

# **AC6082A2 Datasheet**

**Zhuhai Jieli Technology Co.,LTD**

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# AC6082A2 Features

## CPU

- 32-bit DSP supports hardware Float Point Unit (FPU)
- Up to 160MHz programmable processor
- 64Vectored interrupts
- 4 Levels interrupt priority

## DSP Audio Processing

- Supports MP2, MP3, WMA, APE, FLAC, AAC, MP4, M4A, WAV, AIF, AIFC audio decoding
- 10-band EQ configuration for voice Effects
- Built-in microphone echo function

## Audio Codec

- Two channels 16-bit DAC, SNR  $\geq$  92dB
- One channels 16-bit ADC , SNR  $\geq$  90dB
- Sampling rates of 8KHz/11.025KHz/16KHz/22.05KHz/24KHz/32KHz/44.1KHz/48KHz are supported
- One analog MIC amplifier, build-in MIC bias generator
- Two channels Mono analog MUX
- Supports cap-less, single-ended, and differential mode at the DAC path
- Supports 16ohm and 32ohm Speaker loading

## Peripherals

- Full speed USB 2.0 OTG controller
- Multi-function 32-bit timers, support capture and PWM mode
- Three full-duplex basic UART, UART0 and UART1 supports DMA mode
- Two SPI interface supports host and device mode
- One hardware IIC interface supports host and device mode
- 10-bit ADC for analog sampling
- External wake up/interrupt on all GPIOs

## PMU

- Low voltage LDO for internal digital and analog circuit supply
- 3uA current consumption in the soft-off mode
- Built-in LDO for the core, I/O and flash
- VBAT is 2.2V to 5.5V
- VDDIO is 2.2V to 3.6V

## Packages

- SOP16

## Temperature

- Operating temperature: -40°C to +85°C
- Storage temperature: -65°C to +150°C

## Applications

- Card MP3 player speaker

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# 1、 Pin Definition

## 1.1 Pin Assignment

PB7	○			16	VCOM
PB6	1			15	AGND
VSSIO	2			14	DACL
VBAT	3			13	DACR/PA0
VDDIO	4	AC6082A 2		12	PA1/PA3
PC5	5	(SOP16)		11	PA2/PA4
PC4	6			10	USBDP
PC3/PC2	7			9	USBDM
	8				

Figure 1-1 AC6082B\_SOP16 Package Diagram

## 1.2 Pin Description

Table 1-1 AC6082A\_SOP16 Pin Description

PIN NO.	Name	I/O Type	Drive (mA)	Function	Other Function
1	PB7	I/O	24/8	GPIO	SPI2DOA: SPI2 Data Out(A); AMUX1R: Analog Channel1Right; IIC_SDA_C: IIC DAT(C); ADC9: ADC Input Channel 9; PWM5: Timer5 PWM Output; UART1RXA: Uart1 Data In(A);
2	PB6	I/O	24/8	GPIO	SPI2CLKA: SPI2 Data Out(A); AMUX1L: Analog Channel1 Left; IIC_SCL_C: IIC SCL(C); ADC8: ADC Input Channel 8; TMR3: Timer3 Clock Input; UART1TXA: Uart1 Data Out(A);
3	VSSIO	P	/		IO Ground
4	VBAT	P	/		Battery Power Supply
5	VDDIO	P	/		IO Power 3.3v
6	PC5	I/O	24/8	GPIO	SD0CLK_A: SD0 Clock(AE) SPI1DOB: SPI1 Data Out(B); IIC_SDA_B: IIC SDA(B); ADC12: ADC Input Channel 12; TMR1: Timer1 Clock Input; UART2RXD: Uart2 Data In(D);
7	PC4	I/O	24/8	GPIO	SD0CMD_A: SD0 Command(A); SPI1CLKB: SPI1 Clock(B); IIC_SCL_B: IIC SCL(B); ADC11: ADC Input Channel 11; PWM1: Timer1 PWM Output; UART2TXD: Uart2 Data Out (D);
8	PC3	I/O	24/8	GPIO	SD0DAT_A: SD0 Data(A); SPI1DIB: SPI1 Data In(B); CAP2: Timer2 Capture; UART0TXD: Uart0 Data Out (D); UART0RXD: Uart0 Data In(D);
	PC2	I/O	24/8	GPIO	ADC10: ADC Input Channel 10; UART1RXB: Uart1 Data In(B);

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9	USBDM	I/O	4	USB Negative Data (pull down)	SD0DAT_E: SD0 Data(E); SPI2DOB: SPI2 Data Out(B); IIC_SDA_A: IIC SDA(A); ADC14: ADC Input Channel 14; UART1RXD: Uart1 Data In(D);
10	USBDP	I/O	4	USB Positive Data (pull down)	SPI2CLKB: SPI2 Clock(B); IIC_SCL_A: IIC SCL(A); ADC13: ADC Input Channel 13; UART1TXD: Uart1 Data Output(D);
11	PA2	I/O	24/8	GPIO	MIC_BIAS: Microphone Bias Output CAP3: Timer3 Capture;
	PA4	I/O	24/8	GPIO	SD0CMD_E: SD0 Command(E); AMUX0R: Analog Channel0 Right; PLNK_DAT1: PLNK Data1; UART1_RTS: Uart1 Request to send; ADC3: ADC Input Channel 3; TMR4: Timer4 Clock Input; UART2RXA: Uart2 Data In(A);
12	PA1	I/O	24/8	GPIO	MIC: MIC Input Channel ; ADC1: ADC Input Channel 1; PWM4: Timer4 PWM Output; UART1RXC: Uart0 Data In(C);
	PA3	I/O	24/8	GPIO	AMUX0L: Analog Channel0 Left; ADC2: ADC Input Channel 2; UART2TXA: Uart2 Data Output(A); PWM5: Timer5 PWM Output;
13	PA0	I/O	24/8	GPIO	SDPG: SD Power Supply ADC0: ADC Input Channel 0; CLKOUT0; UART1TXC: Uart1 Data Output(C);
	DACR	O	/		DAC Right Channel
14	DACL	O	/		DAC Left Channel
15	AGND	P	/		Analog Ground
16	VCOM	P	/		DAC Reference

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## 2、Electrical Characteristics

### 2.1 Absolute Maximum Ratings

Table 2-1

Symbol	Parameter	Min	Max	Unit
Tamb	Ambient Temperature	-40	+85	°C
Tstg	Storage temperature	-65	+150	°C
VBAT	Supply Voltage	-0.3	5.5	V
V <sub>3.3IO</sub>	3.3V IO Input Voltage	-0.3	3.6	V

Note : The chip can be damaged by any stress in excess of the absolute maximum ratings listed below

### 2.2 PMU Characteristics

Table 2-2

Symbol	Parameter	Min	Typ	Max	Unit	Test Conditions
VBAT	Voltage Input	2.2	3.7	5.5	V	—
V <sub>VDDIO</sub>	Voltage output	—	3.3	—	V	VBAT = 4.2V, 100mA loading

### 2.3 IO Input/Output Electrical Logical Characteristics

Table 2-4

IO input characteristics						
Symbol	Parameter	Min	Typ	Max	Unit	Test Conditions
V <sub>IL</sub>	Low-Level Input Voltage	-0.3	—	0.3* VDDIO	V	VDDIO = 3.3V
V <sub>IH</sub>	High-Level Input Voltage	0.7* VDDIO	—	VDDIO+0.3	V	VDDIO = 3.3V
IO output characteristics						
V <sub>OL</sub>	Low-Level Output Voltage	—	—	0.33	V	VDDIO = 3.3V
V <sub>OH</sub>	High-Level Output Voltage	2.7	—	—	V	VDDIO = 3.3V

## 2.4 Internal Resistor Characteristics

Table 2-5

Port	General Output	High Drive	Internal Pull-Up Resistor	Internal Pull-Down Resistor	Comment
PA1~PA4 PB6,PB7 PC2~PC5	8mA	24mA	10K	10K	1、USBDM & USBDP default pull down 2、internal pull-up/pull-down resistance   accuracy $\pm 20\%$
PA0	Output 0	8mA	10K	10K	
	Output 1	8mA			
USBDP	4mA	—	1.5K	15K	
USBDM	4mA	—	180K	15K	

## 2.5 DAC Characteristics

Table 2-6

Parameter	Min	Typ	Max	Unit	Test Conditions
Frequency Response	20	—	20K	Hz	1KHz/0dB 10Kohm loading With A-Weighted Filter
THD+N	—	-72	—	dB	
S/N	—	92	—	dB	
Crosstalk	—	-80	—	dB	
Output Swing	—	1	—	Vrms	
Dynamic Range	—	90	—	dB	1KHz/-60dB 10Kohm loading With A-Weighted Filter
DAC Output Power	11	—	—	mW	32ohm loading

## 2.6 ADC Characteristics

Table 2-7

Parameter	Min	Typ	Max	Unit	Test Conditions
Dynamic Range	—	80	—	dB	1KHz/-60dB
S/N	—	90	91	dB	1KHz/-60dB
THD+N	—	-70	—	dB	
Crosstalk	—	-90	—	dB	

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## 3、 Package Information

### 3.1 SOP16

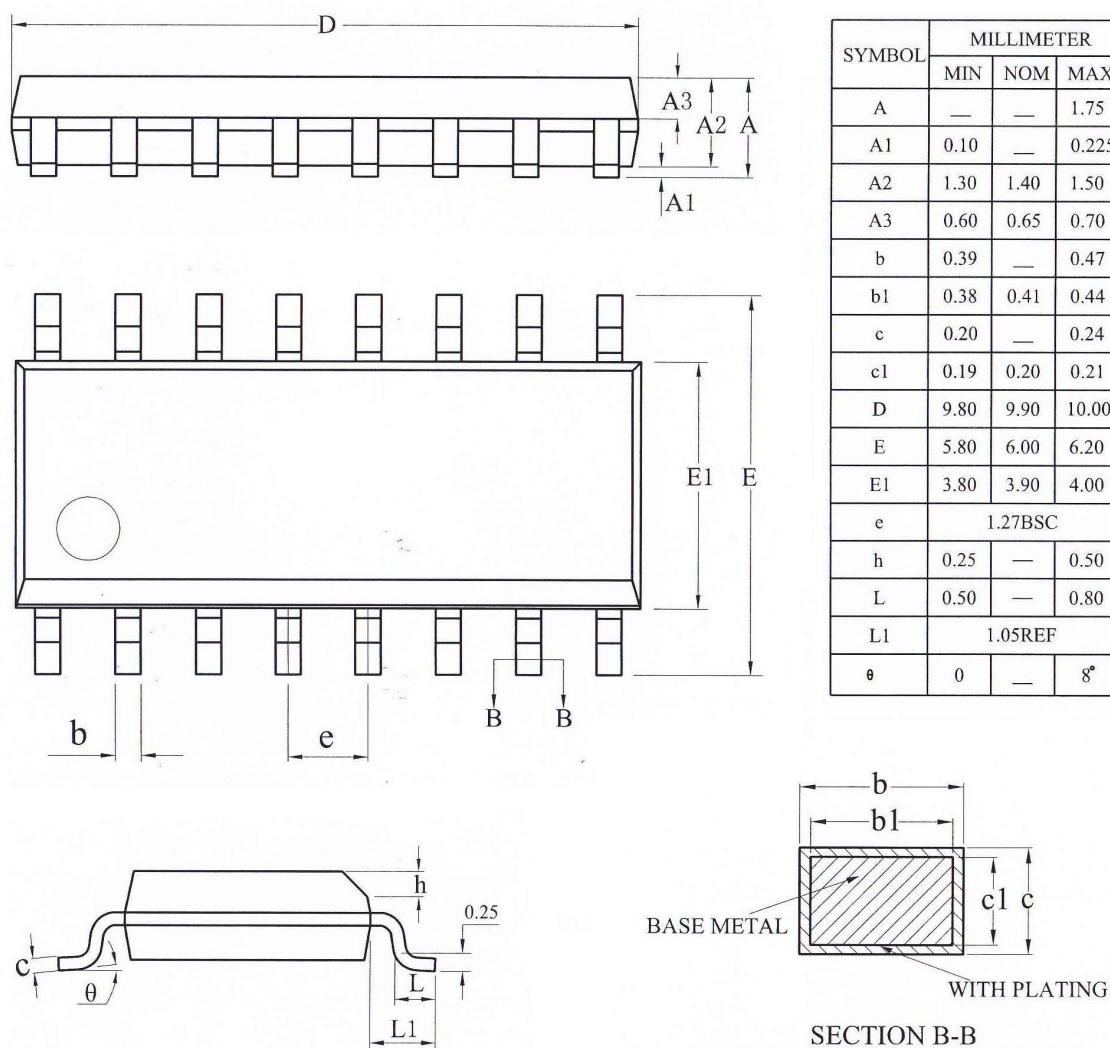


Figure 3-1. AC6082A\_SOP16 Package

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## 4、 Revision History

Date	Revision	Description
2020.09.22	V1.0	Initial Release

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