



Specification

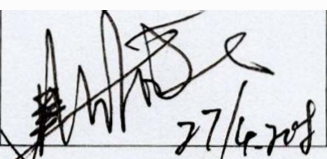
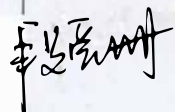

Product: Bluetooth module

P/N: F-3309 V1.0

NO.: XZX-SPEC-BT-RD-032

Version: V1.0

Date: 2018-04-28

编制	审核	批准
		

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一、Product overview

F-3309(QCC3003) is the Bluetooth module for intelligent wireless audio transmission products designed by our company. F-3309 also is the high end stereo audio Bluetooth solution with high performance. The main chip uses Qualcomm QCC3003 chip, providing the high quality and best compatibility. Without any driver, you can connect the module with your device to enjoy the high quality music easily.

二、Application Area

F-3309 is used for Bluetooth audio transmission and it is convenience to connect with mobile phone, personal computer, PDA and other digital products with Bluetooth hardware to enjoy the music wirelessly. The major application are included:

- ※ High-end bluetooth speaker
- ※ Bluetooth stereo headset
- ※ Hands-free Phone
- ※ Bluetooth speaker with data transmission
- ※ Bluetooth data transmission application
- ※ Supporting mobile Internet peripherals
- ※ Smart bluetooth speaker

三、Main Features

Bluetooth Profiles

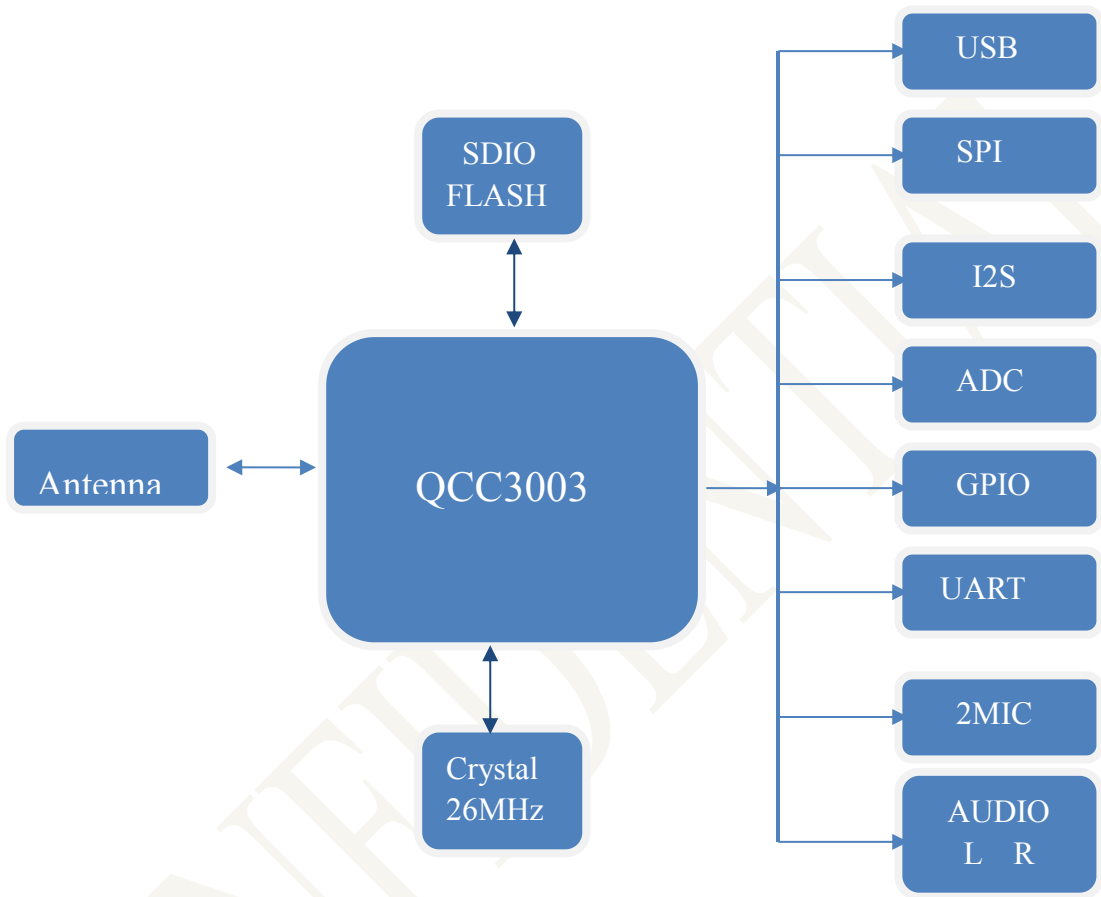
- ※ 80 MHz RISC CPU and 80 MHz Qualcomm® Kalimba™ DSP
- ※ On-chip ROM, RAM, and external QSPI flash memory
- ※ Link Layer and Dual Mode Topologies
- ※ Over the air updates of external Flash partitions
- ※ Wideband speech support
- ※ Stereo Codec
- ※ Stereo line input
- ※ SBC and AAC audio codecs support
- ※ 1-mic cVc headset NR/EC
- ※ Bluetooth HID remote camera control

- ※ Audio interfaces: I²S and PCM, analog and digital microphone
- ※ Fully configurable EQ: 6 banks for music enhancement; 1 bank for speaker
- ※ Serial interfaces: UART, USB 2.0, and I²C
- ※ Integrated dual switch-mode regulators, linear regulators, and battery charger

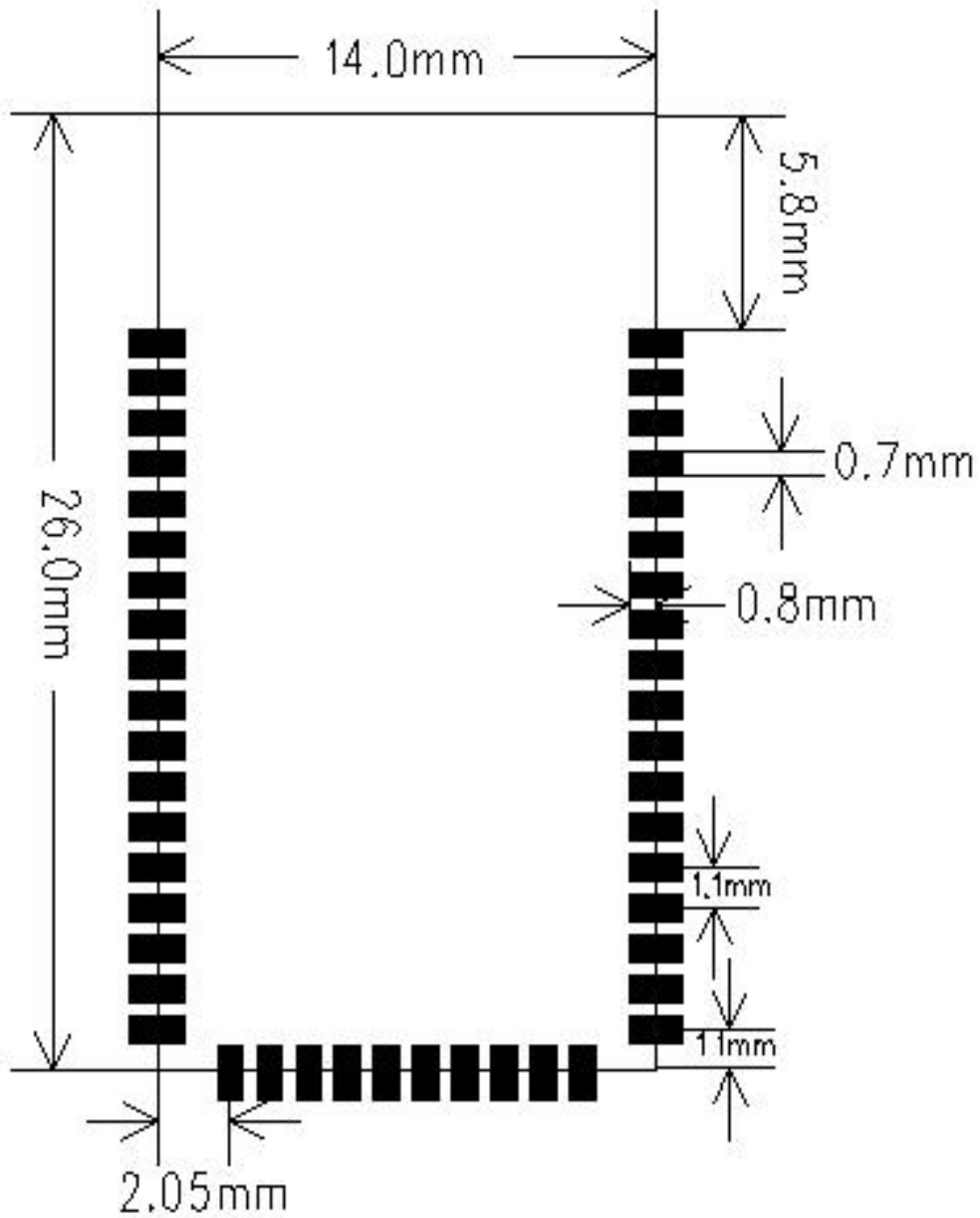
四、Parameters

P/N	F-3309(QCC3003) V1.0
Bluetooth version	Bluetooth V5.0
Modulation mode	GFSK, $\pi/4$ DQPSK, 8DPSK
Service voltage	3.3-4.2V
Bluetooth protocol	A2DP v1.3.1, AVRCP v1.6, HFP v1.7, HSP v1.2, SPP v1.2, DID v1.3, HID v1.1, PXP v1.0.1, FMP v1.0, BAS v1.0
Working Current	$\leq 20\text{mA}$
Standby Current	$< 500\mu\text{A}$
Temperature range	-40°C to $+80^{\circ}\text{C}$
Wireless transmission range	> 10 meters
Transmission power	CLASS2 $< 4\text{dBm}$
Sensitivity	$-85\text{dBm} < 0.1\% \text{BER}$
Frequency range	2.402GHz-2.480GHz
The external interface	PIO, SPI, AIO, UART, USB, I2S, MIC, LIN, SPK(L/R)
Support system	android, IOS and windows
Audio decoding output	SBC, AAC
Audio SNR	$\geq 80\text{dB}$
Degree of distortion	$\leq 0.1\%$
Module size	26*14*2MM

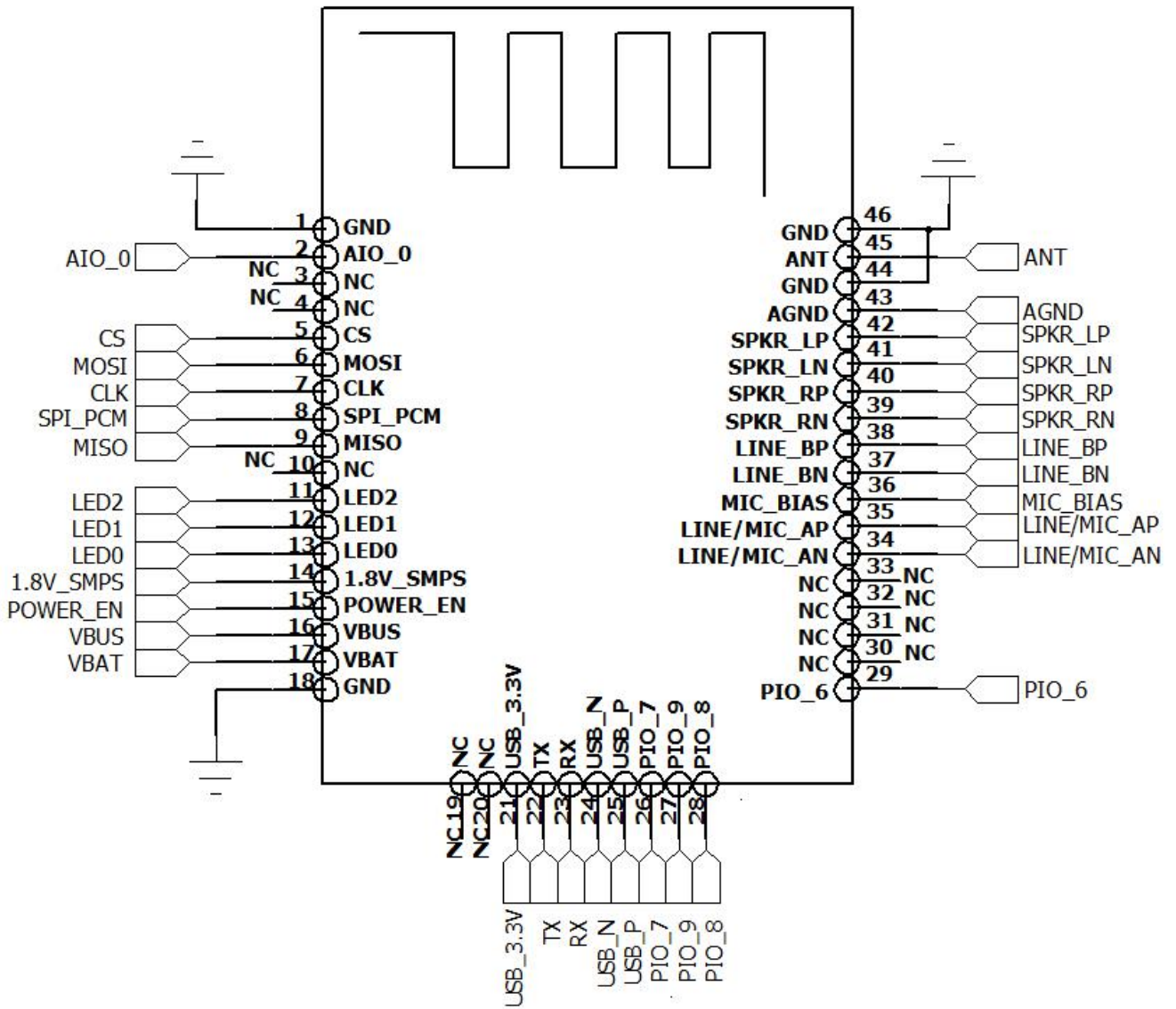
五、Module block diagram



六、Outline dimension(module foot print)



七、Device pinout diagram



八、Pin definition

In this section the following abbreviations are used:

I: Input

O: Output

I/O: Bi-Directional Input/Output **Digital:** Bidirectional with programmable strength internal pull-up/pull-down

B: DETA-Directional Input/Output

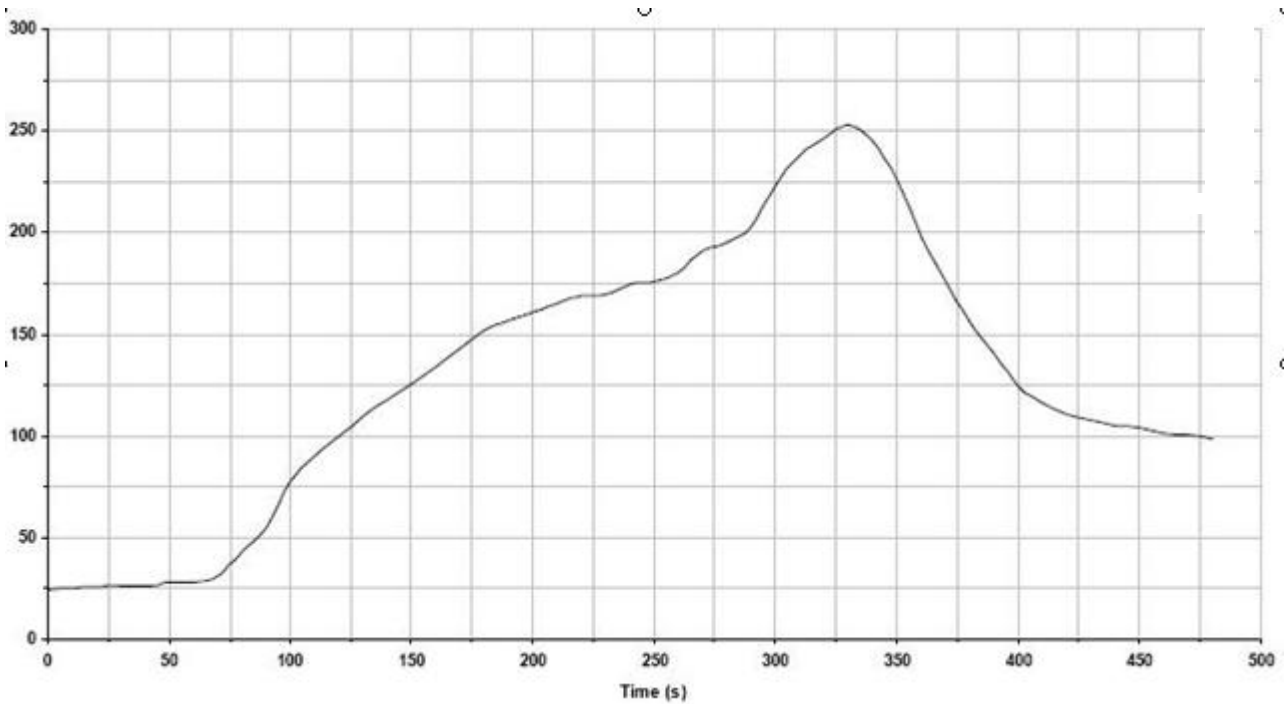
Pin	Symb	Pad type	Description
1	GND	GND	GND
2	AIO_0	B	Analog programmable input line 0.
3	NC	NC	NC
4	NC	NC	NC
5	CS	B	SPI flash chip select
6	MOSI	B	I2S1_SD_IN: I ² S1 synchronous data input SPI_MOSI: Debug SPI data input
7	CLK	B	SPI_CLK: Debug SPI clock I2S1_SCK: I ² S1 synchronous data clock
8	SPI_PCM	B	SPI/I ² S select input:0 = I ² S/PIO interface 1 = SPI
9	MISO	B	SPI_MISO: Debug SPI data output I2S1_SD_OUT: I ² S1 synchronous data output
10	NC	NC	NC
11	LED2	O	Open-drain output
12	LED1	O	Open-drain output
13	LED0	O	Open-drain output
14	1.8V_SMPS	O	1.8V_SMPS out
15	POWER_EN	I	A high input (tolerant to VBAT voltages) enables the on-chip regulators
16	VBUS	I	Charger input. Typically connected to USB VBUS
17	VBAT	I	VBAT 3.3V—4.2V
18	GND	GND	GND
19	NC	NC	NC
20	NC	NC	NC
21	USB_3.3V	O	USB_3.3V OUT
22	TX	O	UART_TX: UART data output GPIO1
23	RX	I	UART_RX: UART data input GPIO0

24	USB_N	B	USB data N
25	USB_P	B	USB data P
26	PIO_7	B	GPIO7
27	PIO_9	B	UART_CTS: UART clear to send, active low GPIO9
28	PIO_8	B	UART_RTS: UART request to send, active low GPIO8
29	PIO_6	B	GPIO6
30	NC	NC	NC
31	NC	NC	NC
32	NC	NC	NC
33	NC	NC	NC
34	LINE/MIC_AN	I	Line or microphone input negative, channel A
35	LINE/MIC_AP	I	Line or microphone input positive, channel A
36	MIC_BIAS	O	Microphone bias
37	LINE_BN	I	Microphone input negative, channel B
38	LINE_BP	I	Microphone input negative, channel B
39	SPKR_RN	O	Speaker output negative, right
40	SPKR_RP	O	Speaker output negative, right
41	SPKR_LN	O	Speaker output negative, left
42	SPKR_LP	O	Speaker output negative, left
43	AGND	AGND	AUDIO GND
44	GND	GND	GND
45	ANT	B	Bluetooth transmit/receive.
46	GND	GND	GND

九、Note

- A. If the module antenna next to the battery、 metal, liquid crystal screen, loudspeaker, at least keep them away from antenna distance 15mm
- B. When layout the power supply line recommended star line, and to ensure that the Bluetooth module Power supply lines is better , and BT should be with the amplifier, power amplifier, MCU,separately, and the underside of the BT has no other interference.
- C. Please don't let control lines, power lines, audio lines, MIC and other interference lines around the antenna .
- D. If the module antenna near the row seats, Because of metal will block the signal transmission, it is recommended to use professional high-gain antenna.

十、The reflow temperature



Key features of the profile:

- Initial Ramp=1-2.5°C/sec to 175°C equilibrium
- Equilibrium time=60 to 80 seconds
- Ramp to Maximum temperature (250°C)=3°C/sec Max
- Time above liquidus temperature(217°C): 45 - 90 seconds
- Device absolute maximum reflow temperature: 250°C