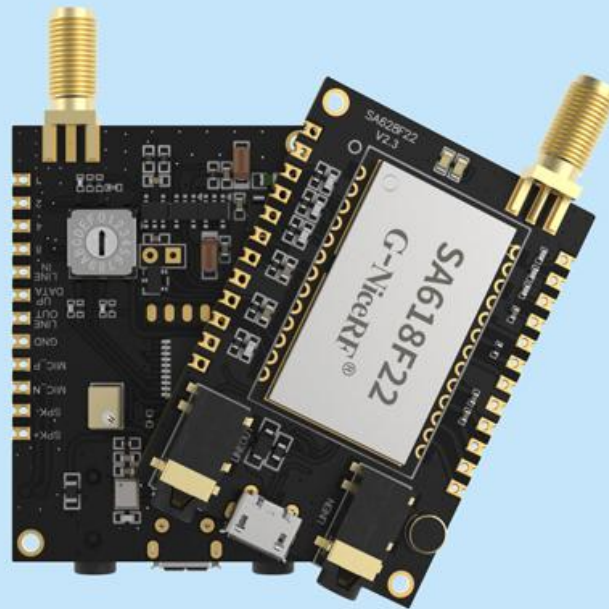


Full Duplex Wireless audio & Wireless SMS
USB + PC software , All in one, easy use
I2S / Analog audio
Mesh Network, concurrent Tx/Rx
OTA & serial upgrade

Product Specification



Catalogue

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Note: Revision History

Revision	Date	Comment
V1.0	2023-5	First release
V1.1	2023-7	Add some electrical characteristics

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1. Product Overview

SA628F22 is a full duplex wireless voice module with mesh network. SA628F22 is very easy to use. It start to work by just connecting antenna, power supply and speaker, microphone, Audio amplifier, RF channel switch, volume adjustment are all embedded on board. SA628F22 has USB interface, and specified PC software. It can be configured and SMS Tx/Rx easily by the PC software.

The SA628F22 module has built-in high speed micro -controllers, high quality voice Codec, high-performance RF chips and amplifiers. This wireless module adopts the newest generation LoRa chip, which has the characteristics of low power consumption, long distance, and flexible frequency adjustment. SA628F22 has I2S and analog audio interface for different application. SA628F22 support full duplex SMS communication.

SA628F22 embed very good voice codec, which achieve much better voice quality than walkie talkie in the market.

SA628F22 supports concurrent Tx and concurrent Rx. It support maximum 8 devices transmitting simultaneously. There is no limitation in receiving. Mesh Network is available to extend the range. The mesh function is easy to achieve by setting the modules as Node, Router or Node & Router.

SA628F22 can be upgraded over air (OTA) or by serial communication.

SA628F22 strictly uses lead -free process production and testing, which meets the standards of ROHS and Reach

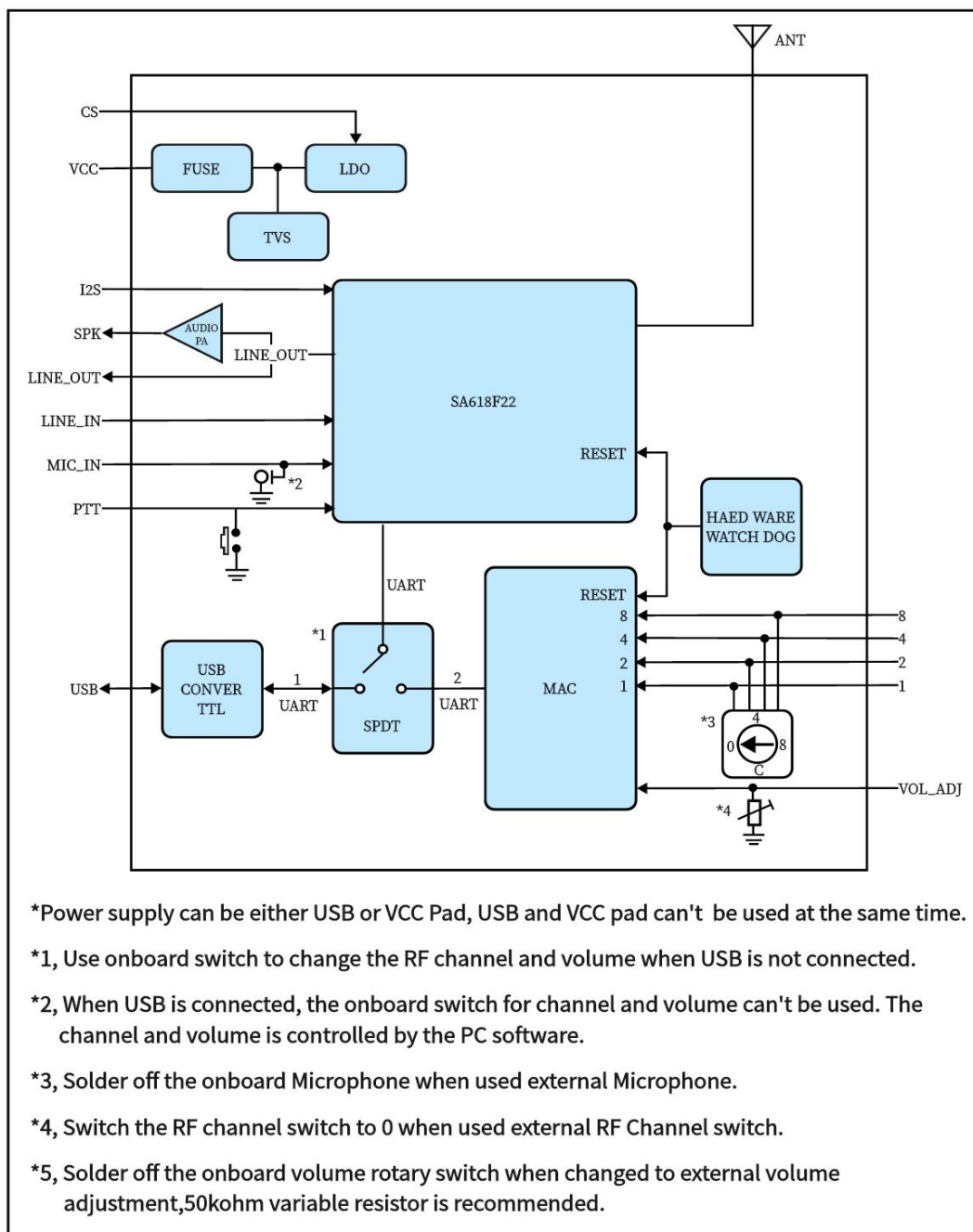
2. Product Features

- Frequency Band: 420~510MHz
(Customizable 150-960 MHz)
- USB Interface
- PC software configuration, easy operation
- 8-Channels Full-Duplex Data/voice
Communication
- Echo cancellation function
- VOX & PTT
- OTA &Serial upgrade
- I2S Digital voice+analog voice
- Line In + Mic input
- Mesh Network, concurrent Tx/Rx
- 1-3KM transmission distance in the open area
- High Receiving sensitivity:-117 dBm
- Low power consumption

3. Product Applications

- Fire emergency communication
- Subway, tunnel communication
- Riding system
- High-quality full duplex walkie talkie
- conference call system
- Building community security system
- Security intercom system for special scenarios
- Headset walkie-talkie
- Special job assignment walkie talkie

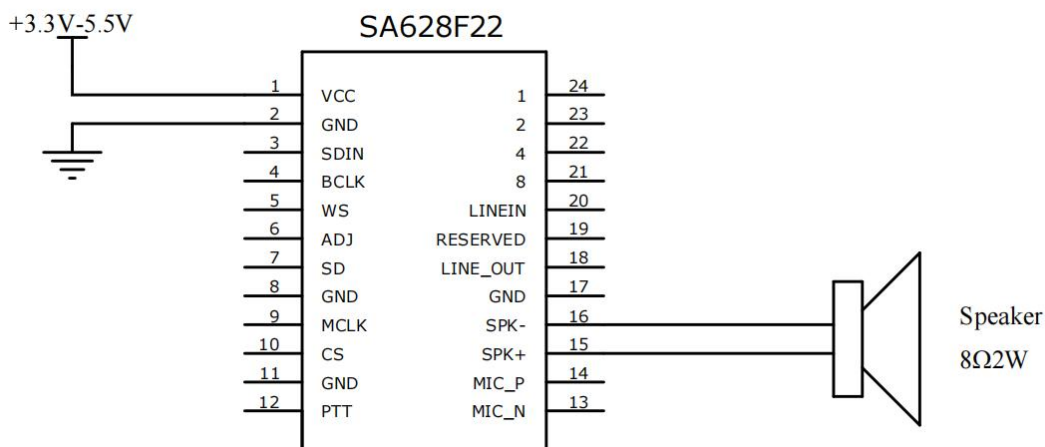
4. Block Diagram



5. Specification Characters

Parameters	Condition	Min.	Typ.	Max.	Unit
Power Supply		3.3	4	5.5	V
Working temperature		-30	25	70	°C
Current consumption					
Sleep current			68		uA
RX Current	@no voice output		73		mA
	@4V,8ohm,2W speaker		450		
TX current(High power)	4.2v,@22dBm		130		mA
RF Parameters					
Operating frequency	UHF	420		510	MHz
Customizable frequency		150		960	MHz
Default frequency value for 16 channels	UHF (1MHz interval)	440.125		455.125	MHz
Transmit power	Default:22dBm	0		22	dBm
Second Harmonic			-40		dBm
Bandwidth (BW)			500		KHz
Receiving sensitivity			-117		dBm
voice parameters					
Modulation sensitivity			10	100	mV
Receive signal-to-noise ratio(SNR)			90		dB
Frequency response		60		3800	Hz
Voice output (line out)	Load 16 Ω			40	mW
Voice output power (SPK+,SPK-)	Load 8 Ω			2000	mW
Delay parameters	2channels	80	100	120	ms
	3channels	120	160	180	ms
	4channels	160	200	240	ms
	6channels	240	300	360	ms
	8channels	320	400	480	ms

6. Typical Schematic Circuit

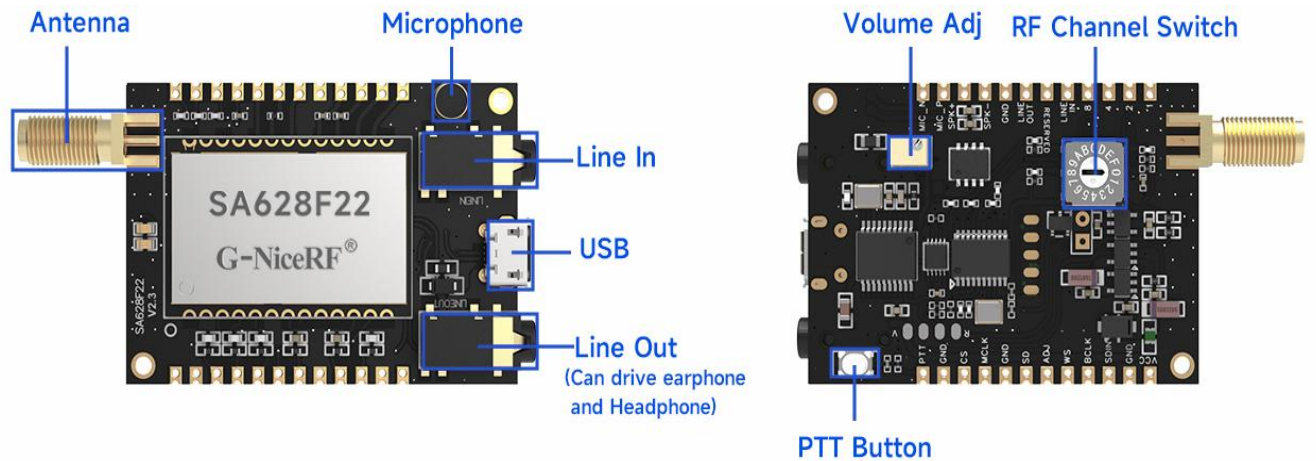


7. Pin Assignment



Pin No.	Pin name	Description
1	VCC	VCC(3.3-5.5V)
2,8,11,17	GND	Ground
3	SDIN	External I2S(0-3.3V)
4	BCLK	External I2S(0-3.3V)
5	WS	External I2S(0-3.3V)
6	VOL-ADJ	50K variable resistor is recommended, See *5 above
7	SD	External I2S(0-3.3V)
9	MCLK	External I2S(0-3.3V)
10	CS	0: sleep, 1: working, Pull up internally.
12	PTT	Press to talk, 0: RX mode, 1: Tx mode. Pull up internally
13	MIC_N	Connected with external microphone See *3 above.
14	MIC_P	
15	SPK+	Connect with 8 ohm 2W speaker
16	SPK-	
18	LINEOUT	Line out , not amplified, can drive earphone and headphone
19	Reserved	NC
20	LINEIN	Line in ,maximum 1VRMS
21	8	the onboard 16 RF channel switch, eg. When the rotary switch changed to channel 11 th , the output (8, 4, 2, 1) is: 1011: channel 11th
22	4	
23	2	
24	1	

8. Product Diagram

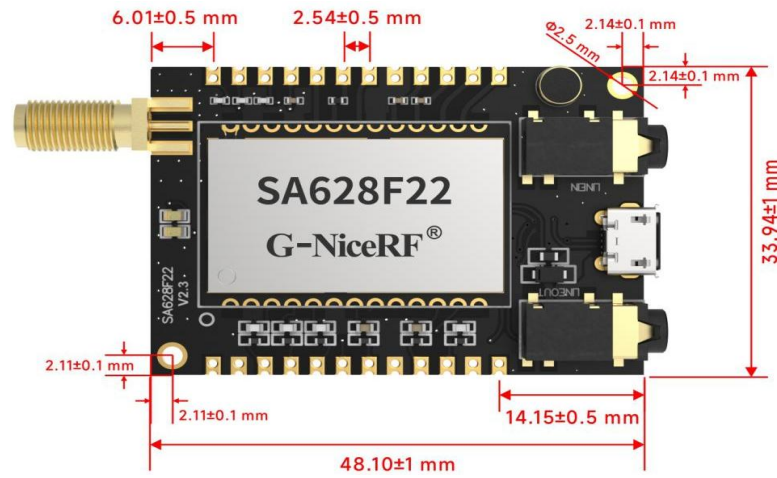


9. PC Software

SA628F22 comes with a PC software, which is convenient for customer to set parameter and SMS operation. For details, please refer to the document "SA618/628 Series PC User Guide". User can download the PC software in our Website freely.



10. Dimension (Unit:mm)



11. Order information

Product Number	Description
SA628F22-U	Working frequency range 420~510MHz
SA628F22-XXX	Customizable 150~960 MHz