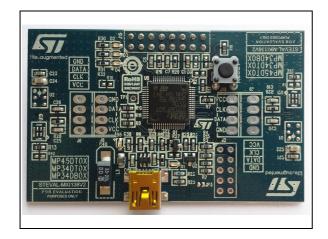


STEVAL-MKI138V2

STAudioHub USB interface board based on the MP34DB01 and STM32

Data brief



The STM32 microcontroller decodes the PDM signal from the microphones and streams the audio via USB.

The STEVAL-MKI138V2 evaluation board is a sound card that is automatically recognized by the PC as an audio device.

Connection is made through a USB cable, which also supplies the board and then streams the audio collected from the microphones to the PC.

It can also be used as an interface board for other microphone PCBs (STEVAL-MKI126Vx), in which case it is recommended to use the APWorkbench software tool.

Features

- Sound card automatically recognized by the PC as an audio device
- MEMS microphones provide a high frequency data stream (1 to 3.25 MHz) of 1-bit digital samples (PDM technique)
- Audio collected from the microphones is sent to the PC through USB (powered and connected to PC through USB)
- LED status indicator
- RoHS compliant

Description

The purpose of STEVAL-MKI138V2 evaluation board is to provide an example of decoding and streaming of digital MEMS microphone outputs.

The STEVAL-MKI138V2 evaluation board hosts the MP34DB01 (top-port digital microphone), working as a sensor and the STM32F107RC microcontroller as an audio decoder.

These microphones are analog-to-digital transducers. They are capable of sensing sound pressure and converting this signal into a digital signal using the PDM technique.

Schematic diagrams STEVAL-MKI138V2

1 Schematic diagrams

Figure 1. Power supply

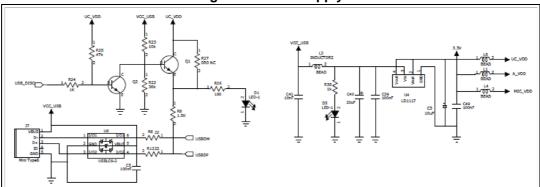
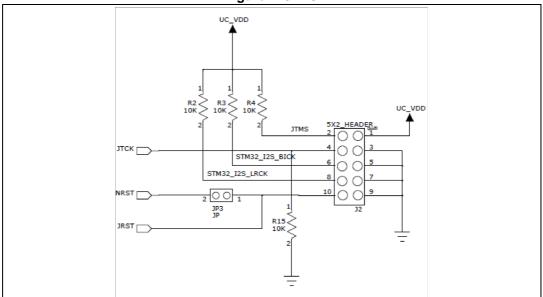


Figure 2. JTAG



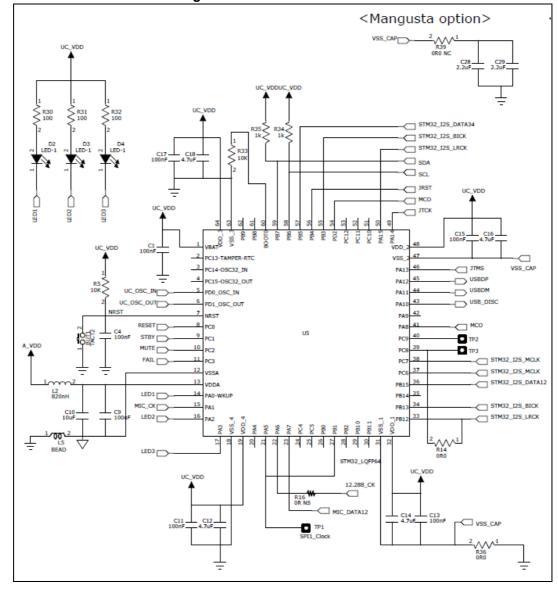
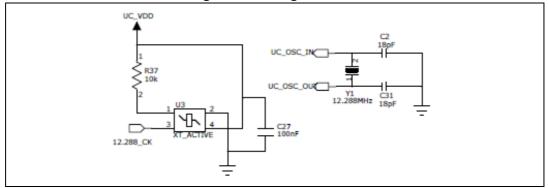


Figure 3. STM32 microcontroller





Schematic diagrams STEVAL-MKI138V2

12S_DAT_12F 12S_DAT_34 12S_DAT_56 00 ☐ I2S_LRCK 00 R19 100 R18 00 MUTE FAIL 00 00 C RESET 00 ☐ STBY MCLK 00 STM32_I2S_MCLK ☐ 12.288_CK O O O O CON4 MIC_VDD MIC VDD MIC_CK ☐ MIC_CK MIC_DATA12 MIC_DATA12 O O O O 00N4 O O O O CON4 2 ORO R9 2 ORO R7 2 ORO R7 12S_DAT_12 STM32_I2S_DATA12 12S_DAT_34 STM32_12S_DATA34 2 OROR11 STM32_12S_BICK I2S_BICK 2 OROR10 STM32_12S_LRCK I2S_LRCK

Figure 5. Connectors

♠ MIC_VDD VDD DATA CLK MIC_DATA12 MP34DB01 MIC_VDD GND VDD MIC1CK MIC1LR ✓ MIC_DATA12 R42 OR NS MIC1CK CLK MIC_DATA12 R28 100 MIC_CK MIC_VDD MP45DT01 MP34DT01 C25 15pF MIC_VDD MIC VDD GND VDD ☐ MIC_DATA12 ← MIC2CK CLK MIC_CK MP45DT01 U11 MIC2LR MIC_VDD < DATA CLK VDD ► MIC_VDD MIC_DATA12

Figure 6. Microphones

Revision history STEVAL-MKI138V2

2 Revision history

Table 1. Document revision history

Date	Revision	Changes
29-Jul-2014	1	Initial release.

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