



产品规格书 Specification

产品名称：双语蓝牙模块

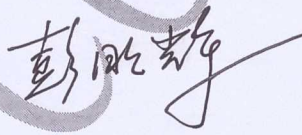
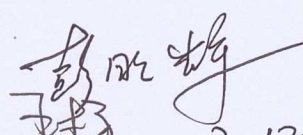
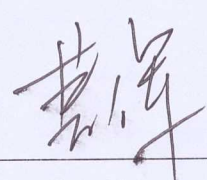
Product name: Bilingualism Bluetooth module

产品型号 Product model: F-6699S

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一、产品概述 Product overview:

F-6699S 蓝牙模块为本公司自主开发的智能型无线音频数据传输产品，是低成本的高性价比的立体声无线传输方案，模块采用了 BEKEN 的 BK3260S 芯片(在 BK3260N 基础上增加了 PA,LNA 使能脚与 BLE 功能)为模块提供了高品质的音质和兼容性，整体性能更优越。F-6699S 蓝牙模块采用免驱动方式，客户只需要把模块接入应用产品，就可以快捷地实现音乐的无线传输，享受无线音乐的乐趣；

Intelligent wireless audio data transmission products F-6699S Bluetooth module for the independent development of the company, is a stereo radio transmission scheme of low cost and high efficiency, module uses BEKEN BK3260S chip with high quality sound and compatibility for the module, the overall performance optimization. F-6699S Bluetooth module with free driving mode, customers only need to access the application module products, wireless transmission can quickly realize the music, enjoy wireless music.



TOP



Bottom

二、应用领域 Application area:

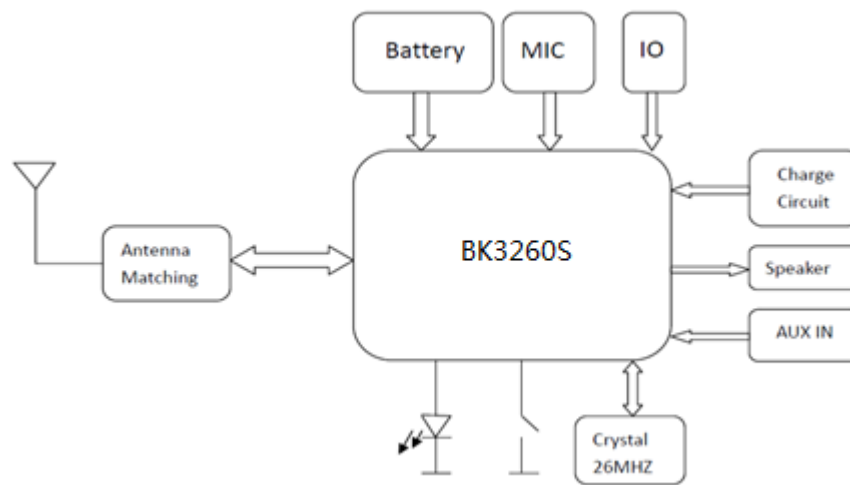
该模块主要用于短距离的音频传输，可以方便地和笔记本电脑，手机，PDA 等数码产品的蓝牙设备相连，实现音乐的无线传输。

This module is mainly used for music transmission in short distance, can be connected with mobile phone and personal computer, conveniently, the connection between PDA and other digital products, enjoy Bluetooth wireless transmission of music.

- ※ 蓝牙立体声耳机 Bluetooth stereo headset
- ※ 免提电话 Hands-free phone
- ※ 蓝牙无线传输音频 Bluetooth wireless audio transmission
- ※ 智能语音音响 Intelligent voice sound



三、模块方框图 Block diagram:

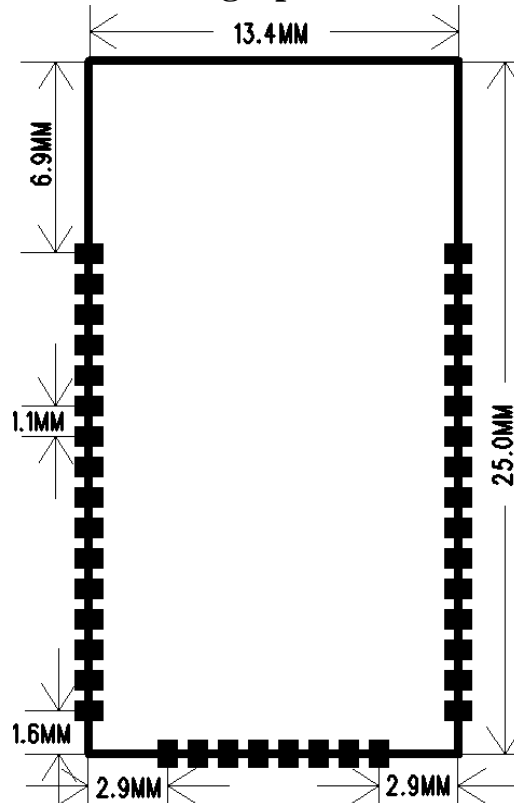


四、性能参数 performance parameter:

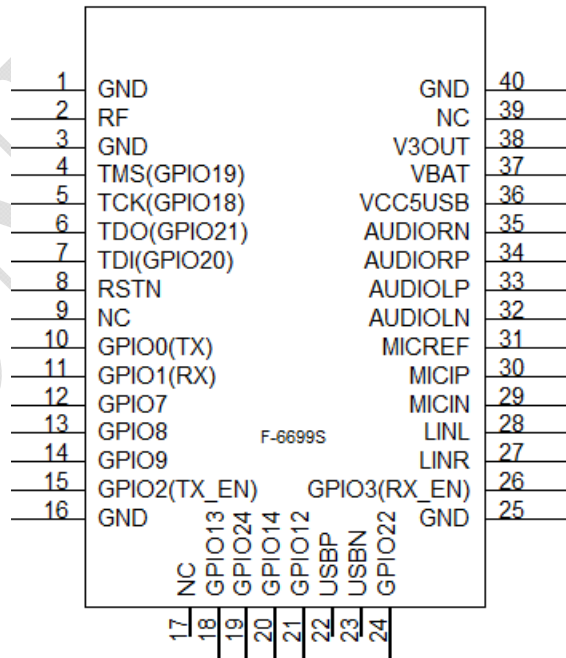
型号 Model	F-6699S
蓝牙规格 The Bluetooth specification	Bluetooth V4.2+EDR+BLE
调制方式 Modulation mode	GFSK, $\pi/4$ DQPSK, 8DPSK
供电电压 Supply voltage	Battery voltage VDD:3.3V-4.2V
支持蓝牙协议 Support Bluetooth protocol	A2DP V1.2, AVCTP V1.4, AVDTP V1.2, AVRCP V1.5, GAVDP V1.2, HFP V1.5, HSP V1.2
工作电流 Working current	$\leq 30\text{mA}$
待机电流 The standby current	$< 10\mu\text{A}$
工作温度 Working current	-20°C to 50°C
储存温度 Storage temperature	-40°C to 80°C
无线传输范围 The wireless transmission range	≥ 10 米 (可通过外接 PA,LNA 实现远距离传输) $\geq 10\text{meter}$ (Remote transmission can be achieved by connecting PA and LNA)
传输功率 Transmission power	CLASS2 4dBm
灵敏度 Sensitivity	$-85\text{dBm}@0.1\%BER$
频率范围 Frequency range	2.402GHz-2.480GHz
对外接口 The external interface	I2C,SPI,UART,IO
音频性能 Audio performance	SBC 解码(decode)
音频信噪比 The audio signal to noise ratio	$\geq 75\text{dB}$
模块尺寸 Module size	25X13.4X1.8MM



五、模块尺寸图 The size of the module graph:



六、模块脚位定义图 Module pin definition diagram:



注：第 22，23 脚只能用 U 盘，不能当普通 IO 口用；

Note: the foot of 22,23 can only be used with U disk, and it can not be used as a common IO mouth.



七、引脚功能说明 Pin description:

Pin	Symb	I/O	Description
1	GND	GND	RF_GND
2	RF	RF	RF
3	GND	GND	RF_GND
4	TMS(GPIO19)	Digital I/O	JTAG pin
5	TCK(GPIO18)	Digital I/O	JTAG pin
6	TDO(GPIO21)	Digital I/O	JTAG pin
7	TDI(GPIO20)	Digital I/O	JTAG pin
8	RSTN	Digital I/O	JTAG pin / Reset pin-low active
9	NC	NC	NC
10	GPIO0(TX)	Digital I/O	UART TX
11	GPIO1(RX)	Digital I/O	UART RX
12	GPIO7	Digital I/O	GPIO7
13	GPIO8	Digital I/O	GPIO8
14	GPIO9	Digital I/O	GPIO9
15	GPIO2	Digital I/O	PA Enable Pin
16	GND	GND	Ground connect battery negative
17	NC	NC	NC
18	GPIO13	SD card command	SD card command
19	GPIO24	Digital I/O	GPIO24
20	GPIO14	SD card data	SD card data
21	GPIO12	SD card clock	SD card clock
22	USBP	USB 接口	USBP
23	USBN	USB 接口	USBN
24	GPIO22	Digital I/O	GPIO22
25	GND	GND	GND
26	GPIO3	Digital I/O	LNA Enable Pin
27	LINR	AUX_INPUT	LINR
28	LINL	AUX_INPUT	LINL
29	MICN	MICN	MICN
30	MICP	MIC+	MICP
31	MICREF	VMIC	MICREF
32	AUDIOLN	Audio output	Left channel audio output nepative
33	AUDIOLP	Audio output	Left channel audio output positive
34	AUDIORP	Audio output	Right channel audio output positive
35	AUDIORN	Audio output	Right channel audio output nepative
36	VCC5USB	VCC5USB	5V input charging



37	VBAT	Power supply	Power supply
38	VCC	Power	3.3v output
39	NC	NC	NC
40	GND	GND	GND

八、电路连接注意 Design notes:

F-6699S 模块应用过程中, 请注意避免功放、升压线路等干扰源对模块的影响, 避免模块供电回路同大功率电路单元形成串联回路, 以此来提高整机 SNR

The F-6699S module in the application process, please pay attention to avoid the influence of power amplifier, a boost circuit to avoid interference source module, module power supply circuit with high power circuit unit to form a series circuit, in order to improve the SNR

九、注意事项 Connection circuit:

A. 关于无线蓝牙的使用环境, 无线信号包括蓝牙应用都受周围环境的影响很大, 如树木、金属等障碍物会对无线信号有一定的吸收, 从而在实际应用中, 数据传输的距离受一定的影响。

About the Bluetooth wireless application environment, wireless signal includes a Bluetooth application are influenced by the surrounding environment, such as Wood, metal and other obstacles will be absorbed the wireless signal, thus in the practical application, influence the distance of data transmission

B. 由于蓝牙模块都要配套现有的系统, 放置在外壳中。由于金属外壳对无线射频信号是有屏蔽作用的。所以建议不要安装在金属外壳中。

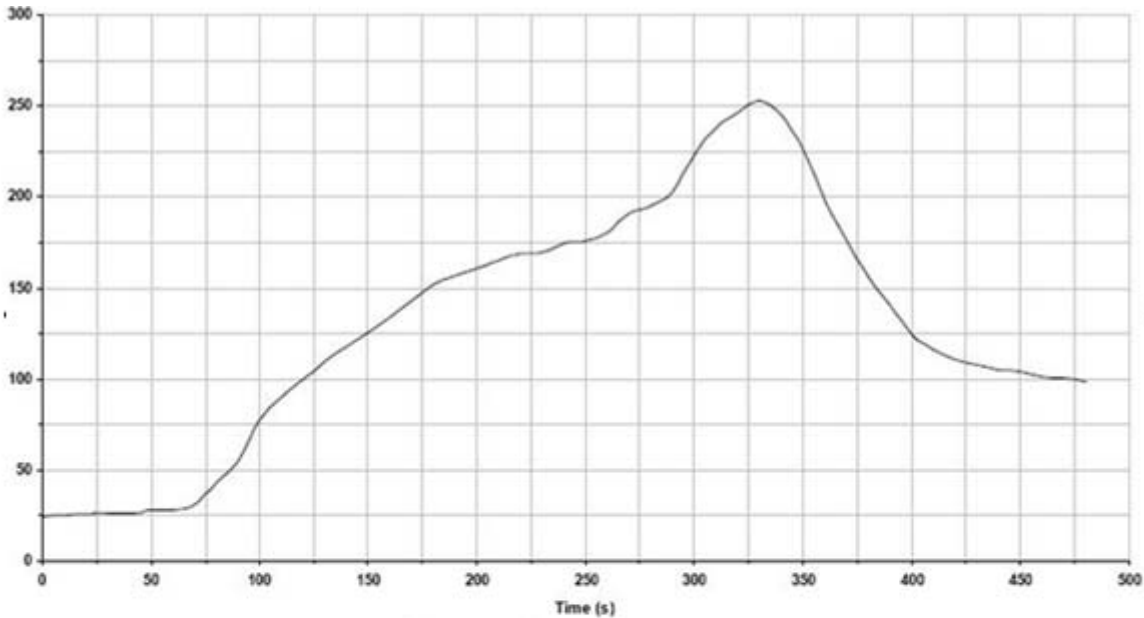
Because Bluetooth module to complete the existing system, placed in the shell. Because of the metal shell on the radio frequency signal Is a shielding effect. It is recommended not to install in a metal shell.

C. PCB 布板: 蓝牙模块的天线部分的是 PCB 天线, 由于金属会削弱天线的功能, 在给模块布板的时候, 模块天线下面严禁铺地和走线, 若能挖空更好。

PCB Layout: The antenna part of the Bluetooth module is the PCB antenna, the metal will weaken the function of antenna, while to the module layout, below the antenna module is prohibit paving and walk the line, if hollow out it is better.



十、推荐回流温度 Recommended reflow temperature:

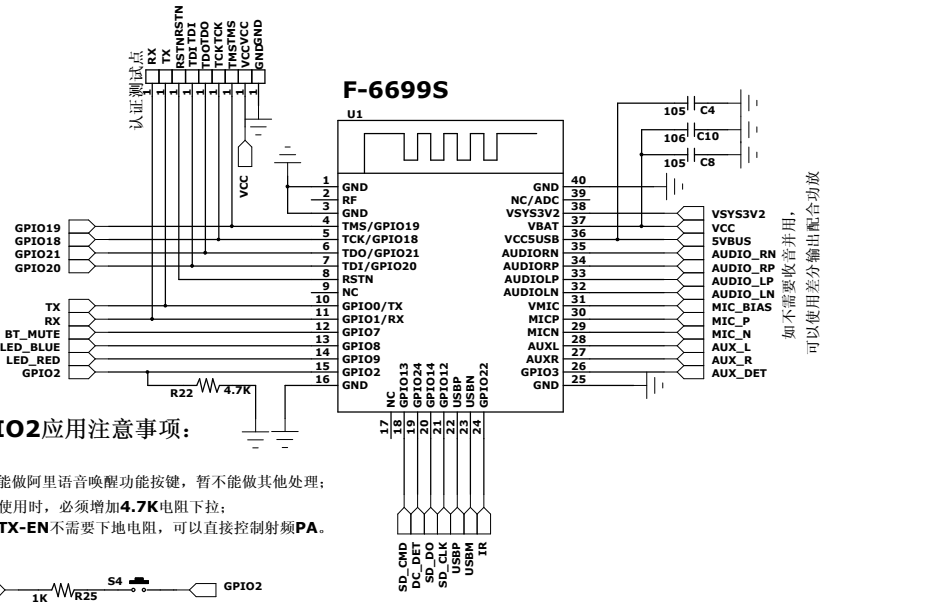


Key features of the profile:

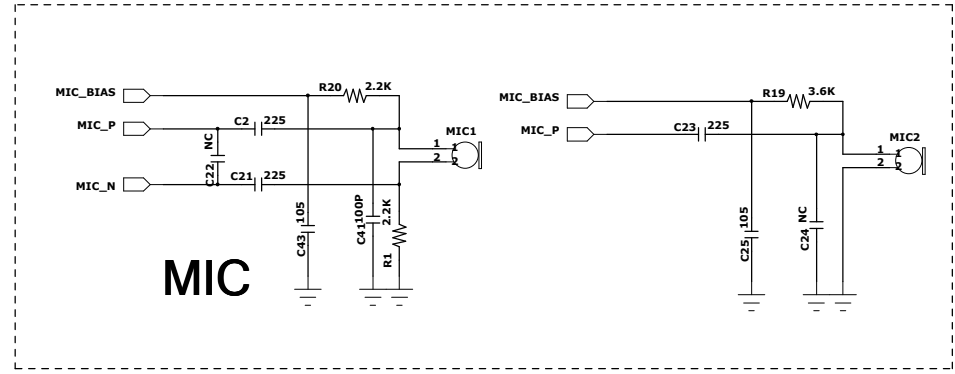
- Initial Ramp=1-2.5°C/sec to 175°C equilibrium
- Equilibrium time=60 to 80 seconds
- Ramp to Maximum temperature (250°C)=3°C/sec Max
- Time above liquidus temperature(217°C): 45 - 90 seconds
- Device absolute maximum reflow temperature: 250°C

十一、应用电路 The application circuit:

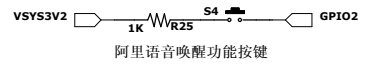
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v1.0	The first	沈兴利 2017.10.27



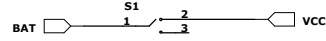
如不需要收音并用，
可以使用差分输出配合功放



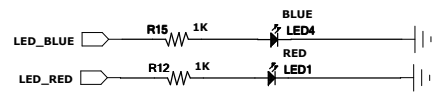
- *** GPIO2应用注意事项:**
- GPIO2只能做阿里语音唤醒功能按键，暂不能做其他处理;
 - GPIO2不使用时，必须增加**4.7K**电阻下拉;
 - GPIO2做TX-EN不需要下地电阻，可以直接控制射频PA。



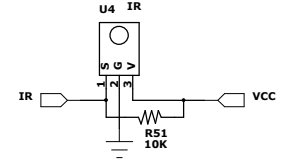
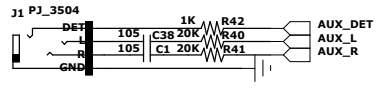
可以选择按键开机或者上电开机，开关断电



LED

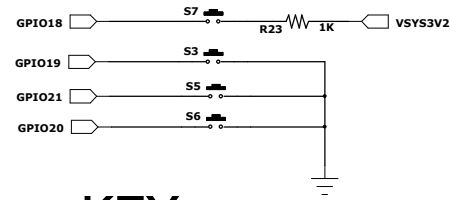


AUX

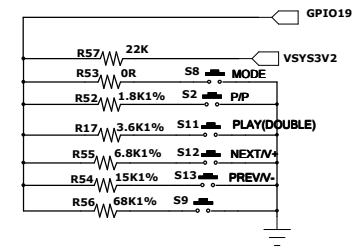


IR

使用IO口一一对一按键，蓝牙可以做低功耗功能；
如果使用ADKEY没有低功耗功能



KEY



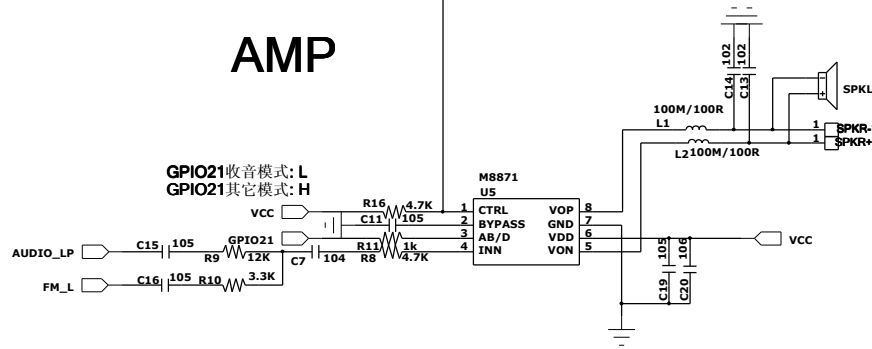
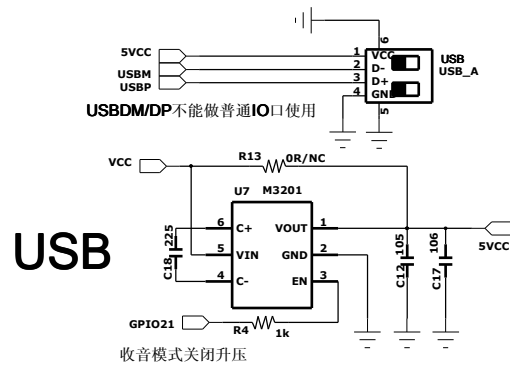
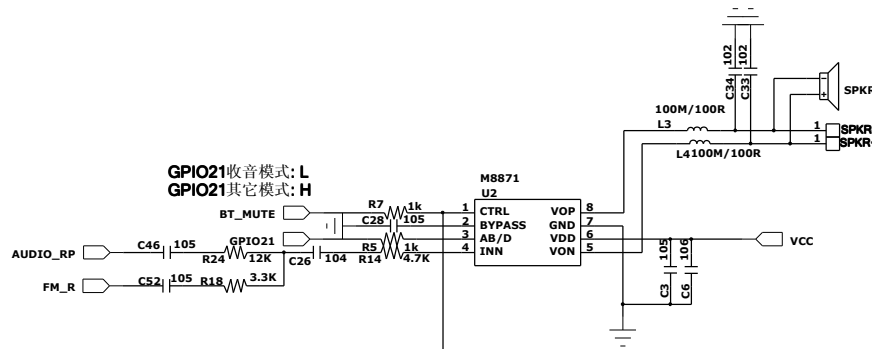
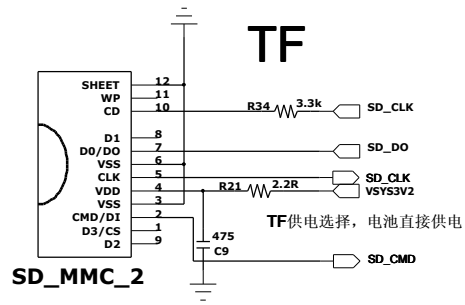
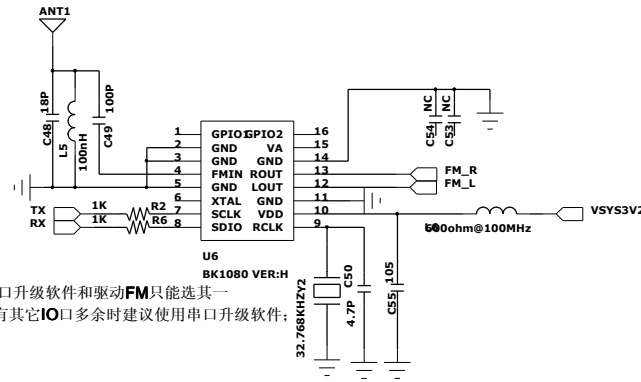
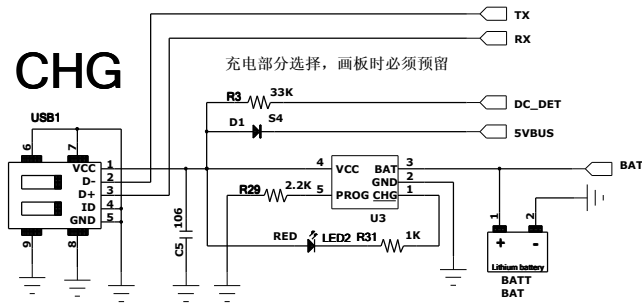
注意事项

- * 蓝牙天线部分必须镂空，不能铺铜周围不能有金属等屏蔽物；
- * 画板GND区分时应大面积铺铜，不能有干扰地线；
同时不能有其他大信号或者大功率线路靠近蓝牙，
如升压、开关电源、数字信号等

FILE NO. DRA-BT-RD-006

COMPANY: C-CHIP TECH.	
BUYER NAME:	ALL BUYER
DRAWN NAME:	F-6699S
DRAWN/DATE:	沈兴利 2017.10.27
CHECKED/DATE:	
RELEASED/DATE:	
REV: V1.0	SHEET: 1 OF 2

REVISION RECORD		
LTR	ECO NO:	APPROVED/DATE:
v1.0	The first	沈兴利 2017.10.27



FILE NO. DRA-BT-RD-006

COMPANY: C-CHIP TECH.	
BUYER NAME:	ALL BUYER
DRAWN NAME:	F-6699S
DRAWN/DATE:	沈兴利 2017.10.27
CHECKED/DATE:	
RELEASED/DATE:	
REV: V1.0	SHEET: 2 OF 2