

## PDM Digital Output MEMS Microphone Evaluation Board

### GENERAL DESCRIPTION

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

- [EVAL-ADMP421Z-FLEX](#)
- [EVAL-ADMP521Z-FLEX](#)
- [EVAL-ADMP522Z-FLEX](#)
- [EVAL-ADMP621Z-FLEX](#)

The EVAL-ADMPxxxZ-FLEX is a simple evaluation board that allows quick evaluation of the performance of PDM output MEMS microphones in a package with 4.00 mm × 3.00 mm footprint size. The small size and low profile of the flexible printed circuit board (PCB) enable direct placement of the microphone into a prototype or an existing design for an in situ evaluation. The evaluation board consists of a bottom port microphone and a 0.1 μF bypass capacitor soldered to a flexible PCB with color-coded wires attached. Stereo PDM microphones can be evaluated by connecting the DATA wires from two flex boards, while tying the L/R SELECT wire of one to V<sub>DD</sub> and the other to GND.

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

**Table 1. Pin Function Descriptions**

Wire Color	Microphone Pin	Description
Blue	DATA	PDM digital output signal.
Red	V <sub>DD</sub>	Power supply, 1.62 V to 3.63 V dc.
White	CLK	Clock input
Black	GND	Ground.
Yellow	L/R SELECT	Left /right channel select. DATA1 (right): L/R SELECT tied to GND. DATA2 (left): L/R SELECT pulled to V <sub>DD</sub> .

**Table 2. Microphone Functional Differences**

Microphone	Maximum Supply Current	Sensitivity	Clock Frequency
<a href="#">ADMP421</a>	0.65 mA	-26 dBFS	1.0 MHz to 3.3 MHz
<a href="#">ADMP521</a>	1.2 mA	-26 dBFS	1.25 MHz to 3.072 MHz
<a href="#">ADMP522</a>	1.2 mA	-26 dBFS	0.9 MHz to 3.6 MHz
<a href="#">ADMP621</a>	1.3 mA	-46 dBFS	0.9 MHz to 3.6 MHz

### EVALUATION BOARD CIRCUIT

Figure 2 and Figure 3 show the schematic and the layout of the flex board. See the respective microphone data sheets for complete descriptions and specifications of the microphones.

### EVALUATION BOARD PHOTO

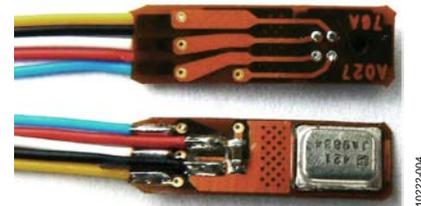


Figure 1.

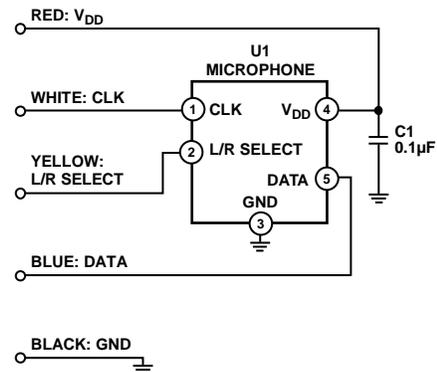


Figure 2. Evaluation Board Schematic

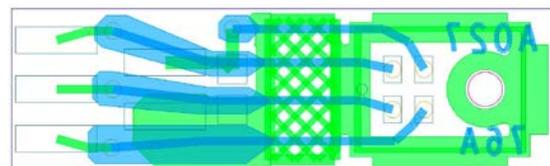


Figure 3. Evaluation Board Layout

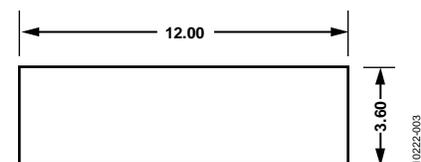


Figure 4. Evaluation Board Dimensions in mm (Wires Not Included)

## NOTES

**ESD Caution**

**ESD (electrostatic discharge) sensitive device.** Charged devices and circuit boards can discharge without detection. Although this product features patented or proprietary protection circuitry, damage may occur on devices subjected to high energy ESD. Therefore, proper ESD precautions should be taken to avoid performance degradation or loss of functionality.

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