AC6082A Datasheet

Zhuhai Jieli Technology Co.,LTD

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AC6082A 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 >= 92dB
- One channels 16-bit ADC , SNR >= 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℃ to +85℃
- Storage temperature: -65℃ to +150℃

Applications

- Card MP3 player speaker

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1、Pin Definition

1.1 Pin Assignment

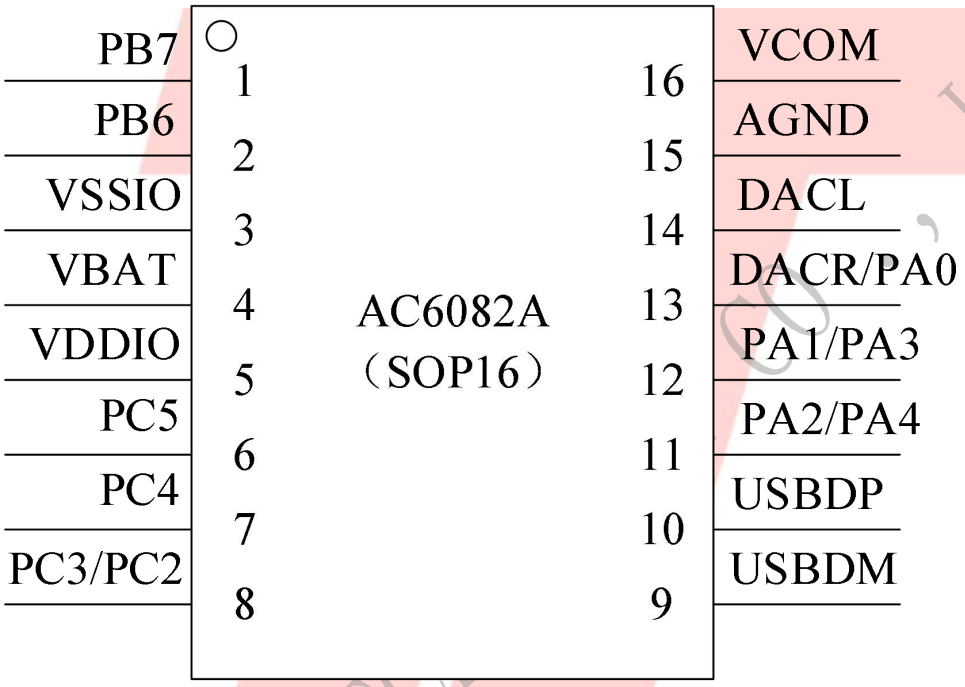

Figure 1-1 AC6082B_SOP16 Package Diagram

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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	℃
Tstg	Storage temperature	-65	+150	℃
VBAT	Supply Voltage	-0.3	5.5	V
$V_{3.3IO}$	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_{VDDIO}	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_{IL}	Low-Level Input Voltage	-0.3	_	0.3* VDDIO	V	VDDIO = 3.3V
V_{IH}	High-Level Input Voltage	0.7* VDDIO	_	VDDIO+0.3	V	VDDIO = 3.3V
IO output characteristics						
V_{OL}	Low-Level Output Voltage	_	_	0.33	V	VDDIO = 3.3V
V_{OH}	High-Level Output Voltage	2.7	_	_	V	VDDIO = 3.3V

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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 ±20%
PA0	Output 0	8mA	24mA	10K	10K	
	Output 1	8mA	64mA			
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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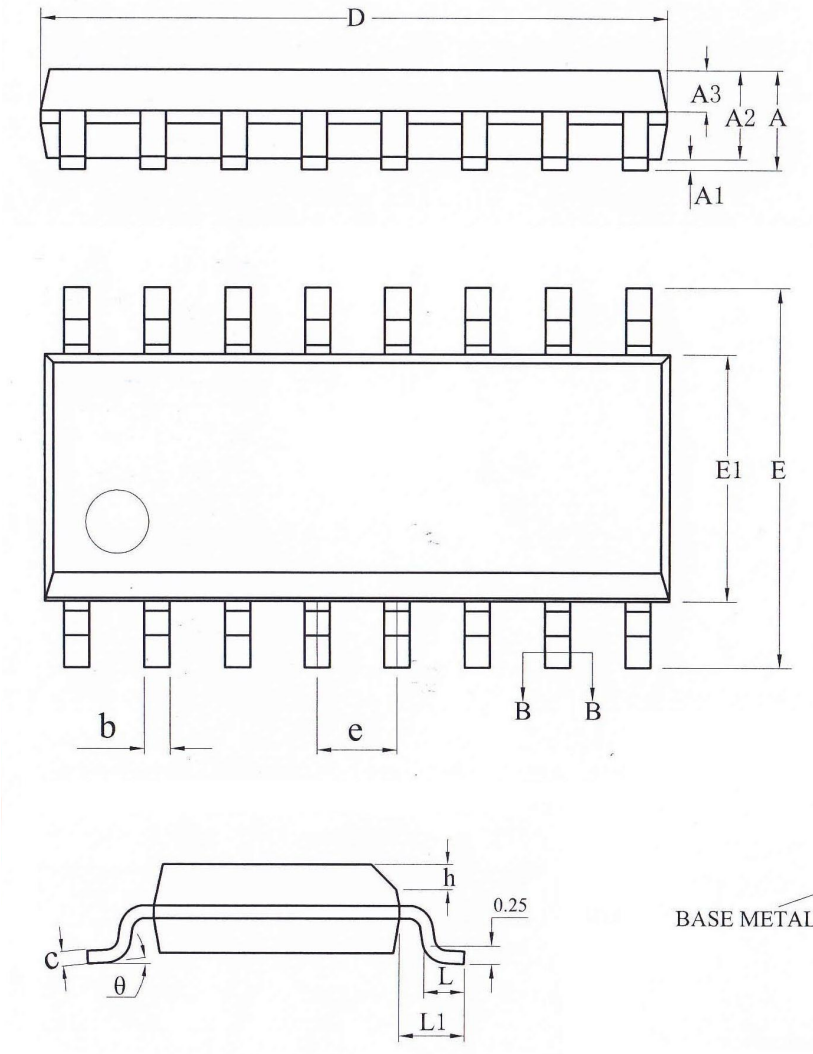
3、 Package Information

3.1 SOP16



SYMBOL	MILLIMETER		
	MIN	NOM	MAX
A	—	—	1.75
A1	0.10	—	0.225
A2	1.30	1.40	1.50
A3	0.60	0.65	0.70
b	0.39	—	0.47
b1	0.38	0.41	0.44
c	0.20	—	0.24
c1	0.19	0.20	0.21
D	9.80	9.90	10.00
E	5.80	6.00	6.20
E1	3.80	3.90	4.00
e	1.27BSC		
h	0.25	—	0.50
L	0.50	—	0.80
L1	1.05REF		
θ	0	—	8°

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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