AC6369C Datasheet

Zhuhai Jieli Technology Co.,LTD

Version：V1.0

Date：2020.09.14

ZHUHAI JIELI TECHNOLOGY CO.,LTD

Copyright © Zhuhai Jieli Technology Co.,LTD. All rights reserved.

AC6369C Features

CPU

- 32-bit DSP supports hardware Float Point Unit (FPU)
- Up to 160MHz programmable processor
- 64Vectored 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 π/4 DQPSK all packet types
- Provides +6dbm transmitting power
- receiver with -90dBm sensitivity
- Fast AGC for enhanced dynamic range
- Supports a2dp\avctp\avdtp\avrcp\hfp\spp\smp\att\gap\ gatt\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, 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, Bluetooth and flash
- VBAT is 2.2V to 3.4V
- VDDIO is 2.2V to 3.4V

Temperature

- Operating temperature: -40℃ to +125℃
- Storage temperature: -65℃ to +150℃

Packages

- SOP16

Applications

- Bluetooth　IOT

ZHUHAI JIELI TECHNOLOGY CO., LTD

Confidential
The information contained herein is the exclusive property of JIELI and shall not be distributed, reproduced, or disclosed in whole or in part without prior written permission of JIELI.

1、Pin Definition

1.1 Pin Assignment

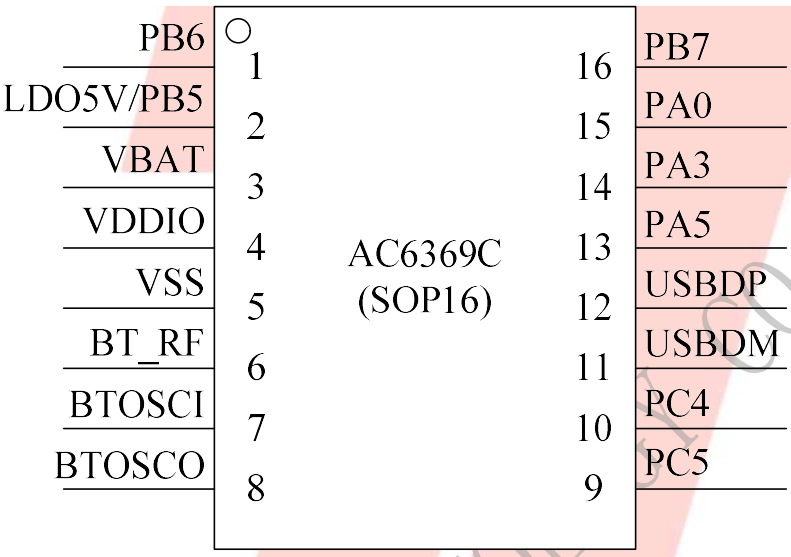


Figure 1-1 AC6369C Package Diagram

ZHUHAI JIELI TECHNOLOGY CO.,LTD

Confidential
The information contained herein is the exclusive property of JIELI and shall not be distributed, reproduced, or disclosed in whole or in part without prior written permission of JIELI.

1.2 Pin Description

Table 1-1 AC6369C Pin Description

PIN NO.	Name	I/O Type	Drive (mA)	Function	Other Function
1	PB6	I/O	24/8	GPIO	IIC_SCL_C：IIC SCL(C); SPI2_CLKA：SPI2 Clock(A); ADC8：ADC Input Channel 8; TMR3：Timer3 Clock Input; UART1TXA：Uart1 Data Out(A);
2	PB5	I/O	8	GPIO (High Voltage Resistance)	PWM3：Timer3 PWM Output; SPI2_DIA：SPI2 Data In(A); CAP1：Timer1 Capture; UART0TXC：Uart0 Data Out(C); UART0RXC：Uart0 Data In(C);
	LDOIN	P	/		Battery Charger In;
3	VBAT	P	/		Battery Power Supply;
4	VDDIO	P	/		IO Power 3.3v;
5	VSS	P	/		Ground;
6	BT_RF	/	/		BT Antenna;
7	BTOSCI	I	/		BT OSC In;
8	BTOSCO	O	/		BT OSC Out;
9	PC5	I/O	24/8	GPIO	IIC_SDA_B：IIC SDA(B); ADC12：ADC Input Channel 12; TMR1：Timer1 Clock Input; UART2RXD：Uart2 Data In(D);
10	PC4	I/O	24/8	GPIO	IIC_SCL_B：IIC SCL(B); ADC11：ADC Input Channel 11; PWM1：Timer1 PWM Output; UART2TXD：Uart2 Data Out (D);
11	USBDM	I/O	4	USB Negative Data (pull down)	IIC_SDA_A：IIC SDA(A); SPI2_DOB：SPI2 Data Out(B); ADC14：ADC Input Channel 14; UART1RXD：Uart1 Data In(D);
12	USBDP	I/O	4	USB Positive Data (pull down)	IIC_SCL_A：IIC SCL(A); SPI2_CLKB：SPI2 Clock(B); ADC13：ADC Input Channel 13; UART1TXD：Uart1 Data Output(D);

ZHUHAI JIELI TECHNOLOGY CO., LTD

Confidential
The information contained herein is the exclusive property of JIELI and shall not be distributed, reproduced, or disclosed in whole or in part without prior written permission of JIELI.

13	PA5	I/O	24/8	GPIO	IIC_SCL_D：IIC SCL(D); PWM0：Timer0 PWM Output; UART0TXA：Uart0 Data Output(A);
14	PA3	I/O	24/8	GPIO	ADC2：ADC Input Channel 2; PWM5：Timer5 PWM Output; UART2TXA：Uart2 Data Output(A);
15	PA0	I/O	24/8	GPIO	ADC0：ADC Input Channel 0; UART1TXC：Uart1 Data Output(C);
16	PB7	I/O	24/8	GPIO	IIC_SDA_C：IIC DAT(C); SPI2_DOA：SPI2 Data Out(A); ADC9：ADC Input Channel 9; PWM5：Timer5 PWM Output; UART1RXA：Uart1 Data In(A);

ZHUHAI JIELI TECHNOLOGY CO., LTD

Confidential
The information contained herein is the exclusive property of JIELI and shall not be distributed, reproduced, or disclosed in whole or in part without prior written permission of JIELI.

2、Electrical Characteristics

2.1 Absolute Maximum Ratings

Table 2-1

Symbol	Parameter	Min	Max	Unit
Tamb	Ambient Temperature	-40	+125	℃
Tstg	Storage temperature	-65	+150	℃
LDOIN	Charger Voltage	-0.3	6	V
VBAT	Supply Voltage	-0.3	4.5	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
LDOIN	Charger Voltage	4.5	5	5.5	V	
VBAT	Voltage Input	2.2	3.7	4.2	V	
V_{VDDIO}	Voltage Input	2.2	3.0	3.4	V	
I_{vddio}	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		300	mA	Charge current at fast charge mode
I_{Trikl}	Trickle Charge Current	20	45	70	mA	$V_{BAT}<V_{Trikl}$

ZHUHAI JIELI TECHNOLOGY CO.,LTD

Confidential
The information contained herein is the exclusive property of JIELI and shall not be distributed, reproduced, or disclosed in whole or in part without prior written permission of JIELI.

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* 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

2.5 Internal Resistor Characteristics

Table 2-5

Port		**General Output**	**High Drive**	**Internal Pull-Up Resistor**	**Internal Pull-Down Resistor**	**Comment**
PA5 PB4,PB6,PB7 PC4~PC5		8mA	24mA	10K	10K	1、USBDM & USBDP default pull down 2、PB5 can pull-up resistance to 5V 3、internal pull-up/pull-down resistance | accuracy ±20%
PA0	Output 0	8mA	24mA	10K	10K	
	Output 1	8mA	64mA			
PB5		8mA	_	10K	10K	
USBDP		4mA	_	1.5K	15K	
USBDM		4mA	_	180K	15K	

ZHUHAI JIELI TECHNOLOGY CO., LTD

Confidential
The information contained herein is the exclusive property of JIELI and shall not be distributed, reproduced, or disclosed in whole or in part without prior written permission of JIELI.

2.6 BT Characteristics

2.6.1 Transmitter

Basic Data Rate Table 2-6

Parameter		Min	Typ	Max	Unit	Test Conditions
RF Transmit Power			4	6	dBm	25℃, Power Supply VBAT=5V 2441MHz
RF Power Control Range			20		dB	
20dB Bandwidth			950		KHz	
Adjacent Channel Transmit Power	+2MHz		-40		dBm	
	-2MHz		-38		dBm	
	+3MHz		-44		dBm	
	-3MHz		-35		dBm	

Enhanced Data Rate Table 2-7

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

2.6.2 Receiver

Basic Data Rate Table 2-8

Parameter		Min	Typ	Max	Unit	Test Conditions
Sensitivity			-90		dBm	25℃, Power Supply VBAT=5V 2441MHz
Co-channel Interference Rejection			-13		dB	
Adjacent Channel Interference Rejection	+1MHz		+5		dB	
	-1MHz		+2		dB	
	+2MHz		+37		dB	
	-2MHz		+36		dB	
	+3MHz		+40		dB	

ZHUHAI JIELI TECHNOLOGY CO., LTD

Confidential
The information contained herein is the exclusive property of JIELI and shall not be distributed, reproduced, or disclosed in whole or in part without prior written permission of JIELI.

	-3MHz		+35		dB	

Enhanced Data Rate **Table 2-9**

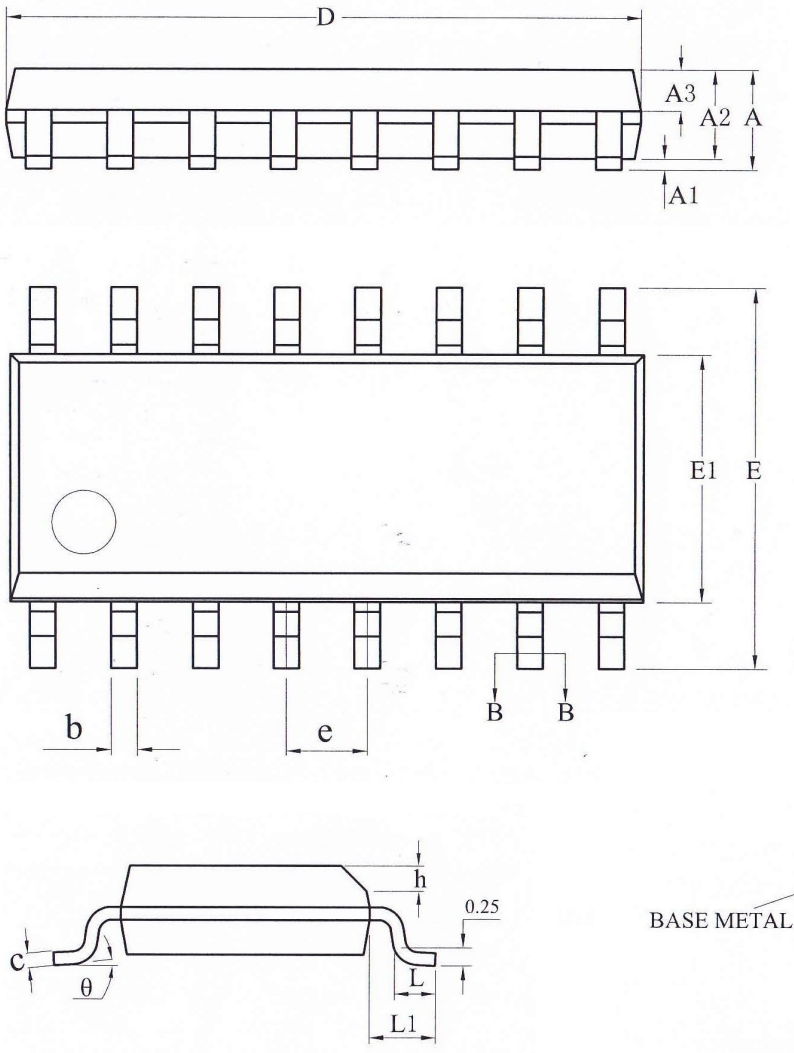
Parameter		Min	Typ	Max	Unit	Test Conditions
Sensitivity			-90		dBm	25℃, Power Supply VBAT=5V 2441MHz
Co-channel Interference Rejection			-13		dB	
Adjacent Channel Interference Rejection	+1MHz		+5		dB	
	-1MHz		+2		dB	
	+2MHz		+37		dB	
	-2MHz		+36		dB	
	+3MHz		+40		dB	
	-3MHz		+35		dB	

ZHUHAI JIELI TECHNOLOGY CO.,LTD

Confidential
The information contained herein is the exclusive property of JIELI and shall not be distributed, reproduced, or disclosed in whole or in part without prior written permission of JIELI.

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 AC6369C Package

Confidential
The information contained herein is the exclusive property of JIELI and shall not be distributed, reproduced, or disclosed in whole or in part without prior written permission of JIELI.

4、Revision History

Date	Revision	Description
2020.09.14	V1.0	Initial Release

ZHUHAI JIELI TECHNOLOGY CO.,LTD

Confidential
The information contained herein is the exclusive property of JIELI and shall not be distributed, reproduced, or disclosed in whole or in part without prior written permission of JIELI.