
AC6373B Datasheet

Zhuhai Jieli Technology Co.,LTD

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AC6373B Features

CPU

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

Bluetooth

- Compliant with Bluetooth V5.1+BR+EDR+BLE specification
- Meet class1 class2 and class3 transmitting power requirement
- Support GFSK and $\pi/4$ DQPSK all packet types
- Provides a maximum +8dbm transmitting power
- receiver with -94dBm sensitivity
- Fast AGC for enhanced dynamic range
- Supports a2dp\avctp\avdtp\avrcp\hfp\spp\smp\att\gap\gapga tt\rfcomm\sdp\l2cap profile

Peripherals

- One full speed USB 2.0 OTG controller
- Six multi-function 32-bit timers, support capture and PWM mode
- Three full-duplex basic UART, support DMA

mode

- One hardware IIC interface supports host and device mode
- One Built-in low power Cap Sense Keys
- Built-in Cap Sense Key controller
- 10-bit ADC for analog sampling
- External wake up/interrupt on all GPIOs

PMU

- Low voltage LDO and DC-DC for internal digital and analog circuit supply
- 2uA current consumption in the soft-off mode
- Built-in LDO and DC-DC for the core, I/O, Bluetooth and flash
- VBAT is 1.8V to 4.5V
- VDDIO is 1.8V to 3.4V

Packages

- QFN20(3mm*3mm)

Temperature

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

Applications

- Bluetooth IOT

1、 Pin Definition

1.1 Pin Assignment

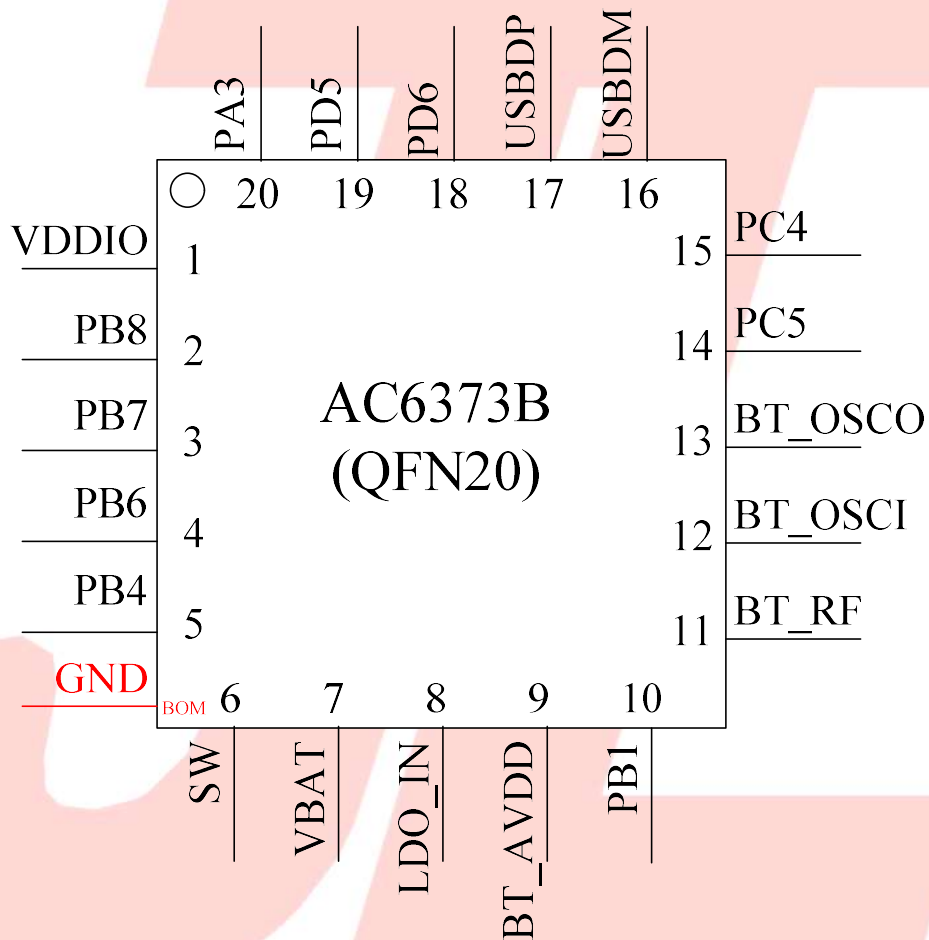


Figure 1-1 AC6373B Package Diagram

1.2 Pin Description

Table 1-1 AC6373B Pin Description

PIN NO.	Name	I/O Type	Drive (mA)	Function	Other Function
1	VDDIO	P	/		IO Power 3.3v
2	PB8	I/O	8/24	GPIO	UART0RXB: Uart0 Data Input(B); CAP4: Timer4 Capture;
3	PB7	I/O	8/24	GPIO	UART0TXB: Uart0 Data Output(B); SPI1DOA: SPI1 Data Out(A); Q-decoder1;
4	PB6	I/O	8/24	GPIO	UART1RXA: Uart1 Data Input(A); SPI1CLKA: SPI1 Clk(A); PWM2: Timer2 PWM Output; ADC9: ADC Input Channel 9; Touch7: Touch Input Channel 7; Q-decoder0;
5	PB4	I/O	8/24	GPIO	ADC12: ADC Input Channel 12; TMR2: Timer2 Clock Input;
6	SW	P	/	DCDC output	DCDC switch output, connected to inductor
7	VBAT	P	/		connect to battery
8	LDO_IN	P	/		Charge Power Input; UART0TXC: Uart0 Data Output(C); UART0RXC: Uart0 Data Input(C); PWM3: Timer3 PWM Output; CAP1: Timer1 Capture;
9	BT_AVDD	P	/		BT Power
10	PB1	I/O	8/24	GPIO (pull up)	Long Press Reset; UART2TXC: Uart2 Data Output(C); ADC6: ADC Input Channel 6; LP_TH0: Low Power Touch Channel 0;
11	BT_RF	/	/		BT Antenna
12	BT_OSCI	I	/		BTOSC In
13	BT_OSCO	O	/		BTOSC Out
14	PC5	I/O	8/24	GPIO	UART2RXD: Uart2 Data Input(D); SPI1DOB: SPI1 Data Out(B); IIC_SDA_B: IIC SDA(B); ADC5: ADC Input Channel 5;

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15	PC4	I/O	8/24	GPIO	UART2TXD: Uart2 Data Output(D); SPI1CLKB: SPI1 Clk(B); IIC_SCL_B: IIC SCL(B); ADC4: ADC Input Channel 4; PWM4: Timer4 PWM Output; ;
16	USBDM	I/O	4	USB Negative Data (pull down)	UART1RXD: Uart1 Data Input(D); SPI2DOB: SPI2 Data Out(B); IIC_SDA_A: IIC SDA(A); ADC11: ADC Input Channel 11;
17	USBDP	I/O	4	USB Positive Data (pull down)	UART1TXD: Uart1 Data Output(D); SPI2CLKB: SPI2 Clk(B); IIC_SCL_A: IIC SCL(A); ADC10: ADC Input Channel 10;
18	PD6	I/O	8/24	GPIO	
19	PD5	I/O	8/24	GPIO	
20	PA3	I/O	8/24	GPIO	UART2TXA: Uart2 Data Output(A); ADC0: ADC Input Channel 0; PWM1: Timer1 PWM Output; ; Touch0: Touch Input Channel 0;

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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	4.5	V
LDO_IN	Charger Voltage	-0.3	6	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 Recommended Operating Conditions

Table 2-2

Symbol	Parameter	Min	Typ	Max	Unit	Test Conditions
VBAT	Voltage Input	1.8	3.7	4.5	V	
LDO_IN	Charger Voltage	4.5	5.0	5.5	V	
V _{3.3}	Voltage output	1.8	3.0	3.4	V	VBAT = 4.2V, 100mA loading
V _{BT_AVDD}	Voltage output	1.2	1.25	1.35	V	VBAT=4.2V, 100mA loading
I _{L3.3}	Loading current	—	—	150	mA	VBAT = 4.2V

2.3 Battery Charge

Table 2-3

Symbol	Parameter	Min	Typ	Max	Unit	Test Conditions
LDO_IN	Charge Input Voltage	4.5	5	5.5	V	—
V _{Charge}	Charge Voltage	4.15	4.2	4.25	V	—
I _{Charge}	Charge Current	20		200	mA	Charge current at fast charge mode
I _{Trinkl}	Trickle Charge Current	20	45	70	mA	V _{BAT} <V _{Trinkl}

2.4 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	—	$0.3 * V_{DDIO}$	V	$V_{DDIO} = 3.3V$
V_{IH}	High-Level Input Voltage	$0.7 * V_{DDIO}$	—	$V_{DDIO} + 0.3$	V	$V_{DDIO} = 3.3V$
IO output characteristics						
V_{OL}	Low-Level Output Voltage	—	—	0.33	V	$V_{DDIO} = 3.3V$
V_{OH}	High-Level Output Voltage	2.7	—	—	V	$V_{DDIO} = 3.3V$

2.5 Internal Resistor Characteristics

Table 2-5

Port	General Output	High Drive	Internal Pull-Up Resistor	Internal Pull-Down Resistor	Comment
PA3, PB1,PB4, PB6~PB8, PC4,PC5, PD5,PD6,	8mA	24mA	10K	10K	1、PB1 default pull up 2、USBDM & USBDP default pull down 3、internal pull-up/pull-down resistance accuracy $\pm 20\%$
USBDP	4mA	—	1.5K	15K	
USBDM	4mA	—	180K	15K	

2.6 BT Characteristics

2.6.1 Transmitter

Basic Data Rate

Table 2-6

Parameter		Min	Typ	Max	Unit	Test Conditions
RF Transmit Power			6	8	dBm	25℃, Power Supply VBAT=5V 2441MHz
RF Power Control Range			20		dB	
20dB Bandwidth			950		KHz	
Adjacent Channel	+2MHz		-40		dBm	
	-2MHz		-38		dBm	
Transmit Power	+3MHz		-44		dBm	
	-3MHz		-35		dBm	

Enhanced Data Rate**Table 2-7**

Parameter		Min	Typ	Max	Unit	Test Conditions
Relative Power			-1		dB	25°C, Power Supply VBAT=5V 2441MHz
$\pi/4$ DQPSK Modulation Accuracy	DEVM RMS		6		%	
	DEVM 99%		10		%	
	DEVM Peak		15		%	
Adjacent Channel	+2MHz		-40		dBm	
	-2MHz		-38		dBm	
Transmit Power	+3MHz		-44		dBm	
	-3MHz		-35		dBm	

2.6.2 Receiver**Basic Data Rate****Table 2-8**

Parameter		Min	Typ	Max	Unit	Test Conditions
Sensitivity			-94		dBm	25°C, Power Supply VBAT=5V 2441MHz
Co-channel Interference Rejection			-13		dB	
Adjacent Channel	+1MHz		+5		dB	
	-1MHz		+2		dB	
	+2MHz		+37		dB	
Interference Rejection	-2MHz		+36		dB	
	+3MHz		+40		dB	
	-3MHz		+35		dB	

Enhanced Data Rate**Table 2-9**

Parameter		Min	Typ	Max	Unit	Test Conditions
Sensitivity			-94		dBm	25°C, Power Supply VBAT=5V 2441MHz
Co-channel Interference Rejection			-13		dB	
Adjacent Channel	+1MHz		+5		dB	
	-1MHz		+2		dB	
	+2MHz		+37		dB	
Interference Rejection	-2MHz		+36		dB	
	+3MHz		+40		dB	
	-3MHz		+35		dB	

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3、 Package Information

3.1 QFN20_3.0x3.0

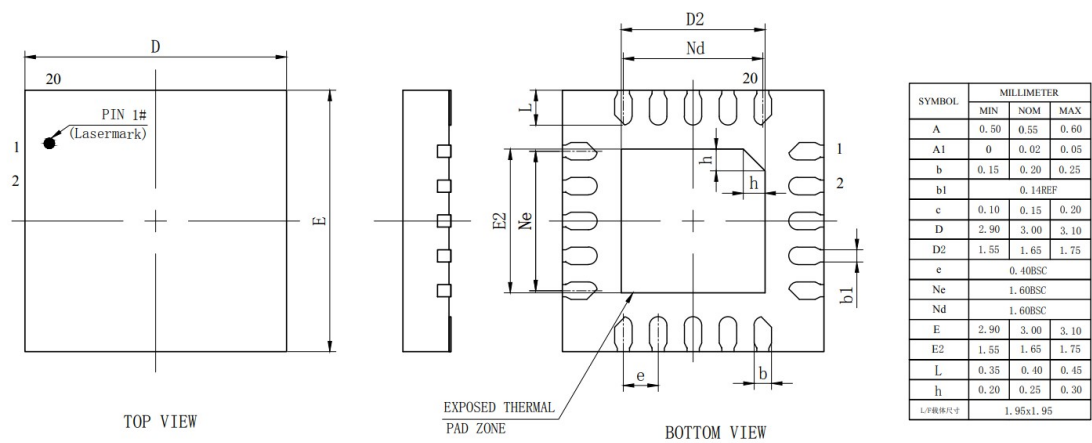
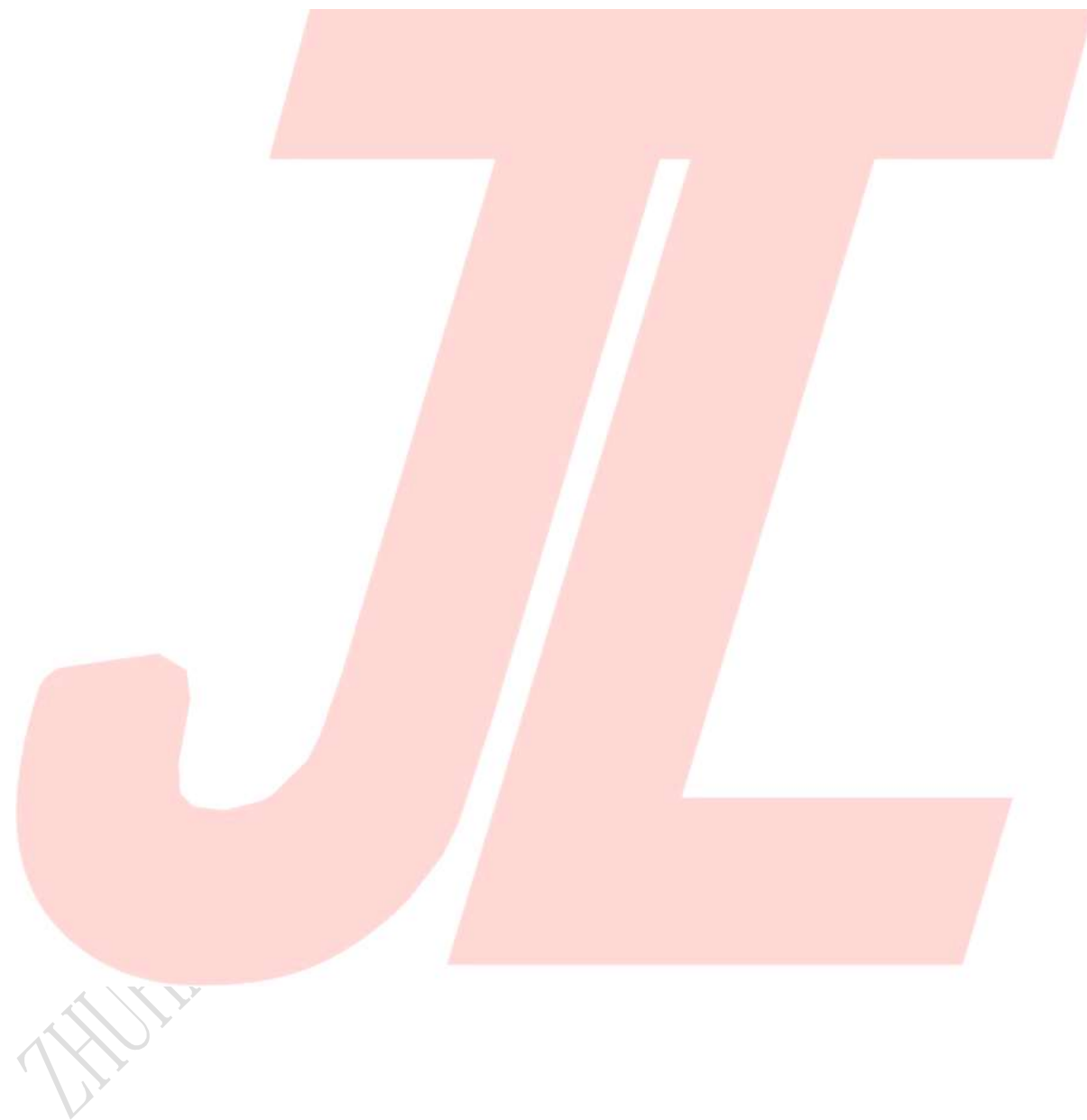


Figure 3-1 AC6373B Package

4、Revision History

Date	Revision	Description
2020.09.16	V1.0	Initial Release

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