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PIC32 Audio Codec Daughter Board – AK4954 Information Sheet

Thank you for purchasing a PIC32 Audio Codec Daughter Board, AK4954 (AC324954). This information sheet provides important information that will help you successfully use the daughter board as quickly as possible.

The PIC32 Audio Codec Daughter Board – AK4954 is based on the AKM AK4954 codec. This information sheet provides an overview as well as detailed schematics of the board.

This daughter board is designed specifically to be used with the PIC32 Bluetooth® Audio Development kit (DV320032); however, it can also be used with other Microchip development hardware.

Visit http://www.microchip.com for additional information on the PIC32 Audio Codec Daughter Board

Features

The PIC32 Audio Codec Daughter Board – AK4954 is a high-performance stereo codec board for select PIC32 hardware development platforms. This board features the AKM AK4954 stereo codec, including built-in microphone and headphone amplifiers. This board is suitable for adding audio input and output capabilities to the PIC32 Bluetooth Starter Kit (DM320018) and the PIC32 Bluetooth Audio Development Kit.

The PIC32 Audio Codec Daughter Board – AK4954 features include:
- AKM AK4954 codec
- MCP1801 power regulator
- On-board MEMs microphone
- 3.5 mm inputs and outputs:
  - Line in
  - External Mic in
  - Headphone out
- 32-bit I^{2}S audio
- Up to 96 kHz audio sample rates
- Suitable for audio and voice, and utilized in Bluetooth applications
- X32 connection interface

Additional Information

For more information on drivers and examples, please visit:
- www.microchip.com/pic32btsuites
- www.microchip.com/harmony

DS50002658A

PIC32 Audio Codec Daughter Board – AK4954 Schematic

MB CONNECTORS

J1

UART1 Rx	UART1 CTS#
UART1 Tx	UART1 RTS#
SCL1	STBY/RST
SDA1	I2S1 LRCL
I2S1 SDI	I2S1 BCLK
I2S1 SDO	I2S1 MCLK

+9 V +3.3V +5V_PD

HDR-2.54 Female 2x10

J2

CARD_ID

+3.3V
R1 ?K
approx. ?.?V
R2 ?K

HDR-2.54 Female 2x6

U2
+3.3V
C22 10uF
VIN VOUT
SHDN
NC VSS
MCP1801/1.8V
R3 0.1R
+1.8V
1.8V
C6 1uF
C23 10uF
GND

+3.3V
R4 3.3k
R5 3.3k
SCL1
SDA1

LINE IN

R6 5.6k C7 1uF LLINE_IN
R7 5.6k C18 220pF C30 10uF (DNP) TANT-A R10 10M
R8 5.6k C8 1uF RLINE_IN
R9 5.6k C19 220pF C31 10uF (DNP) TANT-A R11 10M

J4 SJI-3535NG-BE (Blue)

MIC 1 IN

MPWR2
R12 2.2k C9 1uF LIN2
C15 1nF
C10 1uF RIN2
C16 1nF R13 2.2k R21 (DNP)
MPWR2

J5 SJI-3535NG-PI (Pink)

MEMS MICROPHONE

MPWR
C5 0.1uF
VDD MIC2 SPU0414HR5H-SB
Rs=2.44k OUTPUT MEMS_MIC_OUT
Rf=22K
VSS GAIN
R18 7.5k R20 (DNP)

MEMS_MIC_OUT C32 DNP 0603 C17 1nF R19 0R

U1

Pin	Signal		Signal	Pin
1	LIN3		RIN3	32
2	RIN2		MRF	31
3	LIN2		VCOM	30
4	MPWR2		VSS1	29
5	MPWR1		AVDD	28
6	RIN1/DMCLK		CN	27
7	LIN1/DMDAT		CP	26
8	PDN		VSS2	25
9	SCL		VEE	24
10	SDA		HPR	23
11	SDTI		HPL	22
12	SDTO		DVDD	21
13	RCLK		SPP/LOUT	20
14	BICK		SPN/ROUT	19
15	MCKI/OVF		SVSS	18
16	TVDD		VSS3	17

LLINE_IN RLINE_IN
C14 2.2uF
C13 2.2uF
+3.3V
C4 0.1uF C27 10uF
C12 2.2uF
C11 2.2uF
RHP1_OUT
LHP1_OUT
+1.8V
C3 0.1uF C26 10uF
J6
HDR-2.54 Male 1x2
+3.3V
C2 0.1uF C25 10uF

STBY/RST
SCL1
SDA1
I2S1 SDO
I2S1 SDI
I2S1 LRCL
I2S1 BCLK
I2S1 MCLK

+3.3V
C24 10uF C1 0.1uF

T-PAD 33

AK4954A

HP OUT

LHP1_OUT R16 6.8R C28 47uF TANT-A
RHP1_OUT R17 6.8R C29 47uF TANT-A
C20 0.22uF C21 0.22uF
R14 10R R15 10R

J3 SJI-3535NG-GR (Green)