

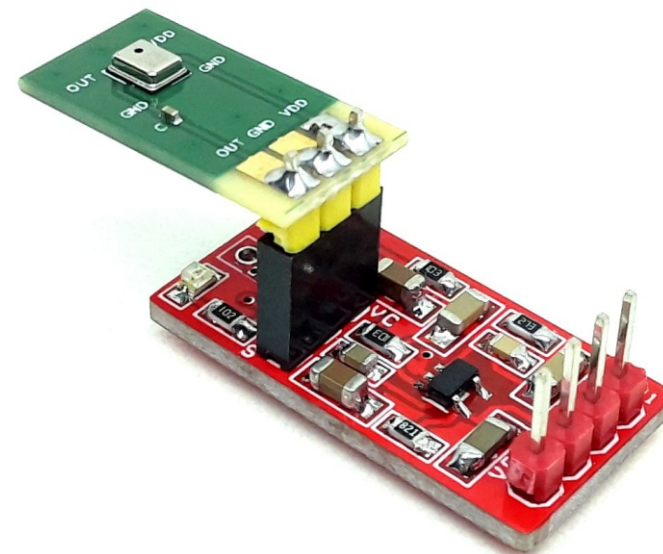
Pre-Amplifier for MEMS Microphone

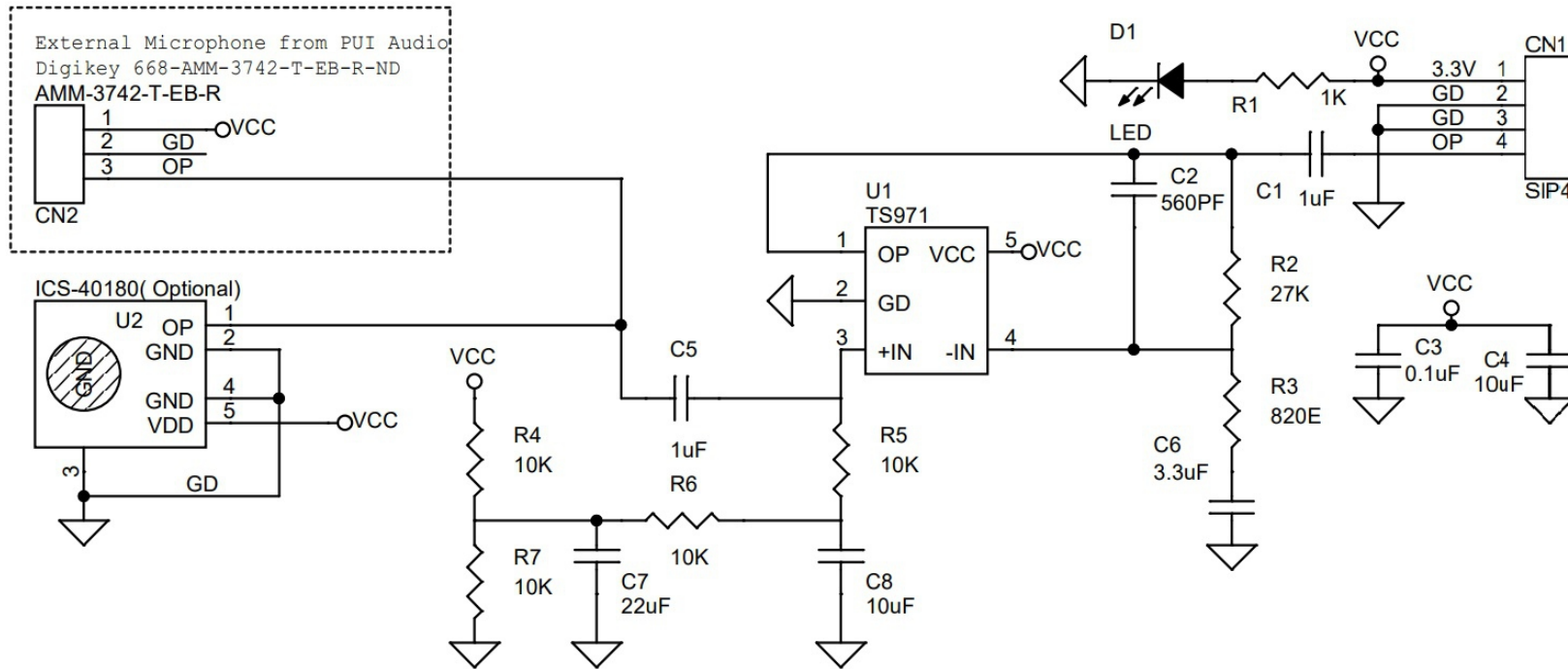
This is a low-cost, small-size audio pre-amplifier for MEMS microphone, OPAMP-based circuit amplifies the low-level analog signal coming from MEMS microphone to the desired level required for the next stage which is an audio amplifier, basically microphone level to line level.

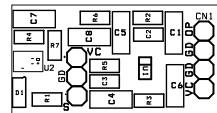
Resistor R4 and R7 are used to generate a voltage reference to bias the input common-mode voltage of the op-amp at $V_{CC}/2$, C7, C8, and R7 help to reduce power supply noise. R5 and C5 allow AC coupling of the microphone signal. R2 and C2 create a low-pass gain so as not to amplify noise beyond the audio bandwidth. R3 and C6 create a high-pass gain so as not to amplify the DC biasing of the op-amp (including input offset voltage). The cut-off frequency is 59 Hz. D1 is a power LED, this board has a dual option for MEMS microphones. Users may solder onboard microphones or connect external microphones. This board is tested with external Analog MEMS microphone modules from PUI Audio which comes with 3 connections VCC, GND, and output.

Features

- Supply 3.3V
- Very Low Noise Output
- On Board Power LED
- Dual Microphone Option (Onboard or External Microphone)
- PCB Dimensions 27.78 x 14.29 mm

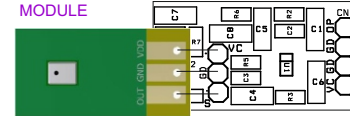






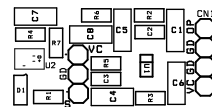
OUTPUT
GND
GND
VCC 3.3V DC

PUI MICROPHONE MODULE

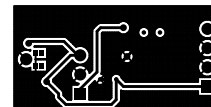


OUTPUT
GND
GND
VCC 3.3V DC

BOM						
NO.	QNTY.	REF.	DESC.	MANUFACTURER	SUPPLIER	SUPPLIER PART NO
1	1	CN1	4 PIN MALE HEADER CONNECTOR PITCH 2.54MM	WURTH	DIGIKEY	732-5317-ND
2	1	CN2	AMM-3742-T-EB-R	PUI AUDIO	DIGIKEY	668-AMM-3742-T-EB-R-ND
3	2	C1,C5	1uF/25V SMD SIZE 1206	MURATA/YAGEO	DIGIKEY	
4	1	C2	560PF/50V SMD SIZE 0805	MURATA/YAGEO	DIGIKEY	
5	1	C3	0.1uF/50V SMD SIZE 0805	MURATA/YAGEO	DIGIKEY	
6	2	C4,C8	10uF/6.3V SMD SIZE 1206	MURATA/YAGEO	DIGIKEY	
7	1	C6	3.3uF/10V SMD SIZE 1206	MURATA/YAGEO	DIGIKEY	
8	1	C7	22uF/10V SMD SIZE 1206	MURATA/YAGEO	DIGIKEY	
9	1	D1	LED SMD SIZE 0805	LITE ON INC	DIGIKEY	160-1427-1-ND
10	1	R1	1K 5% SMD SIZE 0805	MURATA/YAGEO	DIGIKEY	
11	1	R2	27K 5% SMD SIZE 0805	MURATA/YAGEO	DIGIKEY	
12	1	R3	820E 5% SMD SIZE 0805	MURATA/YAGEO	DIGIKEY	
13	4	R4,R5,R6,R7	10K 5% SMD SIZE 0805	MURATA/YAGEO	DIGIKEY	
14	1	U1	TS971	ST	DIGIKEY	497-8150-1-ND
15	1	U2	ICS-40180(Optional) DO NOT POPULATE	TDK		



SILK SCREEN TOP



BOTTOM LAYER



TOP LAYER

PCB DIMENSIONS 27.78MM X 14.29MM