Evaluation Board User's Guide

CM102-A+/102S+

Best USB Audio I/O Controller for External High End 2 Channel Speaker Audio Device

Version : 0.1

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SECTION 1 OVERVIEW

1.1 Introduction

CM102-A+/102S+ series is a highly integrated single chip for USB stereo speakers application. Minimum external components are needed for building an USB speaker system, which makes CM102-A+/102S+ a simple and very cost-effective solution. Since no driver is necessary for audio playback on all major OS. CM102-A+/102S+ provides a truly plug-and-play feature for external digital audio playback.

For energy saving, USB suspend mode and resume is supported by CM102-A+/102S+. With power amplifier enable pin and volume control VR input pin, a traditional speaker front panel design can be built. This new single chip not only support 44.1KHz and 48KHz sampling rate playback but also with X2 modulation for hi-frequency quality. Better yet, simplify anti-pop noise solution was embedded on chip for general pop noise issues. All of the functions have been approved by USB IF certification program. More flexible and customized design is possible with GPIO pin, which is accessible by USB vendor specific request.

This one chip solution not only embedded USB transceiver, ADC, DAC component but also integrated digital control power amplifier function for USB digital sound application. The Dynamic Range Control function can support high efficiency volume output to get loudness sound effect similar D class amplifier capability. Vender can just using single chip to saving external amplifier component and getting a better listen experience when listen to a music source with wide dynamic range.

1.2 USB Audio Controller EVM Architecture

CM206 USB audio controller EVM boards are development tool for testing and controlling of various peripheral components. A block diagram of this EVM system is shown in Figure 1.

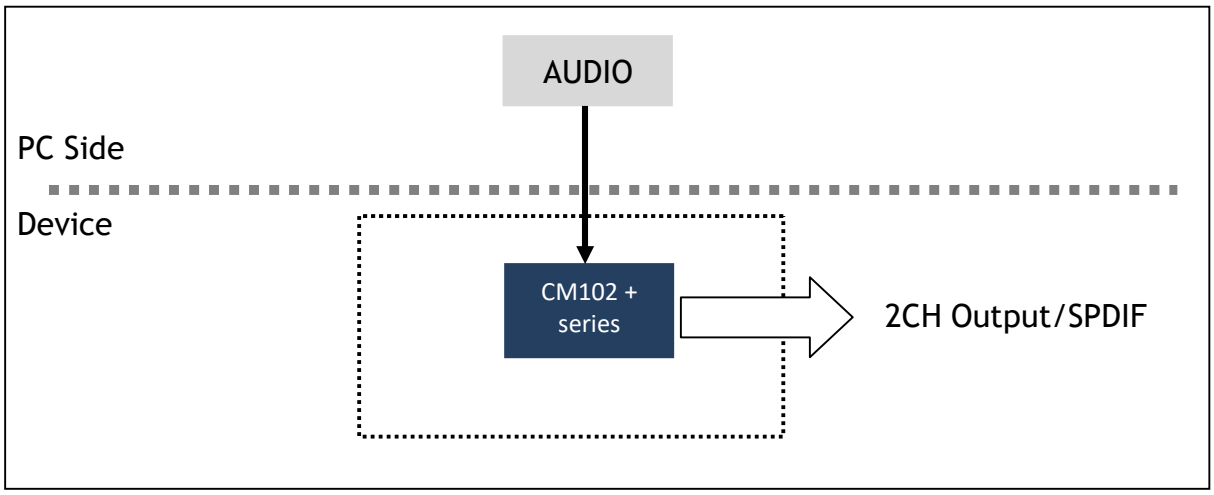


Figure 1 Block diagram of EVM system

1.3 **Evaluation Board Contents**

The CM102-A+/102S+ USB Audio controller evaluation board has the following hardware feature with each feature's number corresponding to the number in Figure 2 that shows the feature's location on the board.

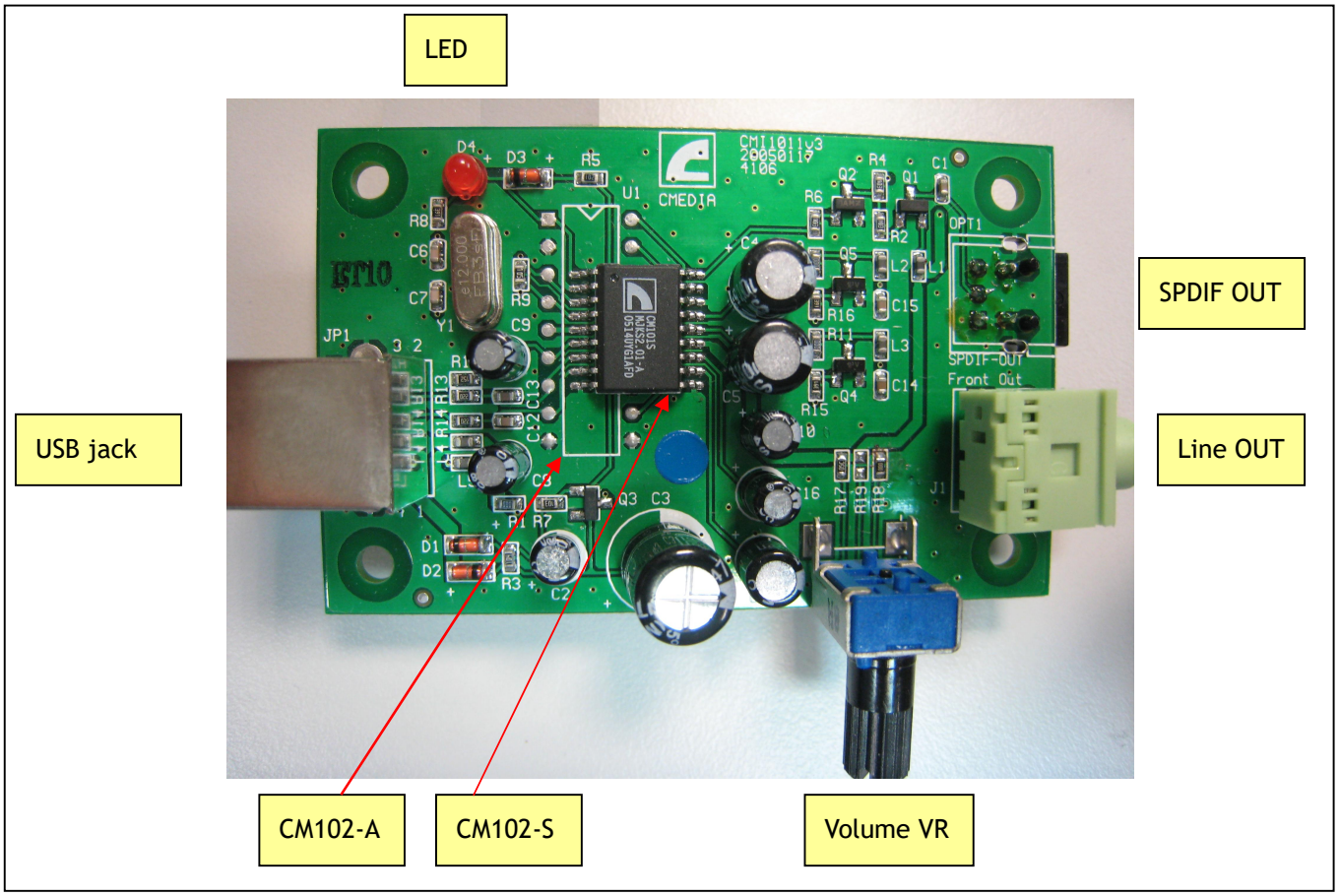


Figure 2

SECTION 2 GETTING STARTED

2.1 Board as USB Audio Device

1. Plug in the EVM board to the host, as show in Figure 3

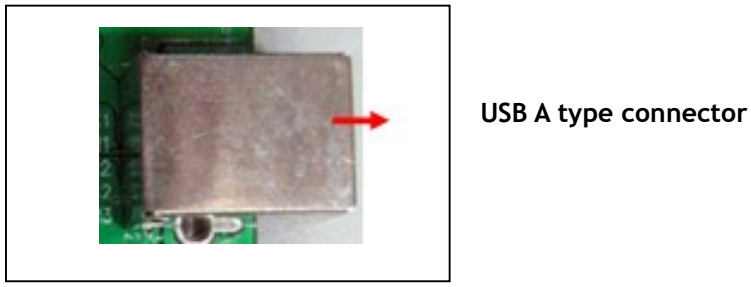


Figure 3 USB connector

2. Check LED D2 for power on and current status, as show in Figure 4.

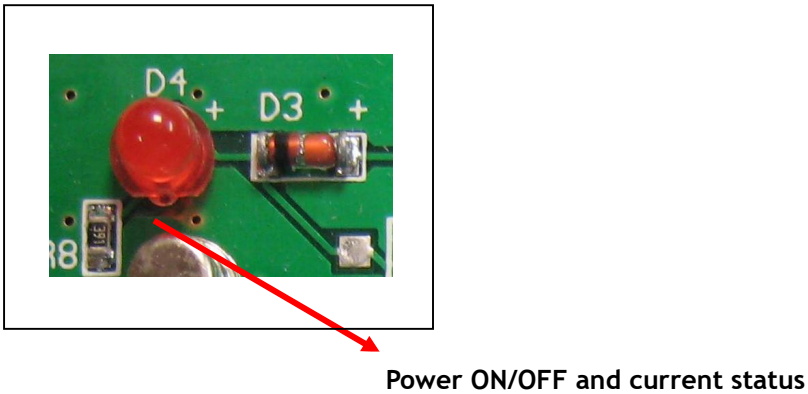


Figure 4 LED indicator

2.1.1 Playback / Recording Functions

Playback Functions

CM102-A+/102S+ has playback function for using, including 8ch DAC and earphone driver Table 1 lists their capabilities of playback.

USB Audio Controller	DAC Capabilities
CM6102 series	2CH/48K/44.1K 16bit sample rate

Table 1 Capabilities list for Playback

1. Front Output

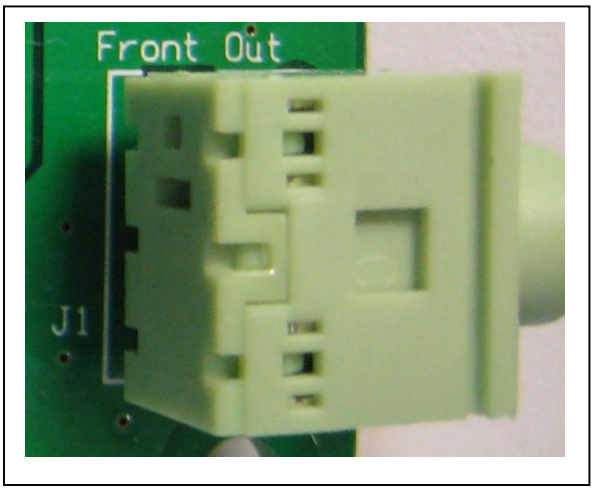
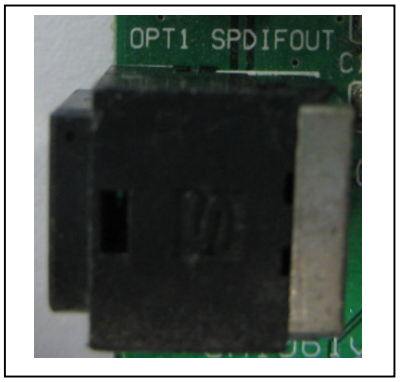


Figure 5 Front out (J1)

2. SPDIF Output



SPDIF Output

Figure 6 SPDIF Output (OPT1)

2.1.2 GPIOs Input / Output

The CM102-A+/102S+ audio controller EVM board provides one general purpose I/O. The following describes the basic operation, as show in Figure 7.

PIN#	Symbol	Description
2	GPIO 1	PGIO pin #1

Figure 7 GPIO Input / Output

2.1.3 VOLADJ

The CM102-A+/102S+ audio controller EVM board provides one VR to control Volume. The following describes the basic operation, as show in Figure .

PIN#	Symbol	Description
12	VOLADJ AI	0 ~ 2.25V: +3 dB ~ -43.5dB / mute 3.5 ~ 5V: 0 dB

Figure 8 VOLADJ

NOTES

APPENDIX

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