Audio Record & Playback - APR2060

Can record and playback audio of total 40 seconds (1 channel of 40 seconds or 2 channels of 20 second each or 4 channels of 10 second each) at 12 Khz sampling rate.

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Introduction

Offers true solid state storage capability and requires no software or microcontroller support. It provides high quality recording and playback with 40 seconds audio at 12 Khz Sampling rate with 16 bit resolution. Using on board jumpers, total duration can be divided in individual triggers of 1,2 & 4 segments which can be triggered by onboard switches or external low trigger like microcontroller pins.

Features

- LEDs indicator for Power, Record Mode or Busy Status
- Easy to use, Works out of the box without any configuration
- Direct Microcontroller interfacing connector
- User friendly, easy to use, Reliable Operation
- Can drive speaker directly
- Voltage 3V-6V operation
- Audio can be recorded by on board MIC or external source
- 40 seconds of recording duration selectable in total 1,2,4 segments
- Single chip, high quality voice recording and playback solution
- Non - Volatile - flash memory technology, no battery backup required

Applications

- Audio announcement Systems
- Toys & Robots
- Leave Message system
- Answering machine projects
- Fault notification systems

Quick Testing Process

Recording

1) Position the switch to REC mode, The red LED next to it will come on indicating record mode.
2) Connect Speaker to terminal
3) Give 5V power
4) Press SW1 briefly, Yellow LED will come on indicating busy mode, Say something in MIC,
You can press SW1 again to stop recording. Yellow LED will go off indicating idle mode.


Switch to LEFT side for recording RIGHT side for PLAY

Give Power

SPEAKER
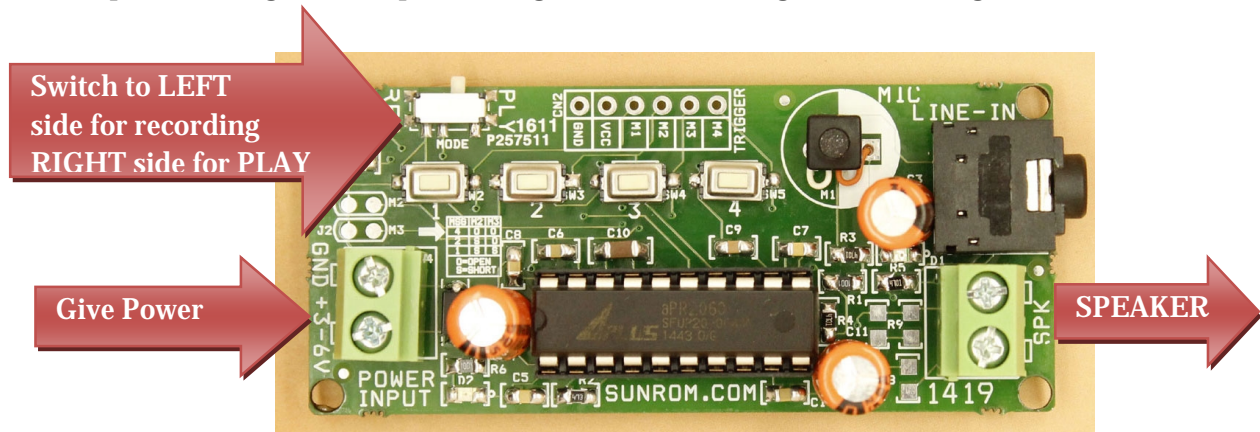
Playback

1) Position the switch to PLAY mode. red LED will go off.
2) Press the SW1 and you can hear what you just recorded

Interfacing with Microcontroller

If you want to operate with microcontroller then it's very simple to connect just 6 pins of modules like below. Bringing a pin LOW will trigger a message. Same I/O is connected to on board switches to ground. So trigger can come either from on board switch or external interfacing with microcontroller.

Audio Board - Trigger		Microcontroller
GND	⬛	GND
VCC	🟥	+3/5V
M1	⬅	M1
M2	⬅	M2
M3	⬅	M3
M4	⬅	M4
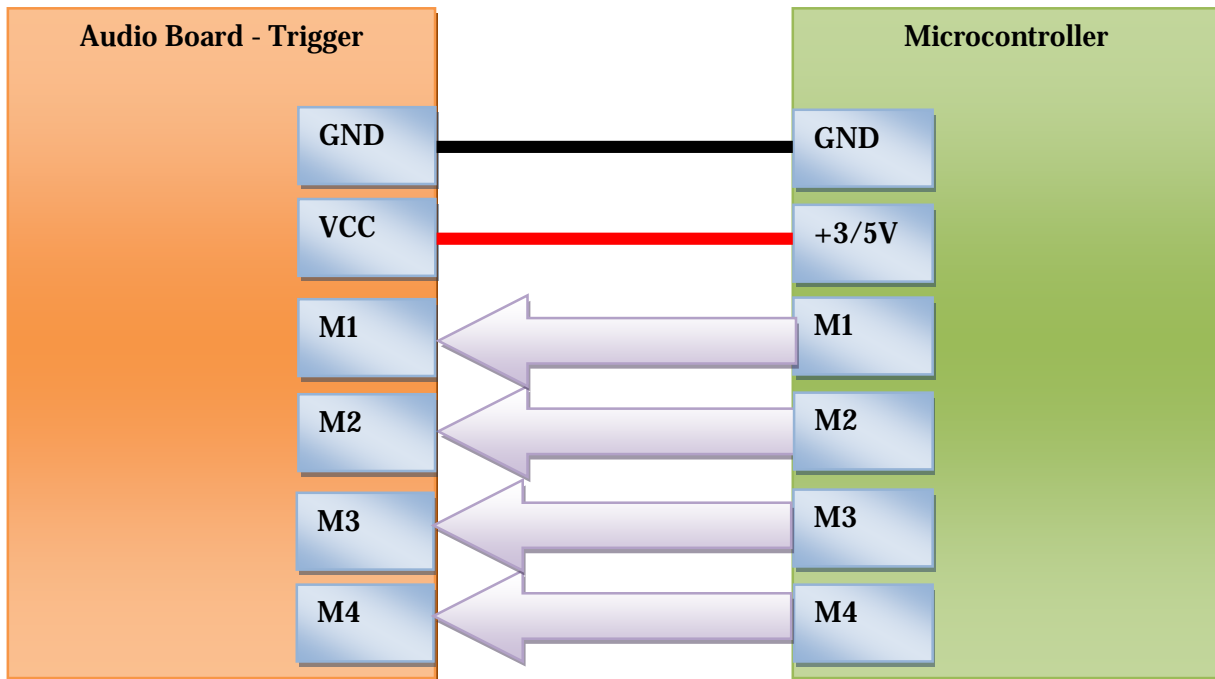
Module 6 Pin Interfacing

Pin	Details
GND	Common Ground
VCC	Regulated positive power input 3.3V to 5V DC is recommended
M1-M4	Trigger Input - Active Low

Specifications

Parameter	Value
Working Voltage	3.3V to 6.5V DC regulated power supply (5V recomended)
Current Consumption	50 mA
Sampling Rate	12 Khz
On Board chipset	APR2060
Recording channels	1, 2 or 4 Channels
Recording Capacity	40 Seconds in total
Speaker	8 to 32 Ohms directly

Board Schematic
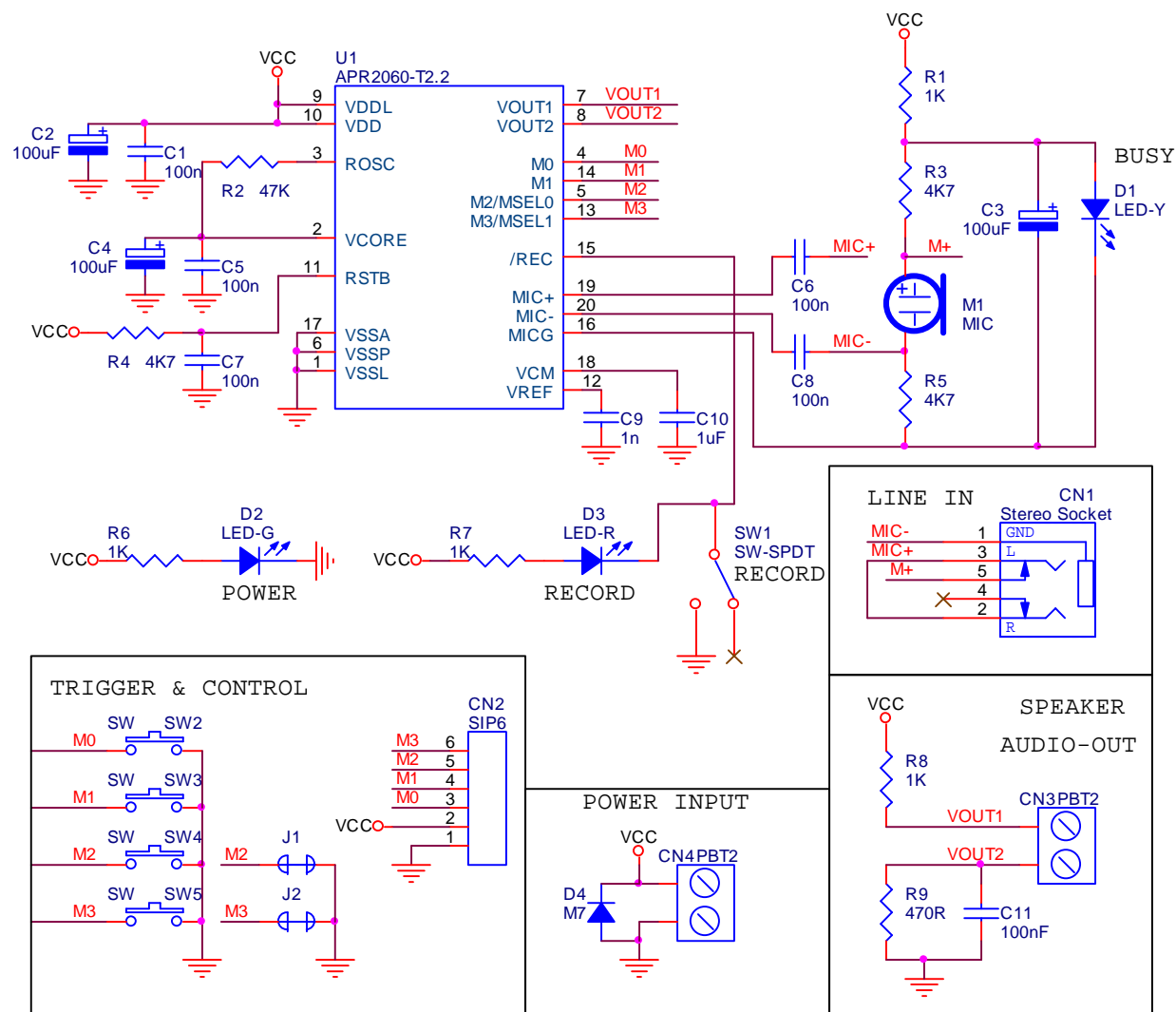
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Components R8, R8 & C11 are not mounted by default. You only need to mount if you plan to use external audio amplifier. Without these 3 component board can drive speaker directly.

Recording from External Audio Source

We have provided a stereo socket to record from a audio source instead of on board MIC. You can use audio from PC sound card or similar source.

Audio Output to External Amplifier

Normally you directly connect a 8-32 ohms speaker at the output. But in case you need to connect external amplifier to the output. Then these 3 components are to be mounted.

We supply boards without mounting these three components as most users will like to use the board to drive speaker directly through terminal.
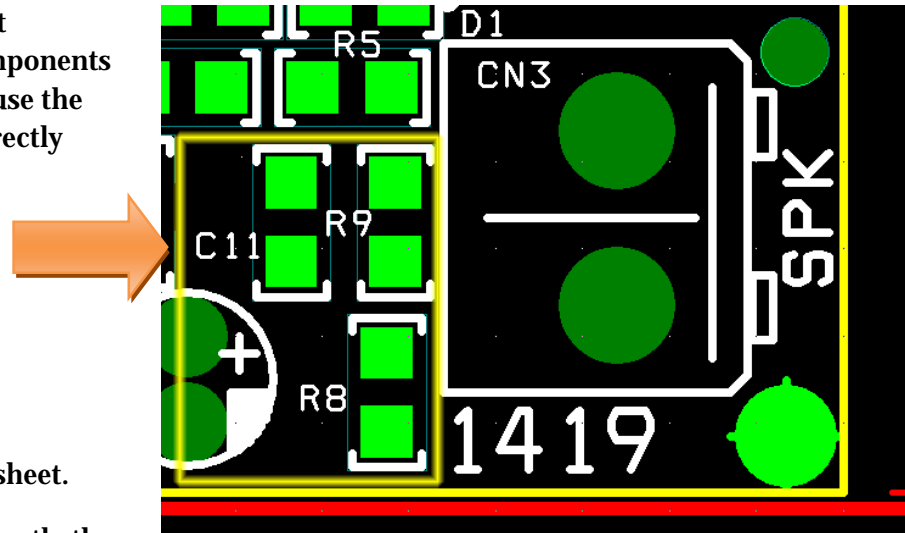
R8 = 1K SMD 0805

R9 = 470R SMD 0805

C11 = 100nF SMD 0805

These are component recommended by IC datasheet.

If you connect speaker directly then these 3 components are not required.
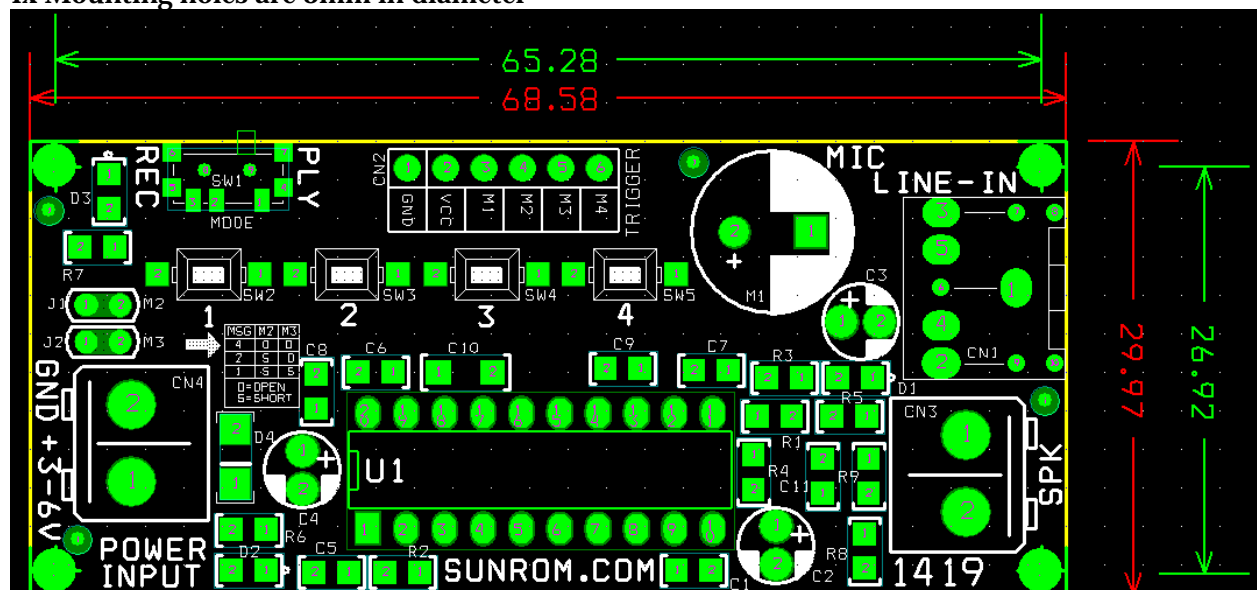
Channel Selection Jumpers

J1 and J2 jumpers can be set to operate the chip in 1, 2 or 4 channels. Default both are open so the chip operates in 4 channel mode. Refer to table below and short the relevant jumper to select a channel as required.

MSG	M2	M3
4	O	O
2	S	O
1	S	S

O=OPEN
S=SHORT
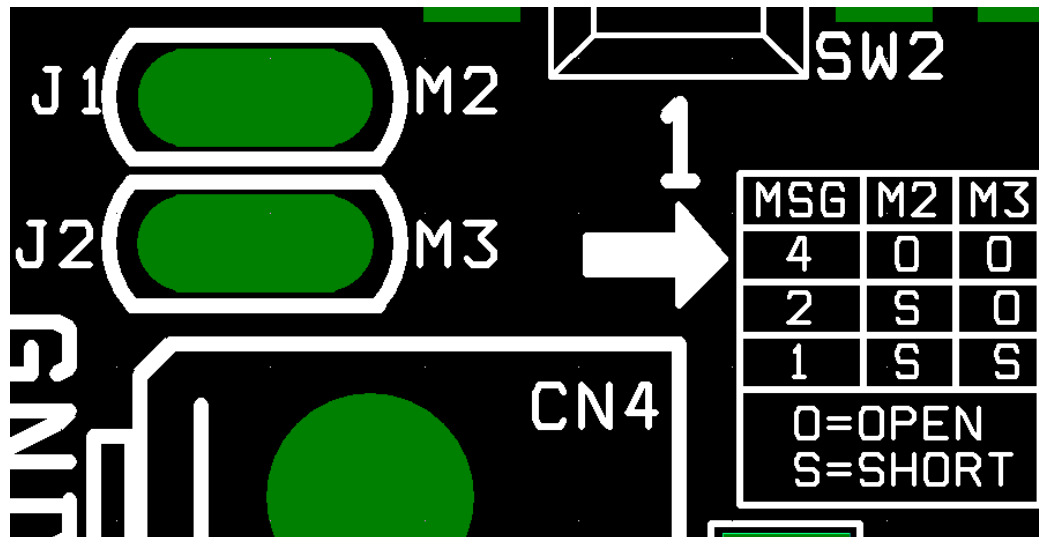
Product Dimensions

Board Dimensions in mm
4x Mounting holes are 3mm in diameter

Support

Sunrom Electronics offers free technical support (www.sunrom.com/contact) for customers, until the end of the product's lifetime, so if something goes wrong, we're ready and willing to help!

Technical Support is available by email only and scope is limited to problem faced during use of the use of product and does not cover end user programming and hardware troubleshooting.

Each product passes through strict quality checks before it reaches you. So if something is not working out right, the first thing to doubt is the connections or programming of your hardware.

Disclaimer

Sunrom Electronics assumes no responsibility or liability for any errors or inaccuracies that may appear in the present document. Specification and information contained in the present schematic are subject to change at any time without notice.