

S6621S1-T4

IEEE 802.11a/b/g/n/ac/ax 1T1R + Bluetooth 5.4 Combo Module



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1. Device Overview

1.1. Features

1.1.1. General Features

- Supports 3.3V power supply
- Supports SDIO 3.0
- Support FDD/TDD mode Wi-Fi and Bluetooth coexistence scheme
- 12.0mm*12.0mm LGA-44pin package

1.1.2. Wi-Fi Key Features

- Supports IEEE 802.11a/b/g/n/ac/ax
- Supports IEEE 802.11 d/e/h/i/j/k/m/r/v/w
- Supports Wi-Fi
- Supports LDPC, STBC
- Supports UL/DL OFDMA
- Supports QoS, WFA WMM, WMM PS
- Supports WPA, WPA2, WPA3 encryption and decryption, support WAPI, support WPS2.0
- Supports BSS Color, Spatial Reuse
- Supports TWT
- Supports WoW
- Support RTT
- Supports 2.4Ghz, 5Ghz and 6Ghz band channels
- 20MHz / 40MHz / 80MHz bandwidth transmission
- Maximum PHY data rate up to 600Mbps with SDIO3.0
- RSSI and CSI reporting

1.1.3. Bluetooth Key Features

- Supports Bluetooth 5.4
- Support Shared antenna with Wi-Fi
- Supports BR/EDR/LE
- Support SCO and eSCO link
- Low power mode (sniff, sniff sub-rating)
- Supports SDIO interface as HCI
- Supports SSP/Secure Connection
- Supports LE Audio
- Supports AOA/AOD
- Supports VoHCI
- PCM interface for audio data transmission

1.2. Applications

- Tablet Computer
- OTT Box
- Portable Devices

1.3. Descriptions

The S6621S1-T4 is a highly integrated module that supports 1T1R 802.11 a/b/g/n/ac/ax with Wireless LAN (WLAN) SDIO (SDIO 1.1/2.0/3.0) interface controller and Bluetooth 5.4 HS-UART interface controller. The high speed FFT/IFFT paths, combined with BPSK, QPSK, 16QAM, 64QAM, 256QAM and up to 1024QAM modulation of the individual subcarriers, and compatible coding rate of 1/2, 2/3, 3/4, 5/6, provide up to 600Mbps for IEEE 802.11ax. The S6621S1-T4 MAC supports 802.11e for multimedia applications, 802.11i and WAPI for security. The S6621S1-T4 provides a complete solution for a high-performance integrated wireless and Bluetooth device. It is suitable for STB, TVs, tablets, phones, IPC and other fields such as consumer electronic devices, and can also be applied to the fields with high reliability requirements, such as industrial interconnection.

1.4. Functional Block Diagram

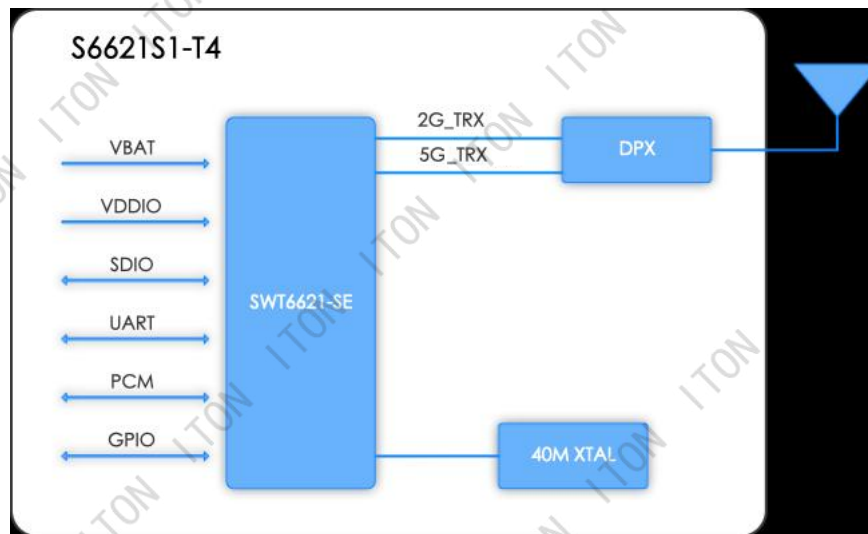


Figure 1. Block Diagram of S6621S1-T4

2. Pin Configuration and Functions

2.1. Module Pin Diagram

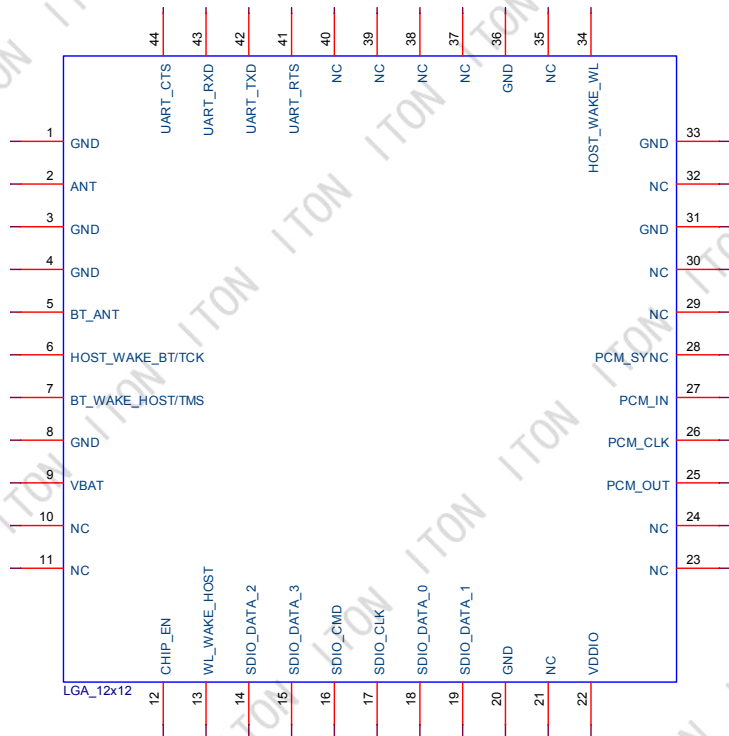


Figure 2. Pin Diagram of S6621S1-T4

2.2.Pin Functions

Pin	Name	Description
1	GND	Ground
2	ANT	WLAN and BT RF input/output port
3	GND	Ground
4	GND	Ground
5	BT_ANT	No connect, keep floating
6	HOST_WAKE_BT/TCK	Host wake up BT
7	BT_WAKE_HOST/TMS	BT wake up Host
8	GND	Ground
9	VBAT	3.3V power supply
10	NC	No connect, keep floating
11	NC	No connect, keep floating
12	CHIP_EN	Chip Enable pin(high enable/ low disable)
13	WL_WAKE_HOST	WLAN wake up Host
14	SDIO_DATA_2	SDIO port data 2
15	SDIO_DATA_3	SDIO port data 3
16	SDIO_CMD	SDIO Command line
17	SDIO_CLK	SDIO Clock line
18	SDIO_DATA_0	SDIO port data 0
19	SDIO_DATA_1	SDIO port data 1

20	GND	Ground
21	NC	No connect, keep floating
22	VDDIO	I/O power supply
23	NC	No connect, keep floating
24	NC	No connect, keep floating
25	PCM_OUT	PCM data output
26	PCM_CLK	PCM clock
27	PCM_IN	PCM data input
28	PCM_SYNC	PCM sync signal
29	NC	No connect, keep floating
30	NC	No connect, keep floating
31	GND	Ground
32	NC	No connect, keep floating
33	GND	Ground
34	HOST_WAKE_WL	Host wake up WLAN
35	NC	No connect, keep floating
36	GND	Ground
37	NC	No connect, keep floating
38	NC	No connect, keep floating
39	NC	No connect, keep floating
40	NC	No connect, keep floating
41	UART_RTS	High-Speed UART1 TX,just for test on PC.
42	UART_TXD	No connect, keep floating
43	UART_RXD	No connect, keep floating
44	UART_CTS	High-Speed UART1 RX,just for test on PC.

3. Specifications

Caution! The absolute maximum ratings in the following table indicates voltages levels where permanent physical damage to the device can occur, even if these limits were exceeded for only a brief duration.General Characteristics.

3.1. General Characteristics

Category	Descriptions	
Dimension	L*W*H :12.0mm (±0.2mm)*12.0mm (±0.2mm)*1.6mm (±0.2mm)	
Chip-set	SWT6621-SE	
Standard	IEEE 802.11a/b/g/n/ac/ax+BT 5.4	
Modulation Type	CCK, OFDM (16 QAM/64 QAM/256 QAM/1024 QAM),OFDMA	
Interface	WLAN& Bluetooth: SDIO	
Data Security	WPA/WPA2/WPA3	
Rx Sensitivity	2.4G: 11b 11M:-91dBm@8% PER 11g 54M:-77dBm@10% PER 11n HT20 MCS7:-75dBm@10% PER 11n HT40 MCS7:-72dBm@10% PER	5G: 11a 54M:-76dBm@10% PER 11n HT20 MCS7:-74dBm@10% PER 11n HT40 MCS7:-71dBm@10% PER 11ac VHT80 MCS9:-61dBm@10% PER 11ax HE80 MCS11:-57dBm@10% PER
Data Rate	802.11b [11,5.5,2 and 1Mbps] 802.11g [54,48,36,24,18,12,9&6Mbps] 802.11n HT20:up to 72.2Mbps 802.11n HT40:up to 150Mbps 802.11ac VHT40:up to 200Mbps 802.11ax HE20:up to 143.4Mbps 802.11ax HE40:up to 286.8Mbps 802.11ax HE80:up to 600Mbps	
Frequency Error	<±20 ppm	
Storage Humidity	10% to 90%	
Operating System	Linux,Android	
Operating Voltage	VBAT:3.3V VDDIO:3.3V or 1.8V	

3.2. Temperature Range

Category	Descriptions
Operating Temperature	-30℃~+70℃
Storage Temperature	-40℃~+85℃

3.3. RF Characteristics

All measurements are made under nominal supply voltage & room temperature, and conducted conditions at each antenna port rather than antenna.

3.3.1. Receiver RF Specifications

Parameter	Conditions		Minimum	Typical	Maximum	Unit
Receive Input Frequency 2.4GHz	802.11b/g/n/ax mode		2412	-	2484	MHz
Receiver Sensitivity						
802.11b	1Mbps	FER<8%, Packet size=1,024bytes	-	-	-82	dBm
	2Mbps		-	-	-80	dBm
	5.5Mbps		-	-	-78	dBm
	11Mbps		-	-	-76	dBm
802.11g	6Mbps	PER<10%, Packet size=1,024bytes	-	-	-82	dBm
	9Mbps		-	-	-81	dBm
	12Mbps		-	-	-79	dBm
	18Mbps		-	-	-77	dBm
	24Mbps		-	-	-74	dBm
	36Mbps		-	-	-70	dBm
	48Mbps		-	-	-66	dBm
	54Mbps		-	-	-65	dBm
802.11n (HT20)	MCS0.	PER<10%, Packet size=4,096bytes	-	-	-82	dBm
	MCS1.		-	-	-79	dBm
	MCS2.		-	-	-77	dBm
	MCS3.		-	-	-74	dBm
	MCS4.		-	-	-70	dBm
	MCS5.		-	-	-66	dBm
	MCS6.		-	-	-65	dBm
	MCS7.		-	-	-64	dBm
802.11n (HT40)	MCS0.	PER<10%, Packet size=4,096bytes	-	-	-79	dBm
	MCS1.		-	-	-77	dBm
	MCS2.		-	-	-74	dBm
	MCS3.		-	-	-71	dBm
	MCS4.		-	-	-67	dBm
	MCS5.		-	-	-63	dBm
	MCS6.		-	-	-62	dBm
	MCS7.		-	-	-61	dBm
802.11ax (HE20)	MCS0.	PER<10%, Packet size=4,096bytes	-	-	-82	dBm
	MCS1.		-	-	-79	dBm

	MCS2.		-	-	-77	dBm
	MCS3.		-	-	-74	dBm
	MCS4.		-	-	-70	dBm
	MCS5.		-	-	-66	dBm
	MCS6.		-	-	-65	dBm
	MCS7.		-	-	-64	dBm
	MCS8.		-	-	-59	dBm
	MCS9.		-	-	-57	dBm
	MCS10.		-	-	-54	dBm
	MCS11.		-	-	-52	dBm
802.11ax (HE40)	MCS0.	PER<10%, Packet size=4,096bytes	-	-	-79	dBm
	MCS1.		-	-	-76	dBm
	MCS2.		-	-	-74	dBm
	MCS3.		-	-	-71	dBm
	MCS4.		-	-	-67	dBm
	MCS5.		-	-	-63	dBm
	MCS6.		-	-	-62	dBm
	MCS7.		-	-	-61	dBm
	MCS8.		-	-	-56	dBm
	MCS9.		-	-	-54	dBm
	MCS10.		-	-	-51	dBm
	MCS11.		-	-	-49	dBm
Maximum Input Level						
802.11b	FER<8%		-10	-	-	dBm
802.11g	FER<10%		-20	-	-	dBm
802.11n	FER<10%		-30	-	-	dBm
802.11ax	FER<10%		-20	-	-	dBm
Parameter	Conditions		Minimum	Typical	Maximum	Unit
Receive Input Frequency 5GHz	802.11a/n/ac/ax mode		5180	-	5850	MHz
Receiver Sensitivity						
802.11a	6Mbps	FER<10%, Packet size=1,024bytes	-	-	-82	dBm
	9Mbps		-	-	-81	dBm
	12Mbps		-	-	-79	dBm
	18Mbps		-	-	-77	dBm
	24Mbps		-	-	-74	dBm
	36Mbps		-	-	-70	dBm
	48Mbps		-	-	-66	dBm
	54Mbps		-	-	-65	dBm
802.11n (HT20)	MCS0.	PER<10%, Packet size=4,096bytes	-	-	-82	dBm
	MCS1.		-	-	-79	dBm
	MCS2.		-	-	-77	dBm
	MCS3.		-	-	-74	dBm
	MCS4.		-	-	-70	dBm
	MCS5.		-	-	-66	dBm
	MCS6.		-	-	-65	dBm
	MCS7.		-	-	-64	dBm

802.11n (HT40)	MCS0.	PER<10%, Packet size=4,096bytes	-	-	-79	dBm
	MCS1.		-	-	-77	dBm
	MCS2.		-	-	-74	dBm
	MCS3.		-	-	-71	dBm
	MCS4.		-	-	-67	dBm
	MCS5.		-	-	-63	dBm
	MCS6.		-	-	-62	dBm
	MCS7.		-	-	-61	dBm
802.11ac (VHT40)	MCS0.	PER<10%, Packet size=4,096bytes	-	-	-79	dBm
	MCS1.		-	-	-76	dBm
	MCS2.		-	-	-74	dBm
	MCS3.		-	-	-71	dBm
	MCS4.		-	-	-67	dBm
	MCS5.		-	-	-63	dBm
	MCS6.		-	-	-62	dBm
	MCS7.		-	-	-61	dBm
	MCS8.		-	-	-56	dBm
	MCS9.		-	-	-54	dBm
802.11ac (VHT80)	MCS0.	PER<10%, Packet size=4,096bytes	-	-	-76	dBm
	MCS1.		-	-	-73	dBm
	MCS2.		-	-	-71	dBm
	MCS3.		-	-	-68	dBm
	MCS4.		-	-	-64	dBm
	MCS5.		-	-	-60	dBm
	MCS6.		-	-	-59	dBm
	MCS7.		-	-	-58	dBm
	MCS8.		-	-	-53	dBm
	MCS9.		-	-	-51	dBm
802.11ax (HE40)	MCS0.	PER<10%, Packet size=4,096bytes	-	-	-79	dBm
	MCS1.		-	-	-76	dBm
	MCS2.		-	-	-74	dBm
	MCS3.		-	-	-71	dBm
	MCS4.		-	-	-67	dBm
	MCS5.		-	-	-63	dBm
	MCS6.		-	-	-62	dBm
	MCS7.		-	-	-61	dBm
	MCS8.		-	-	-56	dBm
	MCS9.		-	-	-54	dBm
	MCS10.		-	-	-51	dBm
	MCS11.		-	-	-49	dBm
802.11ax (HE80)	MCS0.	PER<10%, Packet size=4,096bytes	-	-	-76	dBm
	MCS1.		-	-	-73	dBm
	MCS2.		-	-	-71	dBm
	MCS3.		-	-	-68	dBm
	MCS4.		-	-	-64	dBm
	MCS5.		-	-	-60	dBm
	MCS6.		-	-	-59	dBm

	MCS7.		-	-	-58	dBm
	MCS8.		-	-	-53	dBm
	MCS9.		-	-	-51	dBm
	MCS10.		-	-	-48	dBm
	MCS11.		-	-	-46	dBm
Maximum Input Level						
802.11a	FER<10%		-30	-	-	dBm
802.11n	FER<10%		-30	-	-	dBm
802.11ac	FER<10%		-30	-	-	dBm
802.11ax	FER<10%		-30	-	-	dBm

3.3.2. Transmitter RF Specifications

Parameter	Conditions	Minimum	Typical	Maximum	Unit
Receive Input Frequency					
802.11b/g/n/ax	2.4GHz	2412	-	2484	MHz
Transmit Power					
802.11b	11Mbps	18	20	22	dBm
802.11g	54Mbps	15	17	19	dBm
802.11n	HT20, MCS7	14	16	18	dBm
	HT40, MCS7	14	16	18	dBm
802.11ax	HE20, MCS11	12	14	16	dBm
	HE40, MCS11	12	14	16	dBm
Spectrum Mask					
802.11b	$f_c - 22\text{MHz} < f < f_c - 11\text{MHz} \& f_c + 11\text{MHz} < f < f_c + 22\text{MHz}$	-	-	-30	dBm
	$f_c - 55\text{MHz} < f < f_c - 22\text{MHz} \& f_c + 22\text{MHz} < f < f_c + 55\text{MHz}$	-	-	-50	dBm
802.11g	$f_c \pm 9\text{MHz}$	-	-	0	dBm
	$f_c \pm 11\text{MHz}$	-	-	-20	dBm
	$f_c \pm 20\text{MHz}$	-	-	-28	dBm
	$f_c \pm 30\text{MHz}$	-	-	-40	dBm
802.11n	$f_c \pm 9\text{MHz}$	-	-	0	dBm
	$f_c \pm 11\text{MHz}$	-	-	-20	dBm
	$f_c \pm 20\text{MHz}$	-	-	-28	dBm
	$f_c \pm 30\text{MHz}$	-	-	-45	dBm
802.11ax (HE40)	$f_c \pm 19.5\text{MHz}$	-	-	0	dBm
	$f_c \pm 20.5\text{MHz}$	-	-	-20	dBm
	$f_c \pm 40\text{MHz}$	-	-	-28	dBm
	$f_c \pm 60\text{MHz}$	-	-	-40	dBm
Center Frequency Tolerance					
802.11b		-20	-	+20	ppm
802.11g/n/ax		-20	-	+20	ppm
EVM (Error Vector Magnitude)*					
802.11b	1Mbps	-	-	35	%
	2Mbps	-	-	35	%
	5.5Mbps	-	-	35	%
	11Mbps	-	-	35	%
802.11g	6Mbps	-	-	-5	dB
	9Mbps	-	-	-8	dB
	12Mbps	-	-	-10	dB
	18Mbps	-	-	-13	dB
	24Mbps	-	-	-16	dB
	36Mbps	-	-	-19	dB
	48Mbps	-	-	-22	dB
	54Mbps	-	-	-25	dB
802.11n	MCS0.	-	-	-5	dB
	MCS1.	-	-	-10	dB
	MCS2.	-	-	-13	dB

	MCS3.	-	-	-16	dB
	MCS4.	-	-	-19	dB
	MCS5.	-	-	-22	dB
	MCS6.	-	-	-25	dB
	MCS7.	-	-	-28	dB
802.11ax	MCS0.	-	-	-5	dB
	MCS1.	-	-	-10	dB
	MCS2.	-	-	-13	dB
	MCS3.	-	-	-16	dB
	MCS4.	-	-	-19	dB
	MCS5.	-	-	-22	dB
	MCS6.	-	-	-25	dB
	MCS7.	-	-	-27	dB
	MCS8.	-	-	-30	dB
	MCS9.	-	-	-32	dB
	MCS10.	-	-	-35	dB
	MCS11.	-	-	-35	dB
Parameter	Conditions	Minimum	Typical	Maximum	Unit
Receive Input Frequency					
802.11a/n/ac/ax	5 GHz	5180	-	5825	MHz
Transmit Power					
802.11a	54Mbps	15	17	19	dBm
802.11n	HT20, MCS7	14	16	18	dBm
	HT40, MCS7	14	16	18	dBm
802.11ac	VHT20,MCS8	13	15	17	dBm
	VHT40,MCS9	12	14	16	dBm
	VHT80,MCS9	12	14	16	dBm
802.11ax	HE20,MCS11	11	13	15	dBm
	HE40,MCS11	11	13	15	dBm
	HE80,MCS11	11	13	15	dBm
Spectrum Mask					
802.11a	$f_c \pm 9\text{MHz}$	-	-	0	dBr
	$f_c \pm 11\text{MHz}$	-	-	-20	dBr
	$f_c \pm 20\text{MHz}$	-	-	-28	dBr
	$f_c \pm 30\text{MHz}$	-	-	-40	dBr
802.11n	$f_c \pm 9\text{MHz}$	-	-	0	dBr
	$f_c \pm 11\text{MHz}$	-	-	-20	dBr
	$f_c \pm 20\text{MHz}$	-	-	-28	dBr
	$f_c \pm 30\text{MHz}$	-	-	-45	dBr
802.11ac (VHT80)	$f_c \pm 39\text{MHz}$	-	-	0	dBr
	$f_c \pm 41\text{MHz}$	-	-	-20	dBr
	$f_c \pm 80\text{MHz}$	-	-	-28	dBr
	$f_c \pm 120\text{MHz}$	-	-	-40	dBr
802.11ax (HE80)	$f_c \pm 39.5\text{MHz}$	-	-	0	dBr
	$f_c \pm 40.5\text{MHz}$	-	-	-20	dBr
	$f_c \pm 80\text{MHz}$	-	-	-28	dBr
	$f_c \pm 120\text{MHz}$	-	-	-40	dBr

Center Frequency Tolerance					
802.11a/n/ac/ax		-20	-	+20	ppm
EVM (Error Vector Magnitude)*					
802.11a	6Mbps	-	-	-5	dB
	9Mbps	-	-	-8	dB
	12Mbps	-	-	-10	dB
	18Mbps	-	-	-13	dB
	24Mbps	-	-	-16	dB
	36Mbps	-	-	-19	dB
	48Mbps	-	-	-22	dB
	54Mbps	-	-	-25	dB
802.11n	MCS0.	-	-	-5	dB
	MCS1.	-	-	-10	dB
	MCS2.	-	-	-13	dB
	MCS3.	-	-	-16	dB
	MCS4.	-	-	-19	dB
	MCS5.	-	-	-22	dB
	MCS6.	-	-	-25	dB
	MCS7.	-	-	-28	dB
802.11ac	MCS0.	-	-	-5	dB
	MCS1.	-	-	-10	dB
	MCS2.	-	-	-13	dB
	MCS3.	-	-	-16	dB
	MCS4.	-	-	-19	dB
	MCS5.	-	-	-22	dB
	MCS6.	-	-	-25	dB
	MCS7.	-	-	-27	dB
	MCS8.	-	-	-30	dB
	MCS9.	-	-	-32	dB
802.11ax	MCS0.	-	-	-5	dB
	MCS1.	-	-	-10	dB
	MCS2.	-	-	-13	dB
	MCS3.	-	-	-16	dB
	MCS4.	-	-	-19	dB
	MCS5.	-	-	-22	dB
	MCS6.	-	-	-25	dB
	MCS7.	-	-	-27	dB
	MCS8.	-	-	-30	dB
	MCS9.	-	-	-32	dB
	MCS10.	-	-	-35	dB
	MCS11.	-	-	-35	dB

	HT40, MCS7	14	16	18	dBm
802.11ac	VHT20, MCS8	13	15	17	dBm
	VHT40, MCS9	11	13	15	dBm
	VHT80, MCS9	11	13	15	dBm
	VHT80, MCS9	11	13	15	dBm
802.11ax	HE20, MCS11	11	13	15	dBm
	HE40, MCS11	10	12	14	dBm
	HE80, MCS11	10	12	14	dBm
Spectrum Mask					
802.11a	$f_c \pm 9\text{MHz}$	-	-	0	dBr
	$f_c \pm 11\text{MHz}$	-	-	-20	dBr
	$f_c \pm 20\text{MHz}$	-	-	-28	dBr
	$f_c \pm 30\text{MHz}$	-	-	-40	dBr
802.11n	$f_c \pm 9\text{MHz}$	-	-	0	dBr
	$f_c \pm 11\text{MHz}$	-	-	-20	dBr
	$f_c \pm 20\text{MHz}$	-	-	-28	dBr
	$f_c \pm 30\text{MHz}$	-	-	-45	dBr
802.11ac (VHT80)	$f_c \pm 39\text{MHz}$	-	-	0	dBr
	$f_c \pm 41\text{MHz}$	-	-	-20	dBr
	$f_c \pm 80\text{MHz}$	-	-	-28	dBr
	$f_c \pm 120\text{MHz}$	-	-	-40	dBr
802.11ax (HE80)	$f_c \pm 39.5\text{MHz}$	-	-	0	dBr
	$f_c \pm 40.5\text{MHz}$	-	-	-20	dBr
	$f_c \pm 80\text{MHz}$	-	-	-28	dBr
	$f_c \pm 120\text{MHz}$	-	-	-40	dBr
Center Frequency Tolerance					
802.11a/n/ac/ax		-20	-	+20	ppm
EVM (Error Vector Magnitude)*					
802.11a	6Mbps	-	-	-5	dB
	9Mbps	-	-	-8	dB
	12Mbps	-	-	-10	dB
	18Mbps	-	-	-13	dB
	24Mbps	-	-	-16	dB
	36Mbps	-	-	-19	dB
	48Mbps	-	-	-22	dB
	54Mbps	-	-	-25	dB
802.11n	MCS0.	-	-	-5	dB
	MCS1.	-	-	-10	dB
	MCS2.	-	-	-13	dB
	MCS3.	-	-	-16	dB
	MCS4.	-	-	-19	dB
	MCS5.	-	-	-22	dB
	MCS6.	-	-	-25	dB
	MCS7.	-	-	-28	dB
802.11ac	MCS0.	-	-	-5	dB
	MCS1.	-	-	-10	dB
	MCS2.	-	-	-13	dB
	MCS3.	-	-	-16	dB

	MCS4.	-	-	-19	dB
	MCS5.	-	-	-22	dB
	MCS6.	-	-	-25	dB
	MCS7.	-	-	-27	dB
	MCS8.	-	-	-30	dB
	MCS9.	-	-	-32	dB
802.11ax	MCS0.	-	-	-5	dB
	MCS1.	-	-	-10	dB
	MCS2.	-	-	-13	dB
	MCS3.	-	-	-16	dB
	MCS4.	-	-	-19	dB
	MCS5.	-	-	-22	dB
	MCS6.	-	-	-25	dB
	MCS7.	-	-	-27	dB
	MCS8.	-	-	-30	dB
	MCS9.	-	-	-32	dB
	MCS10.	-	-	-35	dB
	MCS11.	-	-	-35	dB

3.3.3. Bluetooth RF Specifications

Parameter	Conditions	Minimum	Typical	Maximum	Unit
Frequency Range		2402		2480	MHz
RX Sensitivity	DH5	-	-94	-	dBm
	2DH5	-	-92	-	dBm
	3DH5	-	-86	-	dBm
	LE 1M	-	-95	-	dBm
Output Power	DH5	-	10	-	dBm
	2DH5	-	10	-	dBm
	3DH5	-	10	-	dBm
	LE 1M	-	10	-	dBm

3.4. DC Characteristics

3.4.1. Absolute Maximum Ratings

Rating	Symbol	Maximum	Unit
DC Supply For VBAT	VBAT	5.25	V
DC Supply Voltage For Digital/Bluetooth/SDIO I/O	VDDIO	5.25	V

3.4.2. Recommended Operating Conditions

Parameter	Symbol	Value			
		Minimum	Typical	Maximum	Unit
DC Supply For VBAT	VBAT	3.0	3.3	3.6	V
DC Supply Voltage For Digital/Bluetooth/SDIO I/O	VDDIO	1.62	1.8	1.98	V
		3.0	3.3	3.6	V

3.5. Power Sequence

- Power-up and Power-down Timing



Figure 3. Power-up and Power-down Timing of S6621S1-T4

Parameter	Description	Minimum	Typical	Maximum
T1	VBAT Ramp up time	200us	500us	-
T2	VDDIO should be powered on after VBAT is powered on	0	-	-
T3	CHIP_EN has a delay compared to VDDIO and VBAT	10	-	-
T4	Power down settle time	200ms	-	-

4. Application, Implementation, and Layout

4.1. Application Diagram

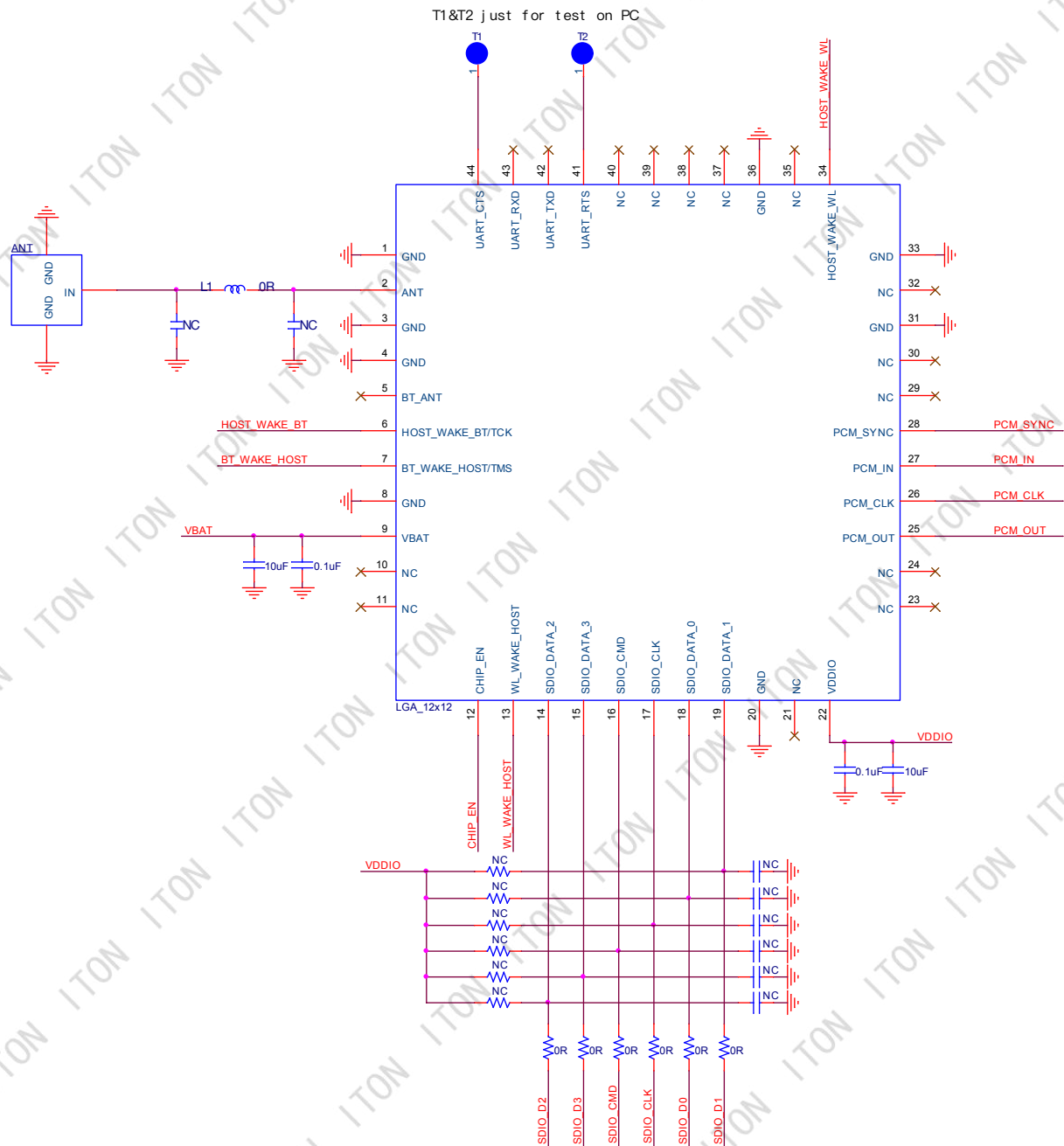


Figure 4. Application Schematic Diagram of S6621S1-T4

4.2. Layout Guideline

- The antenna needs to have enough clearance area.
- The antenna pad needs to have enough clearance area.
- The filter capacitor should be as close as possible to the module.
- Do not place strong interference lines under the module.

5. Mechanical and Package

5.1. Module Size

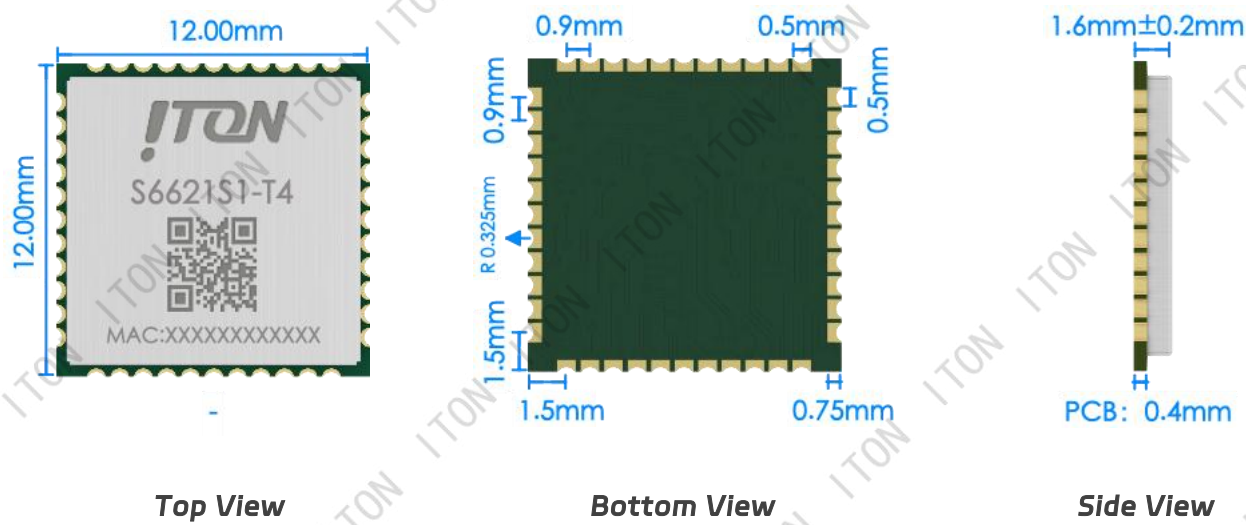


Figure 5. Module Size of S6621S1-T4

5.2. Package Information

Part NO.	MOQ(PCS)	Shipment Packaging	No. of Modules Per Reel	No. Of Reels Per Case
S6621S1-T4	7200	Tape & Reel	1200	6

6. Thermal Reflow

- Referred to IPC/JEDEC standard.
- Peak temperature: <250°C
- Number of times: ≤ 2

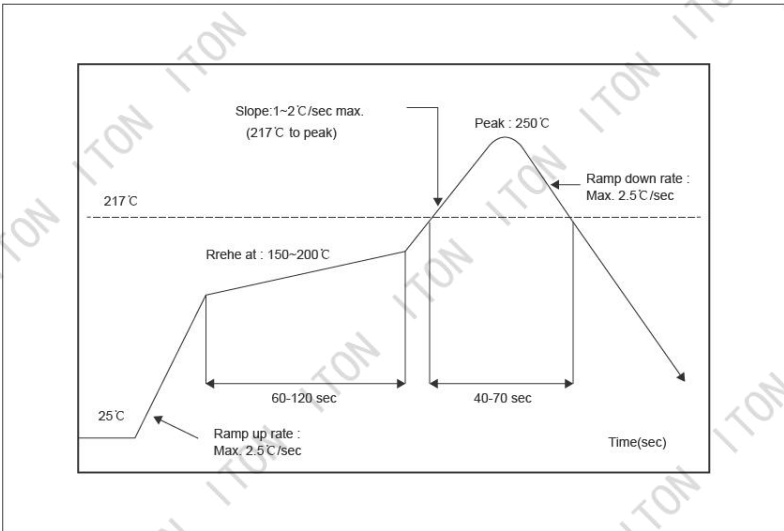


Figure 6. Recommended Reflow for Lead Free Solder

- Note: The module is recommended not to go through reflow over twice.

7. Certification Information

- None

8. Ordering Information

Part NO.	ANT	Shielding Cover	Remark
S6621S1-T4	PCB Antenna	Included	SDIO

• The Key Material List

Item	Part Name	Description	Manufacturer
1	PCB	S6621S1-T4,FR4,4L	Xusheng
2	Chipset	SWT6621-SE.QFN48L	Seekwave
3	Crystal	2016,40M,9pF	YL
4	Diplexer	1608,2.4G&5G&6G	FTR

9. Revision History

Version	Change Content	Reviser	Date
V1.0	Initial Version	Phil Ye	2025.10.21