

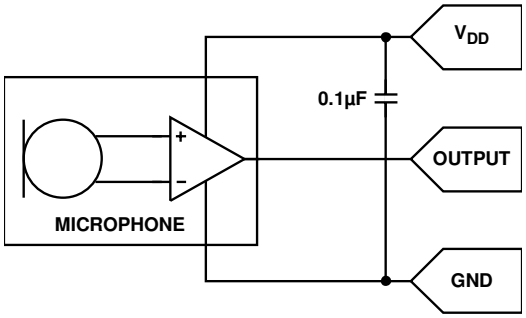

Figure 1. Evaluation Board Schematic

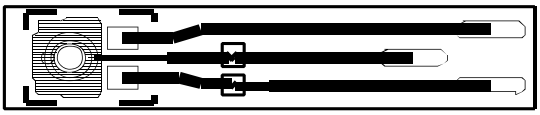

Figure 2. Evaluation Board Layout (Top View)

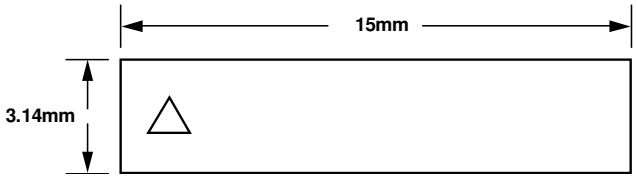

Figure 3. Evaluation Board Dimensions in Millimeters (Wires Not Included)

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EVALUATION BOARD PHOTOGRAPH

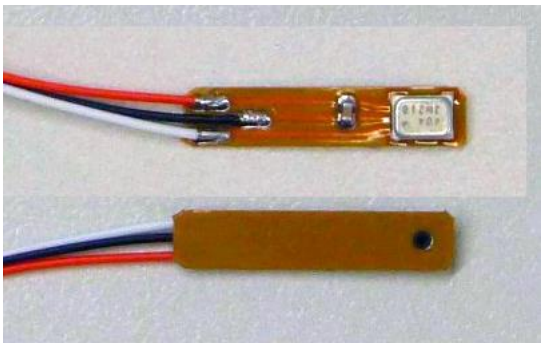

Figure 4. Top and Bottom View

COMPLIANCE DECLARATION DISCLAIMER

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