

PRODUCT SPECIFICATION

Product Name: BT Module

Product model: F-6986 V1.0

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1. Product Overview:

The F-6986 Bluetooth module is an intelligent wireless audio data transmission product independently developed by the company. It is a low-cost and cost-effective stereo wireless transmission solution. The module uses the BK3266A chip QFN40 package design of BEKEN. The Bluetooth module adopts a drive-free mode. Customers only need to connect the module to the application product to quickly realize the wireless transmission of music, enjoy the fun of wireless music, and support simple data transmission functions. Support intelligent voice prompt and report function; integrated TF card playback function; integrated mobile U disk playback function; support internal LINE-IN; support internal MIC call; and support BT HOST to transmit AUX analog signal to other Bluetooth receiver products to achieve BT Launch function.

2. Application areas:

This module is mainly used for short-distance music transmission. It can be easily connected to the Bluetooth devices of digital products such as notebook computers, mobile phones, PDAs, etc. to realize wireless transmission of music.

- ※ High-end Bluetooth audio
- ※ Bluetooth stereo headset
- ※ speakerphone
- ※ Bluetooth wireless audio transmission
- ※ Bluetooth data transmission application
- ※ Support mobile internet peripherals
- ※ Bluetooth Smart Speaker
- ※ Bluetooth HOST launch product

3. Basic characteristics:

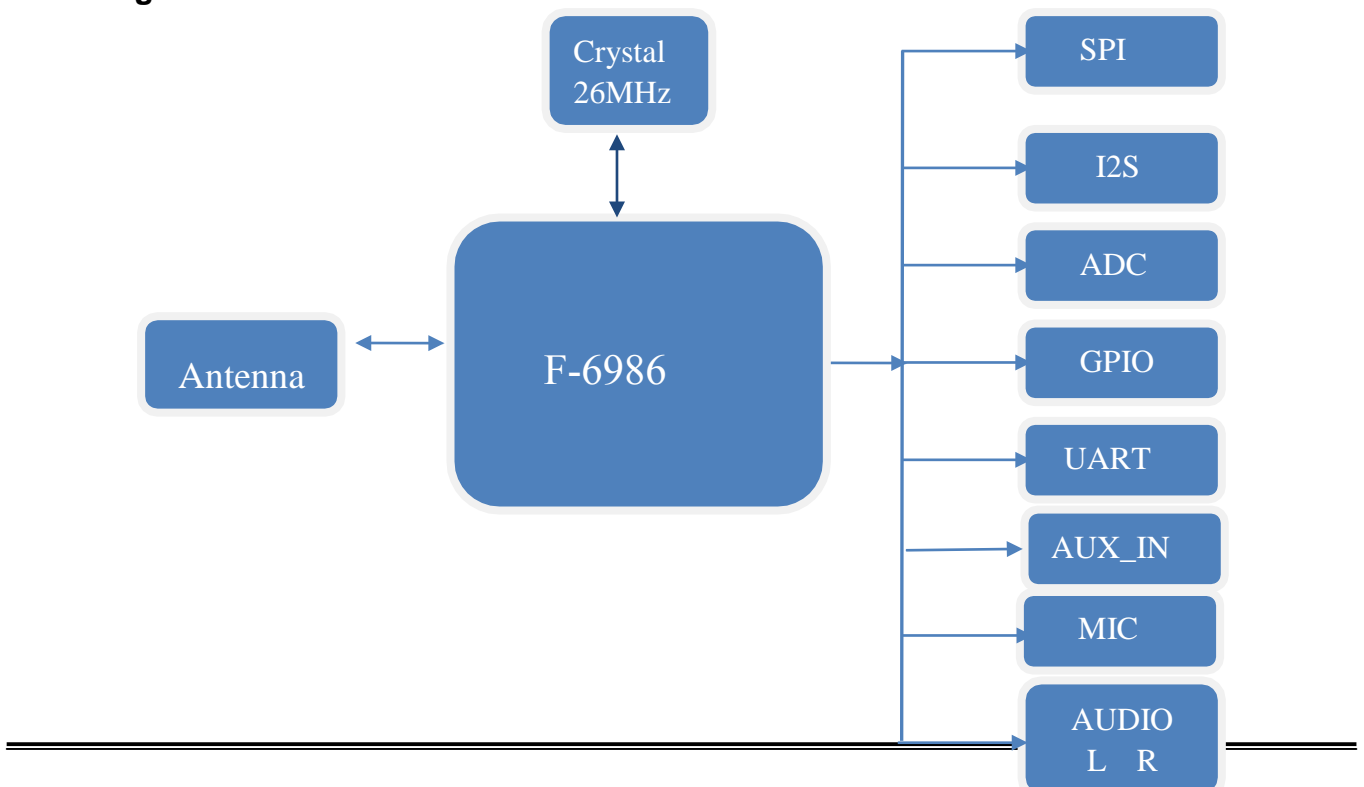
- ※ Bluetooth Profiles
 - ※ Bluetooth V5.0 specification support
 - ※ 9 mA average current for A2DP
 - ※ 0.8 uA deep sleep current
 - ※ Bluetooth 4.2 classic and low energy
 - ※ A2DP v1.3, AVRCP v1.6, HFP v1.7, HID v1.1, AVCTP v1.4, AVDTP v1.3, and SPP v1.2
 - ※ True wireless stereo and two active link
 - ※ Two wires UART download interface
 - ※ 16 bits stereo ADC and DAC
 - ※ Stereo line in and dual microphone
 - ※ Five bands digital hardware equalizer
 - ※ SPI, UART, I2C, SDIO and USB
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- ※ I2S master and slave interface with MCLK output
- ※ Interface for external PA and LNA
- ※ Up to 220 mA battery charge controller

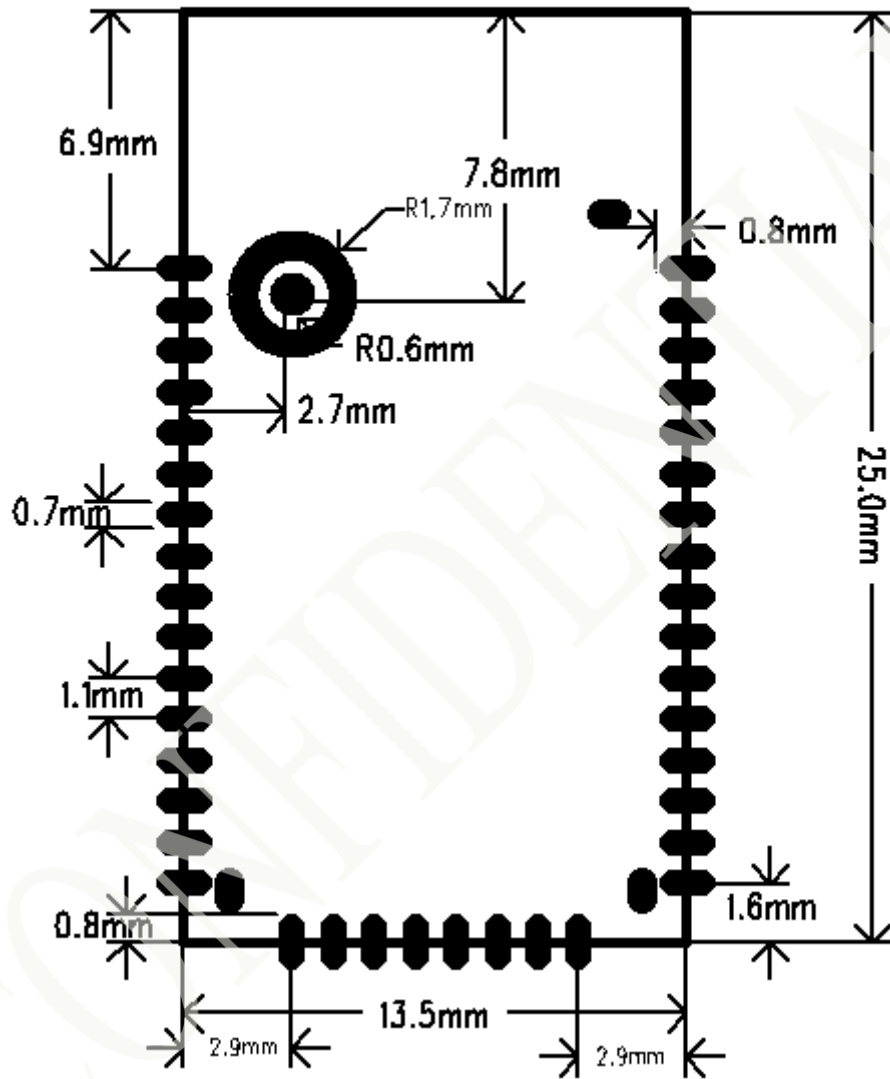
4. Performance parameters:

Model	F-6986
Bluetooth specification	Bluetooth V5.0
Supply voltage:	DC3.3-4.2V
Support Bluetooth protocol	A2DP v1.3, AVRCP v1.6, HFP v1.7, HID v1.1, AVCTP v1.4, AVDTP v1.3, and SPP v1.2
Working current	≤20mA
stand-by current	<500uA
temperature range	-40°C to +80°C
Wireless transmission range:	More than 10 meters
Transmission power:	CLASS2, 4dbm
Sensitivity:	-81dBm<0.1%BER
Frequency Range:	2.402GHz-2.480GHz
External Interface:	SPI, UART, I2C, GPIO,SDIO and USB
Audio performance	SBC Decoding
Audio S/n:	≥75dB
Module size	25 X 13.5 X 2mm

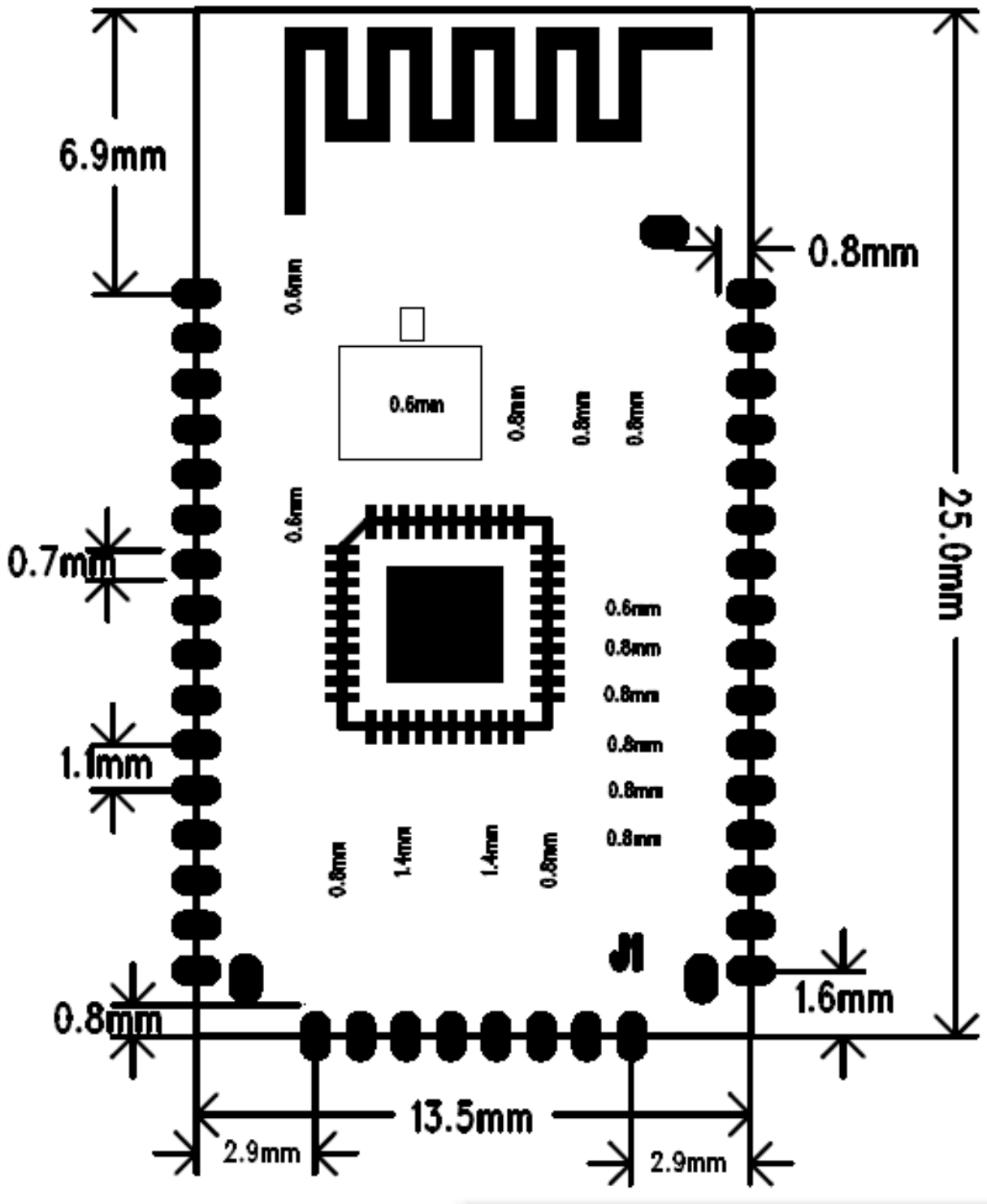
5. Block diagram:



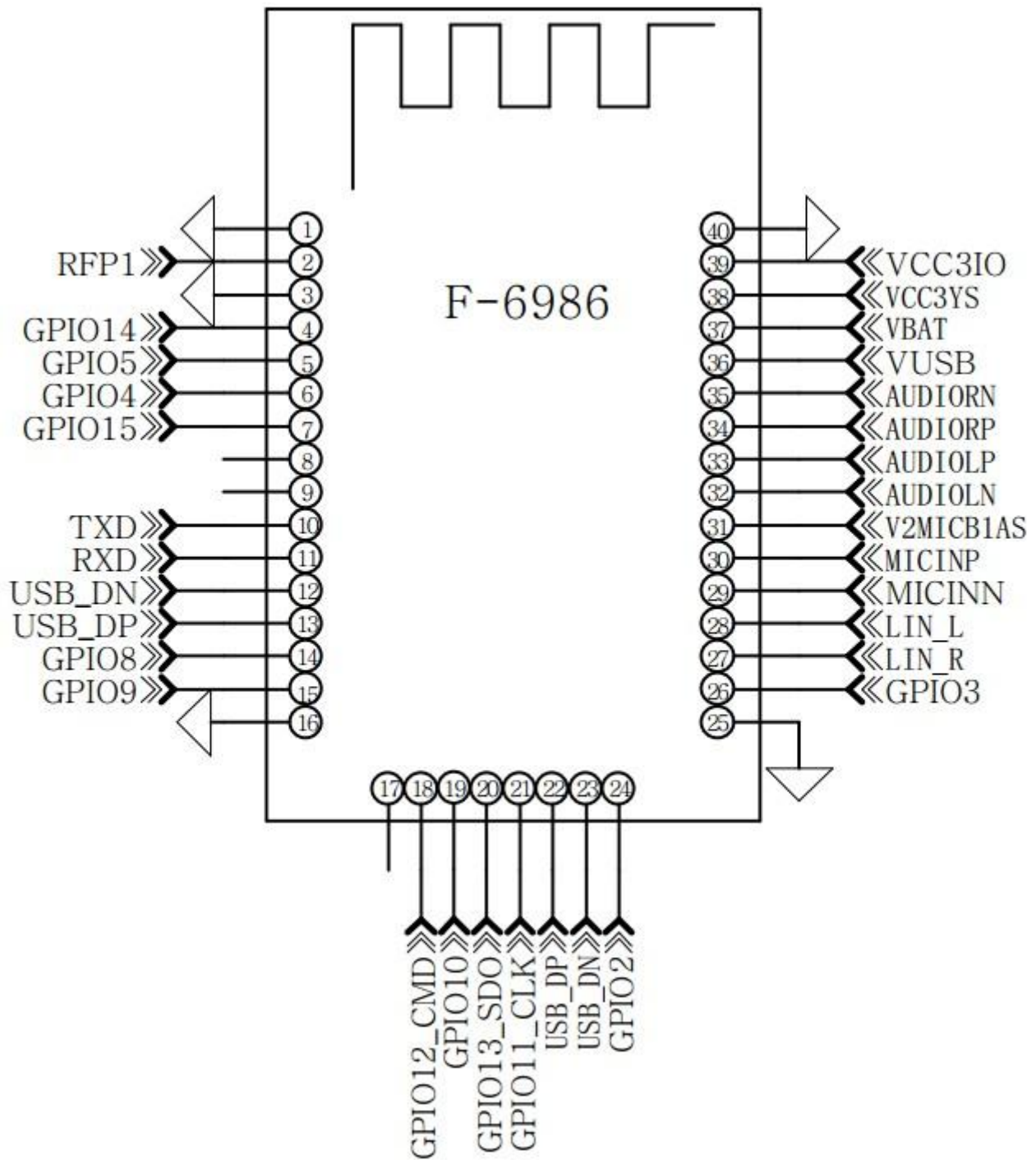
6.Model Size:



7.The height dimensions of the packaging materials of the module:



8.Module pin definition diagram:



9.Pin function description:

Pin	Symb	I/O	Description
1	GND	GND	RF_GND
2	RF_OUT	RF	RF_OUT / NC
3	GND	GND	RF_GND
4	GPIO14	Digital I/O	GPIO14, JTAG_TDO/PWM5/ADC7/PCM_DOUT
5	GPIO5	Digital I/O	GPIO5,SPI_MISO//I2C_SDA
6	GPIO4	Digital I/O	GPIO4,SPI_MOSI//I2C_SCL
7	GPIO15	Digital I/O	GPIO15, Soft shut down and wake up (active high)
8	NC	NC	NC
9	NC	NC	NC
10	TX	Digital I/O	GPIO0, UART_TXD/I2C_SCL, Download port
11	RX	Digital I/O	GPIO1, UART_RXD/I2C_SDA, Download port
12	USB_DN/NC	Digital I/O	GPIO7, PWM1 / USBN./NC
13	USB_DP/NC	Digital I/O	GPIO6, PWM0 / USBP./NC
14	GPIO8	Digital I/O	GPIO8, SD_CLK//SPI2_SCK
15	GPIO9	Digital I/O	GPIO9, SD_CMD/TX_EN/SPI2_MOSI
16	GND	GND	Ground connect battery negative
17	NC	NC	NC
18	GPIO12_CMD	Digital I/O	GPIO12,JTAG_TMS/PWM3/PCM_CLK/S D_CMD/ SPI2_MOSI
19	GPIO10	Digital I/O	GPIO10, SD_DATA0/RX_EN/SPI2_MISO
20	GPIO13_SDO	Digital I/O	GPIO13,JTAG_TDI/PWM4/ADC6/PCM_DI N/S D_DATA0/SPI2_MISO
21	GPIO11_CLK	Digital I/O	GPIO11,JTAG_TCK/PWM2/ADC4/PCM_S YNC/S D_CLK//SPI2_SCK
22	USB_DP	Digital I/O	GPIO6, PWM0 / USBP
23	USB_DN	Digital I/O	GPIO7, PWM1 / USBN
24	GPIO2	Digital I/O	GPIO2, SPI_CSN/ADC1/IrDA/Capture Time
25	GND	GND	GND
26	GPIO3	Digital I/O	GPIO3, SPI_SCK/ADC2/CLKOUT

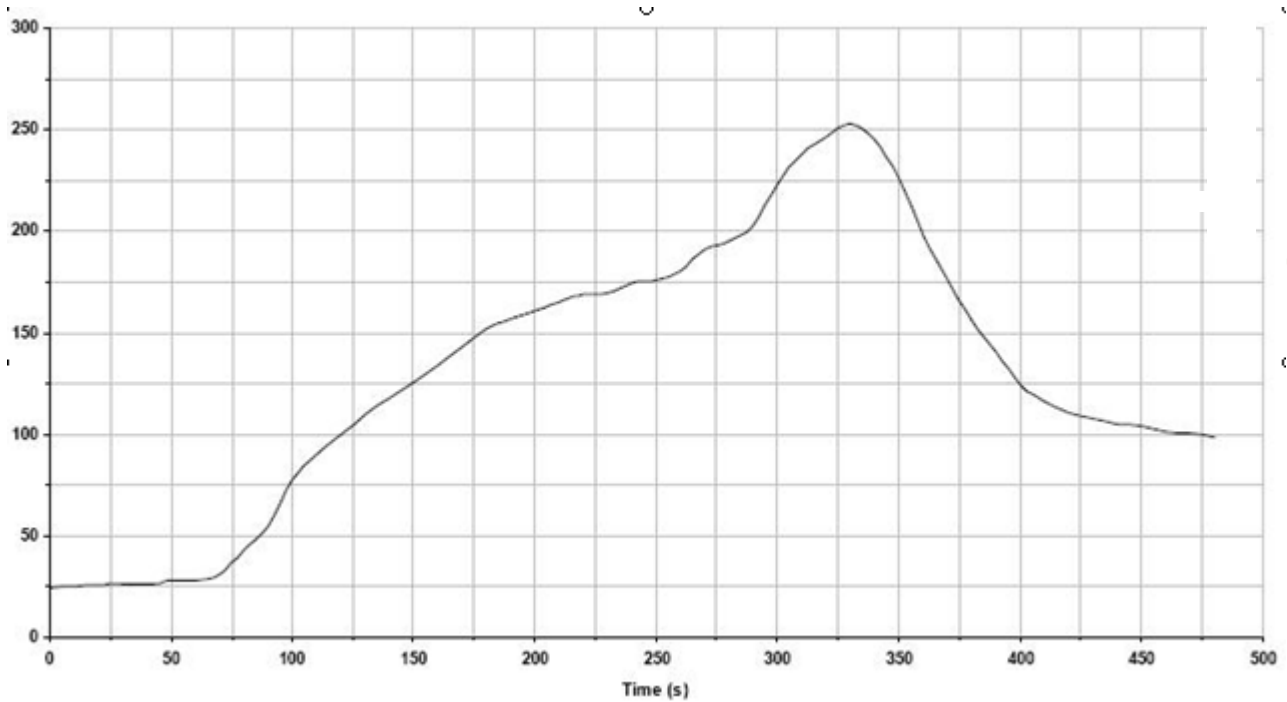
27	LINR	AUX_INPUT	LINR
28	LINL	AUX_INPUT	LINL
29	MICINA	MIC-NC	Microphone input negative,/NC
30	MICINP	MIC+	Microphone input positive
31	V2MICB1AS	VMIC	Microphone reference voltage
32	AUDIOLN	Audio output	Audio left channel negative
33	AUDIOLP	Audio output	Audio left channel positive
34	AUDIORP	Audio output	Audio right channel positive
35	AUDIORN	Audio output	Audio right channel negative
36	VUSB	Power	VUSB (4.7-5.2V)
37	VBAT	Power supply	Power supply(3.3V-4.2V)
38	VCC3YS	Power	3.3V OUTPUT
39	VCC3IO	VCCSD	SD POWER
40	GND	GND	GND

10. circuit connection note:

During the application of the module, please pay attention to avoid the influence of interference sources such as power amplifier, booster line, DC/DC circuit on the module, and avoid the power supply circuit of the module forming a series circuit with the high-power circuit unit to improve the SNR of the whole machine

11. Matters needing attention:

- A. Regarding the use environment of wireless Bluetooth, wireless signals including Bluetooth applications are greatly affected by the surrounding environment, such as Obstacles such as trees and metals will absorb the wireless signal to some extent, so in practical applications, the distance of data transmission is affected to a certain extent.
- B. Since the Bluetooth module must be matched with the existing system, it is placed in the housing. Because the metal shell shields the radio frequency signal. So it is recommended not to install in a metal casing.
- C. PCB layout: The antenna part of the Bluetooth module is the PCB antenna. Since metal will weaken the function of the antenna, when laying the module, it is strictly forbidden to lay the ground and route under the module antenna. It is better if it can be hollowed out.
- D. In applications where the module is frequently powered, when ShutDown is turned off, it can only be woken up by the GPIO15 pin of the module, and must be woken up at a high level:
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12. Recommended 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