AC6083B Datasheet

Zhuhai Jieli Technology Co.,LTD

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AC6083B Feature

CPU

- 32-bit DSP supports hardware Float Point Unit (FPU)
- Up to 240MHz programmable processor
- 64Vectored interrupts
- 4 Levels interrupt priority

DSP Audio Processing

- Supports MP2, MP3, WMA audio decoding
- Acoustic echo cancellation/suppression (AEC,AES)
- 30-band EQ configuration for voice Effects

Audio Codec

- Two channels 16-bit DAC, SNR >= 92dB
- Three channels 16-bit ADC , SNR >= 90dB
- Sampling rates of 8KHz/11.025KHz/16KHz/22.05KHz/24KHz/ 32KHz/44.1KHz/48KHz aresupported
- 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

- One full speed USB 2.0 OTG controller
- Multi-function 16-bit timers, support capture and PWM mode
- Full-duplex basic UART, UART0 and UART1 supports DMA mode
- SPI interface supports host and device mode
- SD Card Host controller
- One hardware IIC interface supports host and device mode
- Built-in Cap Sense Key controller
- 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℃

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1、Pin Definition

1.1 Pin Assignment

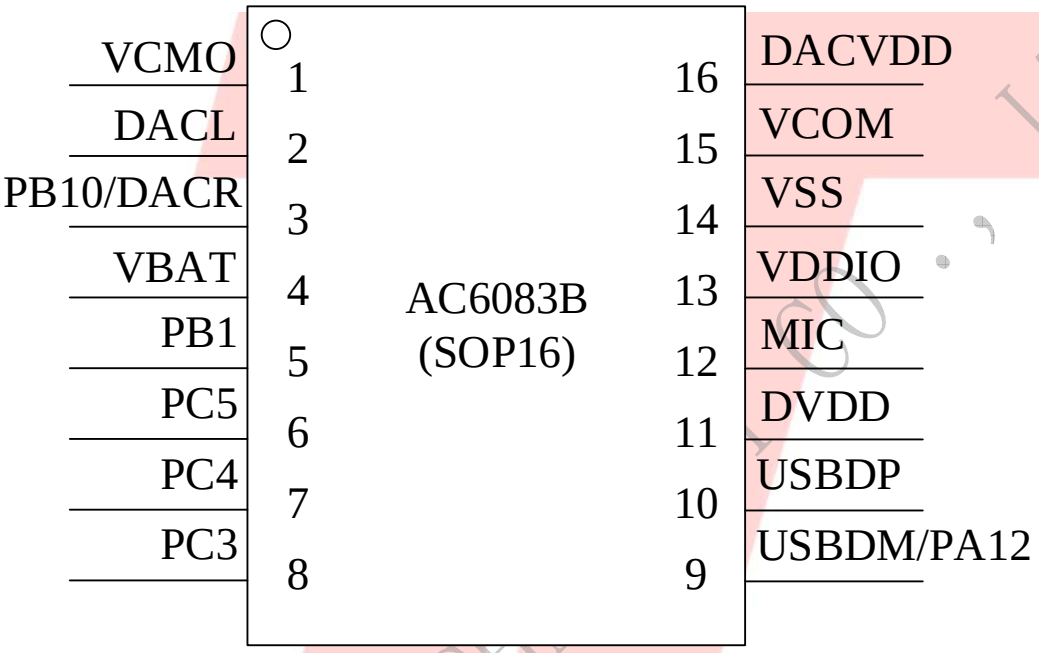


Figure 1-1 AC6083B Package Diagram

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1.2 Pin Description

Table 1-1 AC6083B Pin Description

PIN NO.	Name	I/O Type	Drive (mA)	Function	Other Function
1	VCMO	O	/		DAC CommonOutput;
2	DACL	O	/		DAC Left Channel;
3	DACR	O	/		DAC Right Channel;
	PB10	I/O	24/8	GPIO	AMUX2R:Analog Channel2 Right; ADC9:ADC Input Channel 9; UART2RXC:Uart2 Data In(C); PWMCH3L:Motor PWM Channel3(L);
4	VBAT	P	/		Power Supply;
5	PB1	I/O	24/8	GPIO (pull up)	Long Press Reset; ADC5:ADC Input Channel 5; TMR2:Timer2 Clock Input; UART1RXA:Uart1 Data In(A);
6	PC5	I/O	24/8	GPIO	ADC13:ADC Input Channel 13; SD1CLKA:SD0 Clock(A); SPI1DOB:SPI1 Data Out(B); IICSDA_A:IIC SDA(B); Touch15:Touch Input Channel 15; UART2RXD:Uart2 Data In(D); PWMCH5L:Motor PWM Channel5(L);
7	PC4	I/O	24/8	GPIO	ADC10:ADC Input Channel 10; SD1CMDA:SD0 Command(A); SPI1CLKB:SPI1 Clock(B); IICSCL_A:IIC SCL(B); Touch14:Touch Input Channel 14; UART2TXD:Uart2 Data Out(D); PWMCH5H:Motor PWM Channel5(H);
8	PC3	I/O	24/8	GPIO	SDADAT0A:SD0 Data0(A); SPI1DIB:SPI1 Data In(B); Touch13:Touch Input Channel 13;
9	USBDM	I/O	4	USB Negative Data (pull down)	UART1RXD:Uart1 Data In(D); SPI2DOB:SPI2 Data Out(B); IICSDA_A:IIC SDA(A);
	PA12	I/O	24/8	GPIO	ADC4:ADC Input Channel 4; UART0RXD:Uart0 Data In(D); PWM1:Timer1 PWM Output;

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10	USBDP	I/O	4	USB Positive Data (pull down)	UART1TXD:Uart1 Data Out(D); SPI2CLKB:SPI2 Clock(B); IICSCL_A:IIC SCL(A); ADC12:ADC Input Channel 12;
11	DVDD	P	/		Core Power;
12	MIC	I	/		MIC Input Channel;
13	VDDIO	P	/		IO Power 3.3V;
14	VSS	G	/		System Ground;
15	VCOM	P	/		DAC Reference;
16	DACVDD	P	/		DAC Power;

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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
$V_{3.3IO}$	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_{DDIO}	Voltage output	_	3.3	_	V	VBAT = 5V, 100mA loading
V_{DVDD}	Voltage output		1.2		V	
$I_{L3.3}$	Loading current	_	_	150	mA	VBAT = 5V

2.3 IO Input/Output Electrical Logical Characteristics

Table 2-3

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 2-4

Port	General Output	High Drive	Internal Pull-Up Resistor	Internal Pull-Down Resistor	Comment
PA12,PB1, PB10 PC3~PC5	8mA	24mA	10K	10K	1、PB1 default pull up 2、USBDM & USBDP default pull down 3、internal pull-up/pull-down resistance | accuracy ±20%
USBDP	4mA	-	1.5K	15K	
USBDM	4mA	-	180K	15K	

2.5 DAC Characteristics

Table 2-5

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

2.6 ADC Characteristics

Table 2-6

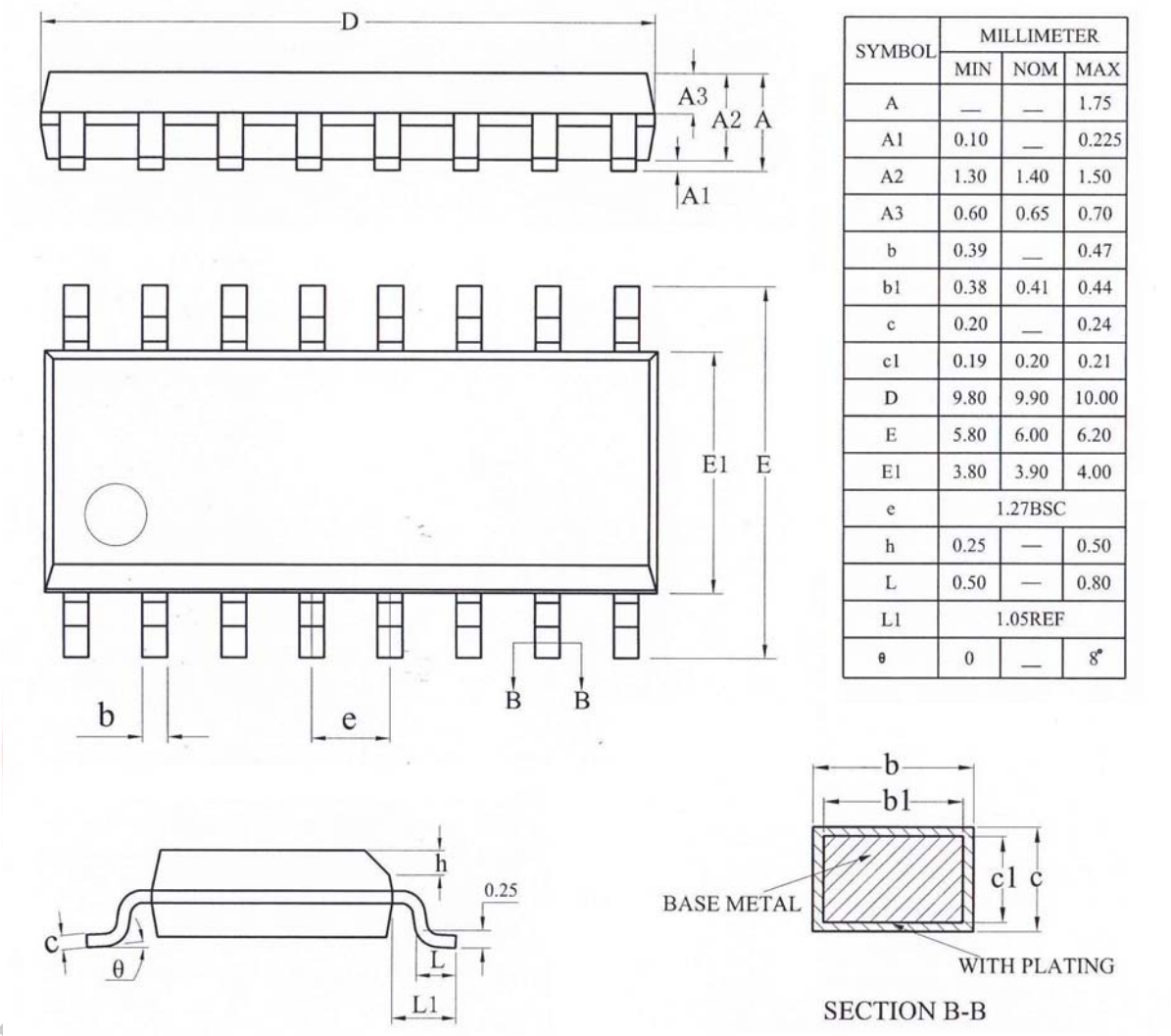
Parameter	Min	Typ	Max	Unit	Test Conditions
Dynamic Range	_	80	_	dB	1KHz/-60dB
S/N	_	90	_	dB	1KHz/-60dB
THD+N	_	-70	_	dB	
Crosstalk	_	-80	_	dB	

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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. AC6083B Package

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3、Revision History

Date	Revision	Description
2020.12.24	V1.0	Initial Release

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