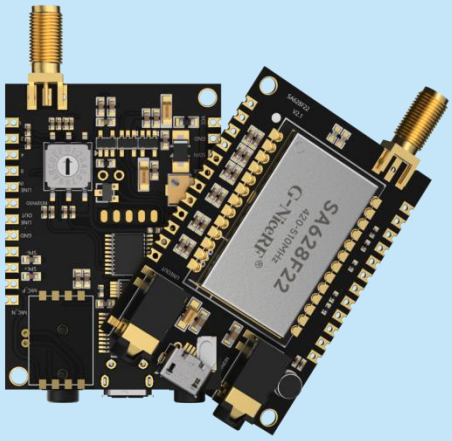
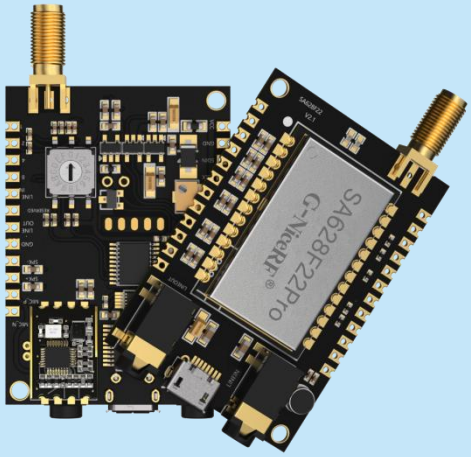
SA628F22/SA628F22Pro

- 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
- SA628F22Pro with Additional NR60 Noise Reduction Module

Product Specification



SA628F22



SA628F22Pro

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
V1.2	2024-12	Update Block Diagram
V2.0	2025-5	Add SA628F22Pro specifications

*NiceRF reserves the right to make changes to its products without notice. NiceRF integrated circuit products are not designed, intended, authorized, or warranted to be suitable for use in life-support applications, devices or systems or other critical applications. Use of NiceRF products in such applications is understood to be fully at the risk of the customer

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.

SA628F22Pro only adds a noise reduction module to the SA628F22; all other functions remain the same.

SA628F22/SA628F22Pro strictly uses lead -free process production and testing, which meets the standards of ROHS and Reach.

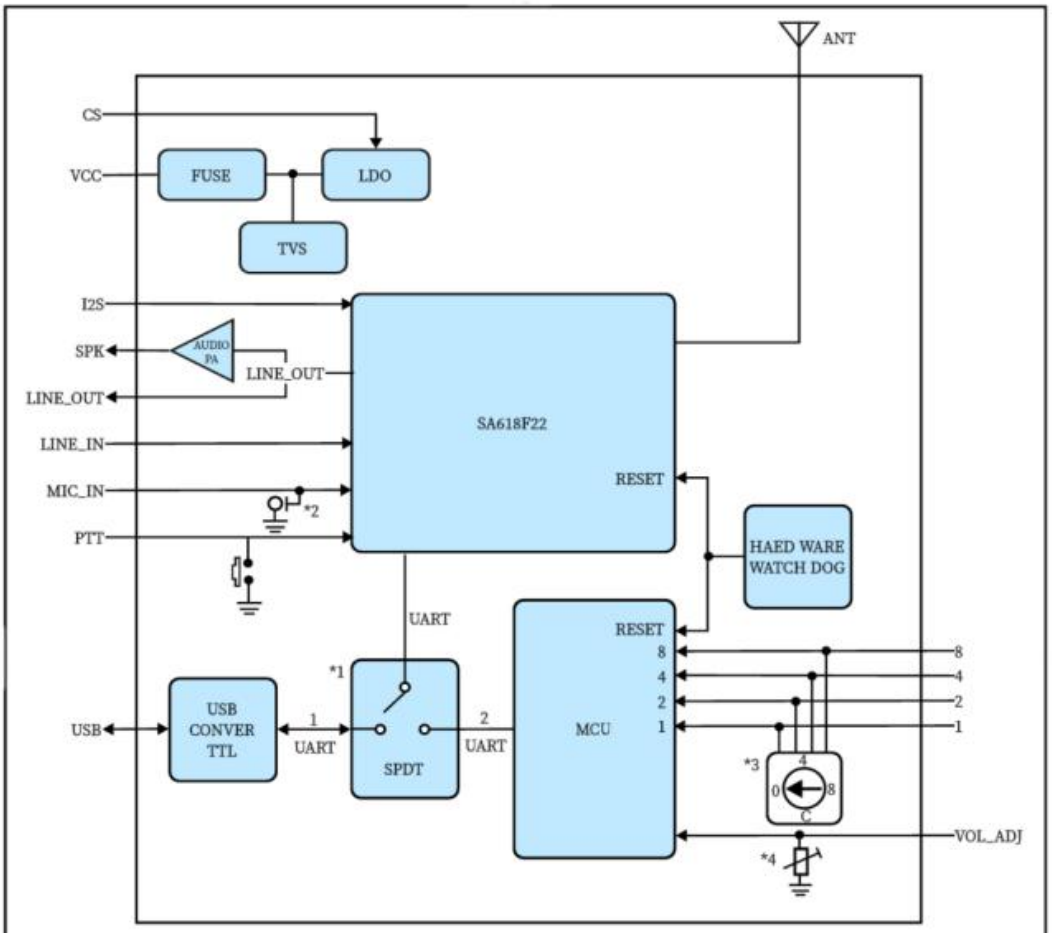
2. Product Features

- 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



*Power supply can be either USB or VCC Pad, USB and VCC pad can't be used at the same time.

*1, Use onboard switch to change the RF channel and volume when USB is not connected.

*2, When USB is connected, the onboard switch for channel and volume can't be used. The channel and volume is controlled by the PC software.

*3, Solder off the onboard Microphone when used external Microphone.

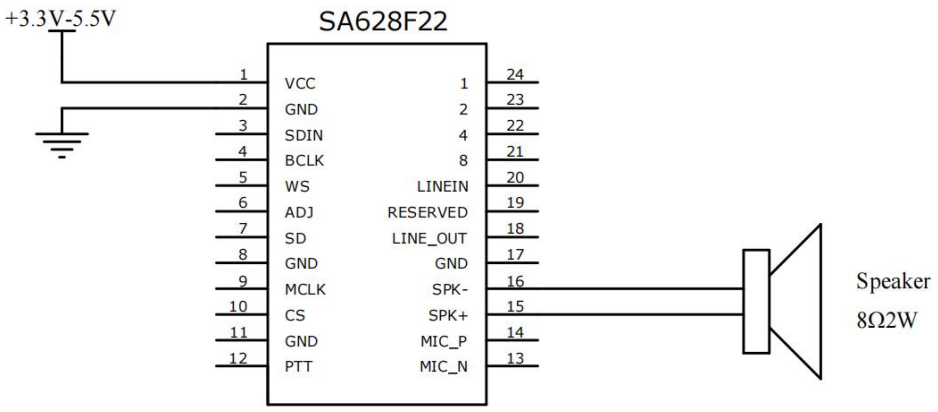
*4, Switch the RF channel switch to 0 when used external RF Channel switch.

*5, Solder off the onboard volume rotary switch when changed to external volume adjustment,50kohm variable resistor is recommended.

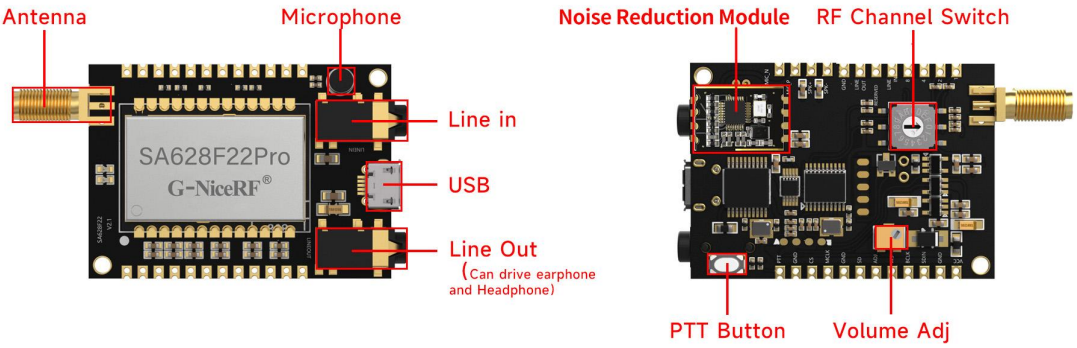
5. Specification Characters

Parameters	Condition	Min.	Typ.	Max.	Unit
Power Supply		3.5	4	5.5	V
Working temperature		-30	25	70	℃
Current consumption					
Sleep current			66		uA
RX Current	@SA628F22		53		mA
	@SA628F22Pro		76		
	@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

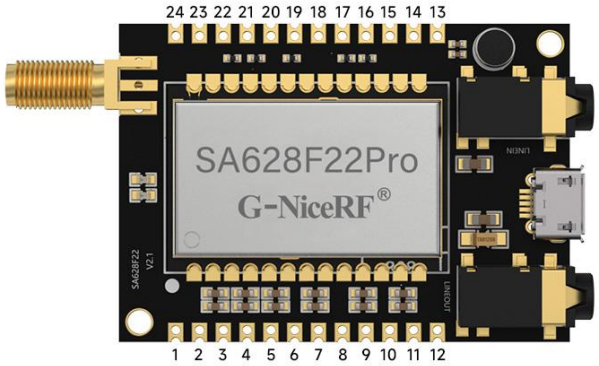
6. Typical Schematic Circuit



7. Product Diagram



8. Pin Assignment



Pin No.	Pin name	Description
1	VCC	VCC(3.3-5.5V)
2,8,11,17	GND	Ground
3	SDIN	ExternalI2S(0-3.3V)
4	BCLK	ExternalI2S(0-3.3V)
5	WS	ExternalI2S(0-3.3V)
6	VOL-ADJ	50K variable resistoris recommended, See *5 above
7	SD	ExternalI2S(0-3.3V)
9	MCLK	ExternalI2S(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-	

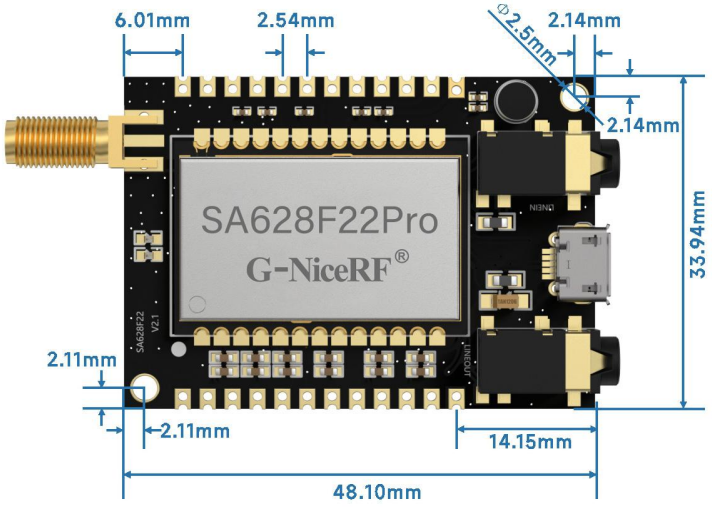
18	LINEOUT	Line out , not amplified, can drive earphone and headphone
19	Reserved	NC
20	LINEIN	Line in ,maximum 1VRMS
21	8	the onboard 16 RF channel switch, eg. When the rotary switch changed to channel 11th, the output (8, 4, 2, 1) is: 1011: channel 11th
22	4	
23	2	
24	1	

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