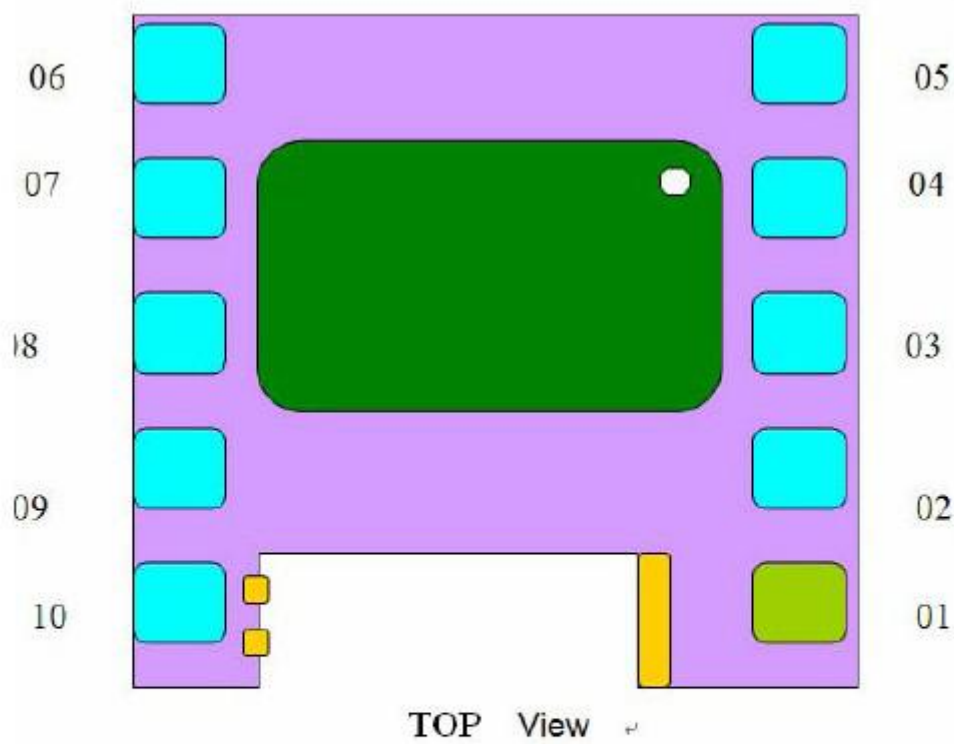


(IC RDA5807M)



引脚序号	引脚功能描述	引脚序号	引脚功能描述
1	GND（公共接地端）	6	DATA（总线串行数据输入输出接口）
2	R-out（R 声道音频信号输出）	7	CLOCK（串行数据总线参考时钟）
3	L-out（L 声道音频信号输出）	8	GP2（NC）
4	RCK（芯片外部时钟输入端）NC	9	GP3（NC）
5	FM（FM 天线接入端）	10	VDD（+3.0VDC 电源输入端）

PIN number	PIN function	PIN number	PIN function
1	GND	6	DATA (Bus serial data input and output interface)
2	R-out (R channel audio signal output)	7	CLOCK (Serial data bus reference clock)
3	L-out (L channel audio signal output)	8	GP2(NC)
4	RCK (Chip external clock input) NC	9	GP3(NC)
5	FM (FM Antenna access)	10	VDD (+3VDC power input)

## **Product Overview:**

"RRD-102V2.0" FM Stereo radio Module High-sensitivity, low-power, ultra-small FM stereo radio module. Adopt RDA5807M (or RDA5802NM) of RDA Microelectronics, this circuit has few peripheral components and extremely low noise figure. It has the advantages of small size, low power consumption, low cost, simple application and wide range of use. It is an easy-to-use and highly cost-effective single-chip FM stereo radio module.

## **Application:**

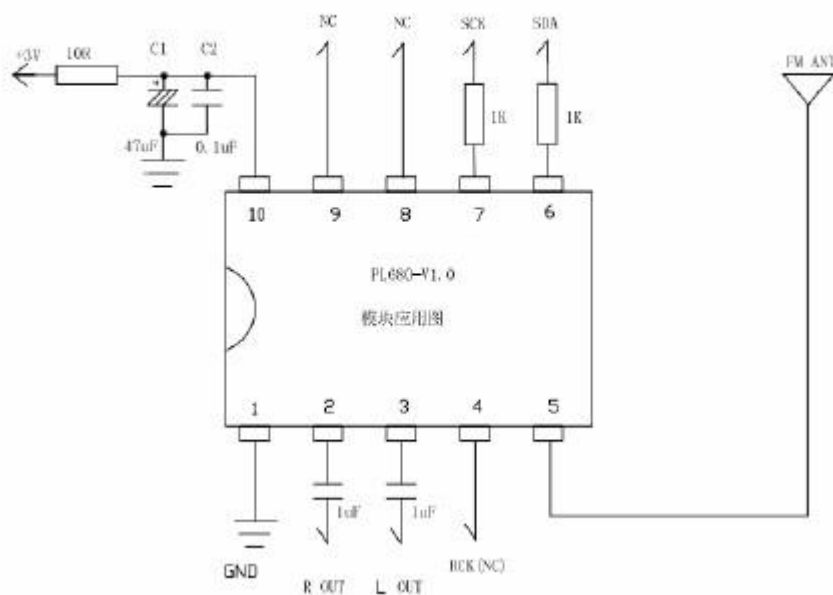
- A: Built-in FM full-band wireless receiver modules such as mobile DVD, TV, MP3, MP4.
- B: Stereo FM broadcasting system in public places such as industrial and mining, enterprise, campus, residential area, tourist area and so on.
- C: wireless audio and wireless stereo headset function.
- D: GPS navigation, TV broadcasting system and other wireless FM radio.
- E: High-end game consoles and wireless audio electronic toys.
- F: Stereo radios such as mobile phones, cell phones, intercom systems, and mobile radios.
- G: Peripheral applications such as PDAS and Notebook PC.

## **Third, the functional characteristics:**

- A. The package of the universal 102BC module is adopted, and the user can directly use it without changing the circuit design.
- B. High sensitivity, low noise, strong anti-interference ability, few external components, small size (11 \* 11.2MM Max), extremely easy to use.
- C, 76-108MHz global FM band compatible (including Japanese 76-91MHz and European and American 87.5-108.5MHz).
- D, I2C serial data bus interface communication, support external reference clock input mode.
- E. Fully integrated COMS process single-chip integrated circuit with extremely low power consumption.
- F. Built-in high-precision A / D (analog-to-digital converter) and digital frequency synthesizer.
- G. Built-in LDO adjustment, low power consumption, ultra wide voltage range (2.7-3.6VDC).
- H. Built-in noise cancellation, soft mute, bass boost circuit design.
- I. High-power 32  $\Omega$  load audio output, direct headphone connection, no external audio driver amplification required.
- J. Simple application, low cost and high cost performance.

## Application circuit:

## B、应用电路：



### Electrical characteristics:

#### 1. Working conditions: (Ta25° C)

Project	Symbol	Value	unit	Note
Working power voltage	Vcc	3.0 (Type)	V	2.7-3.6V
Maximum working current	I-dd	<= 18 (max)	Ma	/
Working temperature	AT	25 ° C	° C	-20 ~ 85 ° C
Input frequency range	Ffm	76-108 (FM full band)	MHz	/
Audio output voltage	Vaudio	90	Mv	I2C bus port frequency selection
Frequency selection method	-	-	-	/
Reference clock (reference clock frequency)	Fref	33.768	KHz	/
Power consumption	Pd	<= 650	Mw	2.7-3.6V

#### 2. Working range: (Extreme conditions)

Project	Symbol	Value	unit	Note
Working power voltage range	Vcc	2.7-3.6	VDC	
Working current range	I	<=18 (max)	mA	Standby is less than 5uA
range of working temperature	Top	-20 ~ 85	° C	
Storage temperature	Tstg	-55 ~ 150	° C	

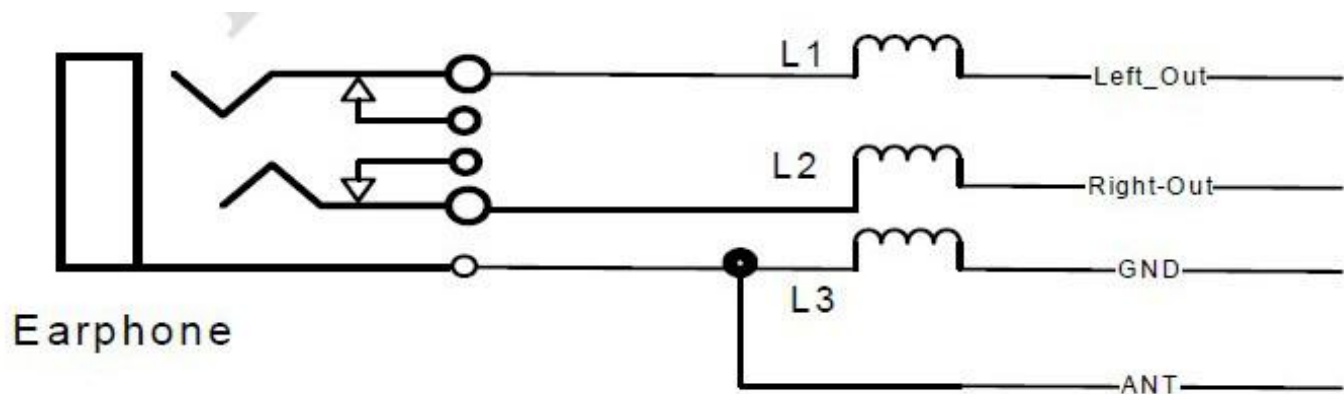
range				
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### 3. Electrical performance, characteristic description: (VCC=3V,TA=25° C)

Electrical characteristics	Symbol	Min.	Standard	Max.	Unit	Test conditions	Remarks
Receiving sensitivity (Sen)	Sen	/	10 1.5	/	dBuV uV	Fdev=22.5KHz Fmod=1KHz Sinad=26dB L=R	EMF
Stereo resolution (L-R / R-L)	Sep	30	/	/	dB	VRF=60dBuV Fdev=22.5KHz Fmod=1KHz L-R/R-L 10% Pilot	
Distortion (THD)	THD	/	0.3	0.5	%	VRF=60dBuV Fdev=75KHz Fmod=1KHz	
Signal to noise ratio (SNR)	S/N	54	60	/	dB	VRF=60dBuV Fdev=22.5KHz Fmod=1KHz	
Audio channel imbalance	GV	/	0.1	/	dB	Vin=60dBuB L+R	
Audio output level	Vaudio	/	90	/	mV		
Signal channel selectivity	ACS	/	45	/	dB	f=200KHz	
Input frequency range	fRF	76	/	108	MHz		

#### **Supplementary note:**

1. The module can directly drive 32ohm headphones after connecting a capacitor. If you need to drive more power, please add an amplifier.
2. The I2C, DAT, and CLK chips already contain 47k pull-up resistors: 1K resistors are recommended for I2C, DAT, and CLK communication ports.
3. The antenna can be used-an independent long wire and antenna. In the MP3 player application, the common end of the headset is generally used as the antenna, as shown in the connection below. L2 is to prevent the interference signals of the left and right channels from entering the antenna L3 to stop the audio supply loop, and at the same time prevent the signal in the antenna from being reduced to the ground:
4. The radio module power supply is connected with a loan-back resistor, and add power filtering (electrolysis 47uF and capacitor 104). GND can only be connected to the module's GND after the power filtering GND. This way the filtering effect can be good.
5. In this module (PL609B), the RCLK pin is dual-purpose. 1: Directly connected to an independent crystal, 2: You can share the crystal (OSC OUT) with the MCU, this pin string 47P and a 2MQ landing. But you need to add on your own PCB LAYOUT.



A、模块高度（侧视图）： 单位：MM



B、模块外型尺寸（顶视图）： 单位：MM

