Comchips

KX6575
Module Data sheet

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Website: www.comchips.com

Customer Approval

Company _____

Title _____

Signature _____

Date _____

FTY _____

Version Update Record

Version	Date	Revision Content	Editorialstaff	approval
V1.0	2022/4/22	The first version		

CONTENTS

1 Overview

1.1 Introduction

The KX6575 is a highly integrated single-chip that support 2-stream 802.11ax solutions with Multi-user MIMO (Multiple-Input, Multiple-Output) with Wireless LAN (WLAN) PCI Express network interface controller with integrated Bluetooth 5 USB interface controller. It combines a WLAN MAC, a 2T2R capable WLAN baseband, and RF in a single chip. The RTL8852BE provides a complete solution for a high-performance integrated wireless and Bluetooth device.

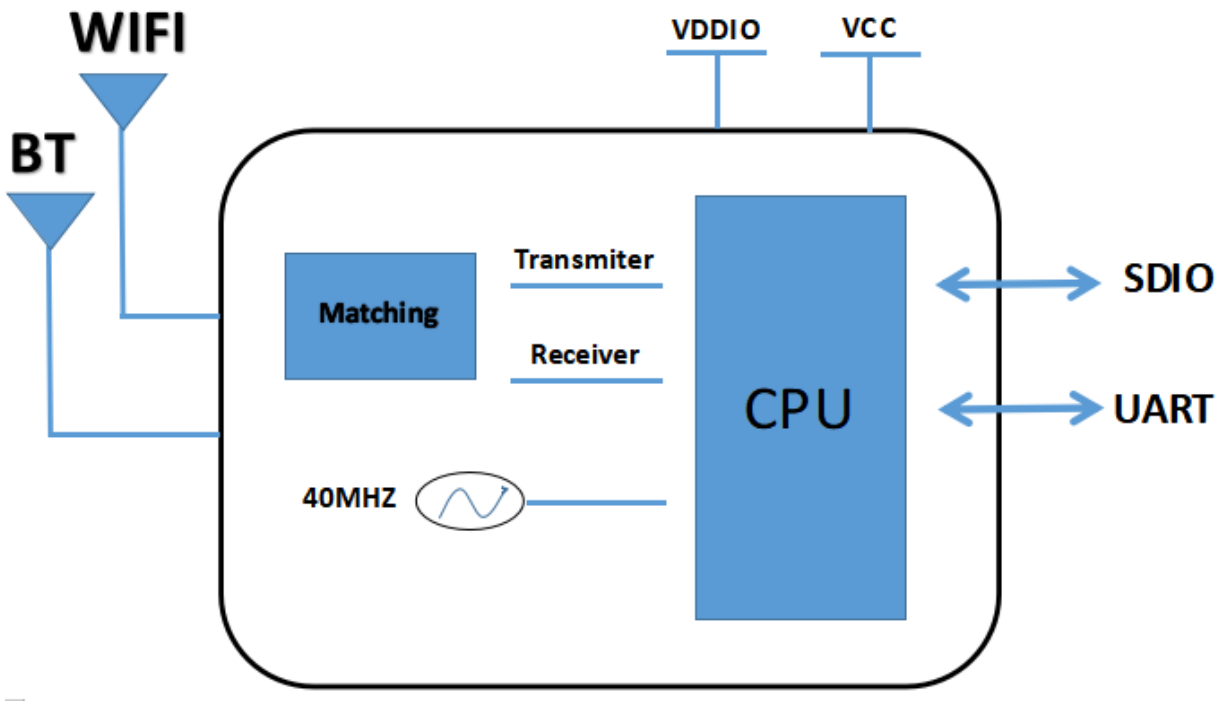
The KX6575 baseband implements Multi-user Multiple Input, Multiple Output (MU-MIMO) Orthogonal Frequency Division Multiplexing (OFDM) with two transmit and two receive paths (2T2R). Features include two spatial stream transmissions, short Guard Interval (GI), spatial spreading, and support for variant channel bandwidth. Moreover, KX6575 provides one spatial stream space-time block code (STBC), Transmit Beamforming (TxBF) and Low Density Parity Check (LDPC) to extend the range of transmission. At the receiver, extended range and good minimum sensitivity is achieved by having receiver diversity up to 2 antennas. As the recipient, the KX6575 also supports explicit sounding packet feedback that helps senders with beamforming capability.

1.2 Features

- CMOS MAC, Baseband PHY and RF in a single chip for IEEE 802.11a/b/g/n/ac/ax compatible WLAN
- Support Bluetooth 5 system (BT 5.2 Logo Compliant)
- Complete 802.11n MIMO solution for 2.4GHz and 5Ghz band
- Maximum PHY data rate up to 286.8 Mbps using 20MHz bandwidth, 573.5Mbps using 40MHz bandwidth, and 1201Mbps using 80MHz bandwidth
- Backward compatible with 802.11a/b/g devices while operating at 802.11n data rates
- Backward compatible with 802.11a/n/ac devices while operating at 802.11ax data rates
- Compliance with Windows operating system host-implemented FIPS 140-2 security requirements
- Support 20/40/80MHz 5GHz
- supports WLAN-Bluetooth coexistence
- supports low power Bluetooth
- Support Bluetooth 5 system (BT 5.2 Logo Compliant)

Compatible with Bluetooth v2.1+EDR

1.3 Block Diagra



1.4 General Specification

Model Name	KX6575
Product Description	Support WLAN-Bluetooth coexistence
Dimension	L x W x H: 15.1x 13.1 x 1.7 (±0.3) mm
Wi-Fi Interface	Support SDIO3 0
BT interface	Support HS-UART
Operating temperature	0 to +70° C
Storage temperature	-55°C to 125°C
RoHS	All hardware components are fully compliant with EU RoHS directive

1.5 DC Characteristics

Power Supply Characteristics

Symbol	Parameter	Minimum	Typical	Maximum	Units
VDD33	3.3V I/O Supply Voltage	3.1	3.3	3.5	V
VD09	0.9V Core Supply Voltage	0.84	0.9	0.99	V
VD13	1.35V Analog Supply Voltage	1.35	1.4	1.485	V

2 RF Specifications

2.1 2.4GHz RF Specification

Features	Description
WLAN Standard	IEEE802.11b/g/n
Frequency Range	2.4~2.4835GHz (2.4GHz ISM Band)
Modulation Method	DSSS,DBPSK, DQPSK, CCK and OFDM with BPSK, QPSK, 16QAM, 64QAM,)
Number of Channel	2.4GHz: 11: (Ch. 1-11) – United States 13: (Ch. 1-13) – Europe 14: (Ch. 1-14) – Japan

2.4G Transmitter Specifications

TX Rate	TX Power	TX Power Tolerance	EVM
802.11b@11Mbps	17dBm	±2dBm	≤-13dB
802.11g@54Mbps	14dBm	±2dBm	≤-25dB
802.11n@BW20_MCS7	13dBm	±2dBm	≤-28dB
802.11n@BW40_MCS7	13dBm	±2dBm	≤-28dB

Frequency Error：±12PPM

2.4G Receiver Specifications

RX Rate	Standard Value	PER
802.11b@11Mbps	-85dBm	<8%
802.11g@54Mbps	-68dBm	< 10%
802.11n@BW20_MCS7	-66dBm	< 10%
802.11n@BW40_MCS7	-65dBm	< 10%

2.2 5GHz RF Specification

Features	Description
WLAN Standard	IEEE802.11a/n/ac/ax
Frequency Range	4.9GHz ~ 6.0GHz (5GHz ISM Band)
Modulation Method	OFDM (BPSK, QPSK, 16QAM,64QAM and 256-QAM)

5G Transmitter Specifications

TX Rate	TX Power	TX Power Tolerance	EVM
802.11a@ 54Mbps	13dBm	±2dBm	≤-25dB
802. 11n@BW40_MCS7	12dBm	±2dBm	≤-28dB
802.11ac@BW80_MCS9	10dBm	±2dBm	≤-32dB
802.11ax@BW80_MCS11	10dBm	±2dBm	≤-35dB

5G Receiver Specifications

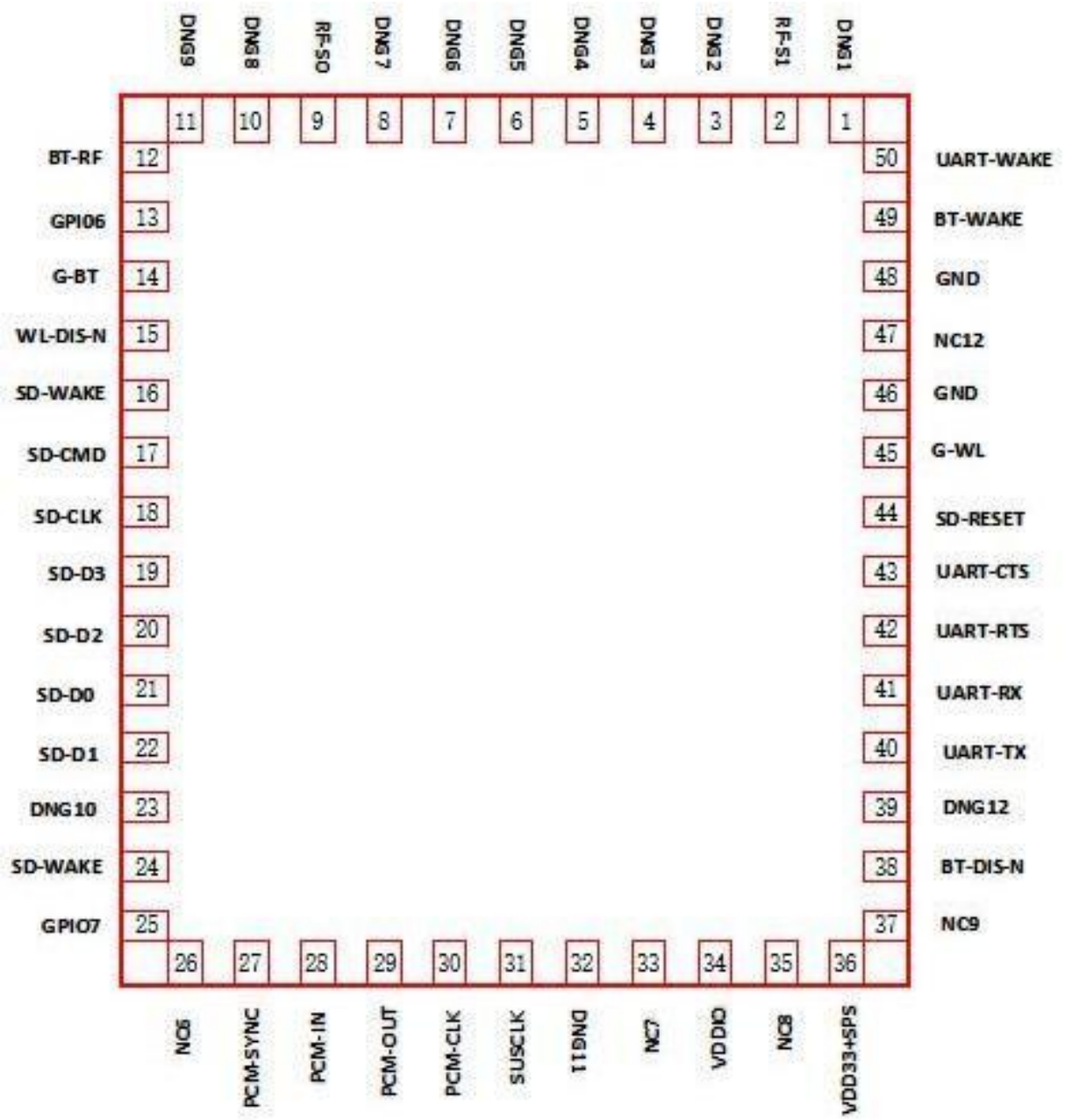
RX Rate	Standard Value	PER
802.11a@54Mbps	-70dBm	<10%
802. 11n@BW40_MCS7	-65dBm	< 10%
802.11ac@BW80_MCS9	-56dBm	< 10%
802.11ax@BW80_MCS11	-57dBm	< 10%

2.3 Bluetooth Specification

Feature	Description		
General Specification			
Bluetooth Standard	Bluetooth V3.3 of 1, 2 and 3 Mbps		
Host Interface	UART		
Antenna Reference	Small antennas with 0~2 dBi peak gain		
Frequency Band	2.400 GHz ~ 2483.5 GHz		
Number of Channels	79 channels		
Modulation	FHSS, GFSK, DPSK, DQPSK		
RF Specification			
Power (BDR：GFSK/1Mbps)	0dBm	——	10dBm
Power(EDF：π /4-DQPSK/2Mbps)	0dBm	——	10dBm
Power (BLE：GFSK/1Mbps)	0dBm	——	10dBm
Sensitivity @ BER=0.1% for (BDR：GFSK/1Mbps)		-85 dBm	
Sensitivity @ BER=0.1% for(EDF：π /4-DQPSK/2Mbps)		-85 dBm	
Sensitivity @ BER=0.1% for (BLE：GFSK/1Mbps)		-85 dBm	
Initial Freq Error	BDR：GFSK/1Mbps:±75KHZ		
	EDF：π /4-DQPSK/2Mbps :±75KHZ		
	BLE：GFSK/1Mbps :±75KHZ		

3.Pin Assignments

3.1Pin Outline



3.2 Pin Definition

NO.	Name	Type	Descripti n
1	GND	—	Ground connections
2	RF_ S1	I/O	ANT1
3	GND	—	Ground connections
4	GND	—	Ground connections
5	GND	—	Ground connections
6	GND	—	Ground connections
7	GND	—	Ground connections
8	GND	—	Ground connections
9	RT_ S0	I/O	ANT0
10	GND	—	Ground connections
11	GND	—	Ground connections
12	BT RF	I/O	BT ANT
13	GPIO6	—	General Purpose Input/ Output Pin
14	G_ BT	—	General Purpose Input/ Output Pin
15	WL_ DIS _N	I	RF on-off
16	SD_ WAKE	O	WLAN to wake-up HOST
17	SD_ CMD	I/O	SDIO command line
18	SD_ CLK	I/O	SDIO CLK
19	SD_ D3	I/O	SDIO Data Line 3
20	SD_ D2	I/O	SDIO Data Line 2
21	SD_ D0	I/O	SDIO Data Line 0
22	SD_ D1	I/O	SDIO Data Line 1
23	GND	—	Ground connections
24	SD_ WAKE	I	WLAN to wake-up HOST
25	GPIO7	—	General Purpose Input/ Output Pin
26	NC	—	No connect
27	PCM_SYNC	I/O	PCM sync signal

28	PCM_IN	I	PCM DATA INPUT
29	PCM_OUT	I	PCM DATA OUTPUT
30	PCM_CLK	I/O	PCM CLK
31	SUS_CLK	—	External Low Power Clock input(32.768KHz)
32	GND	—	Ground connections
33	NC	—	No connect
34	VDDIO	P	I/O Voltage supply input 1.8V or 3.3V
35	NC	—	No connect
36	VD33_SPS	P	3.3V
37	NC	—	No connect
38	BT_DIS _N	—	Enable pin for Bluetooth device ON: pull high ; OFF: pull low
39	GND	—	Ground connections
40	UART_TX	O	High-Speed UART Data Out
41	UART_RX	I	High-Speed UART Data In
42	UART_RTS	O	High-Speed UART RTS
43	UART_CTS	I	High-Speed UART CTS
44	SD_RESET	—	SDIO BUS REST
45	G_WL	—	General Purpose Input/ Output Pin
46	GND	—	Ground connections
47	NC	—	No connect
48	GND	—	Ground connections
49	BT_WAKE	—	Host wake-up Bluetooth device
50	UART_WAKE	O	Bluetooth device to wake-Host

4. Dimensions

4.1 Module Picture

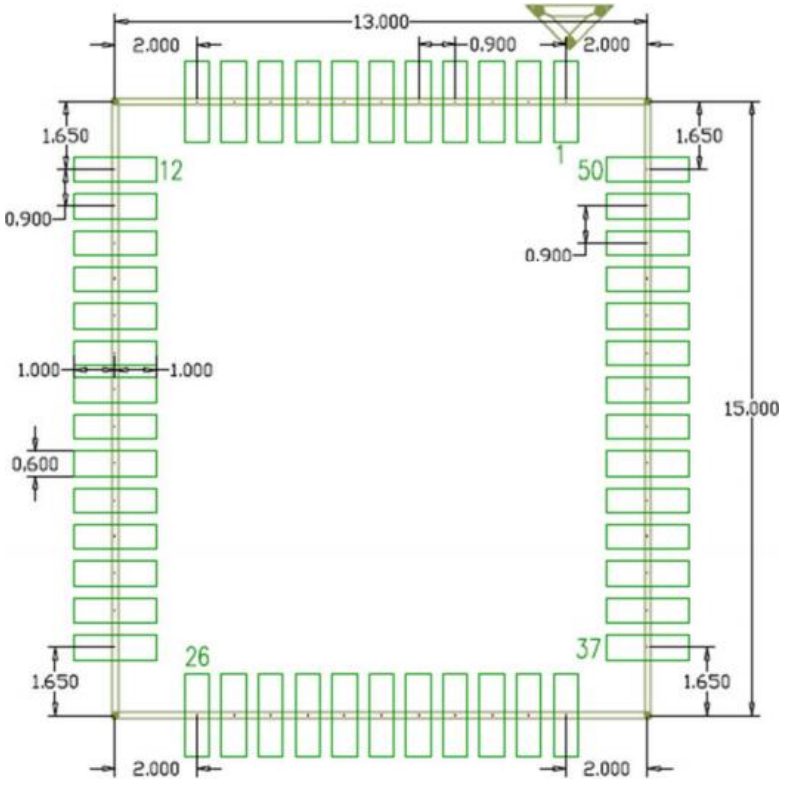
L x W :15.1.x 13.1 (±0.3)(±0.3) mm

H:1.7(±0.3)mm

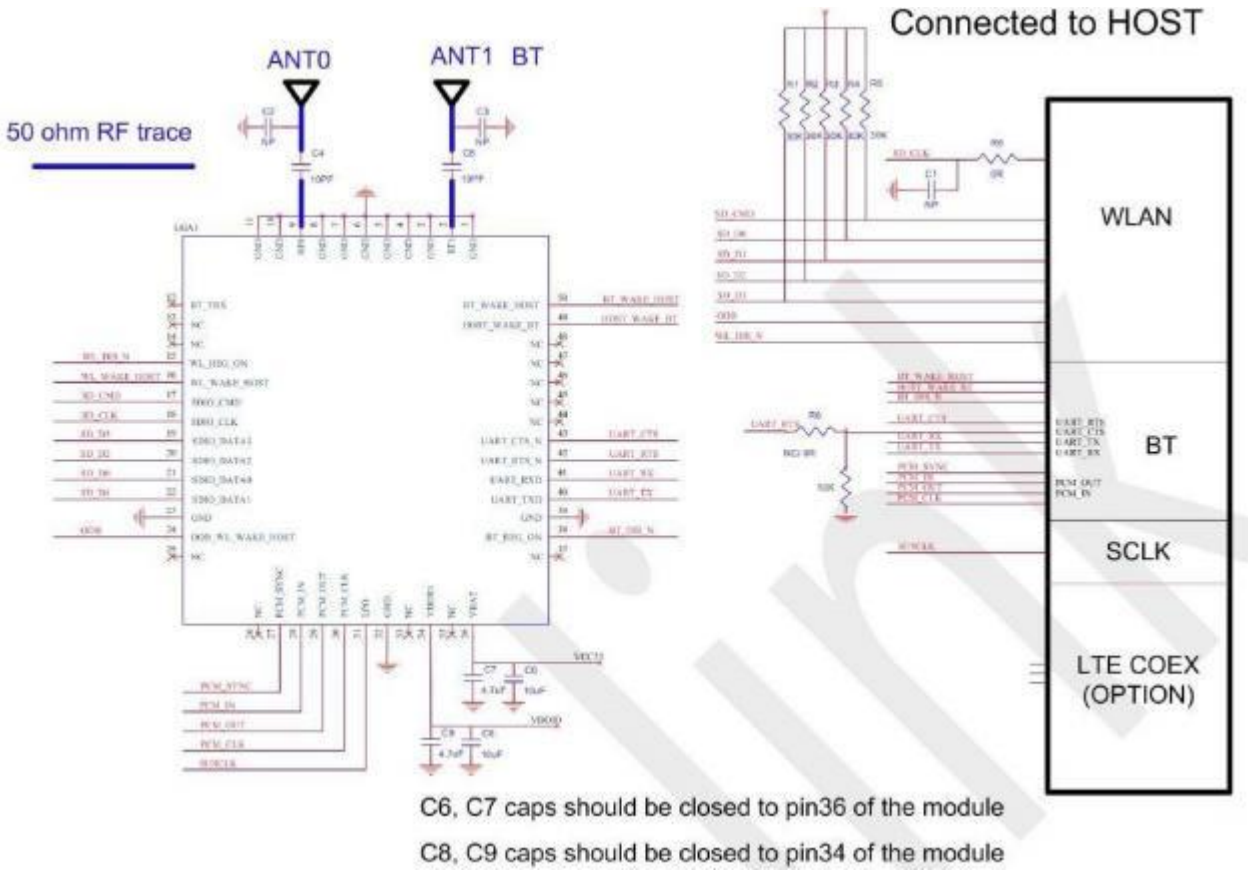
4.2 Module Physical Dimensions

(Unit: mm)

< TOP VIEW >



5.1 WIFI RF Circuit reference pictures



Note:

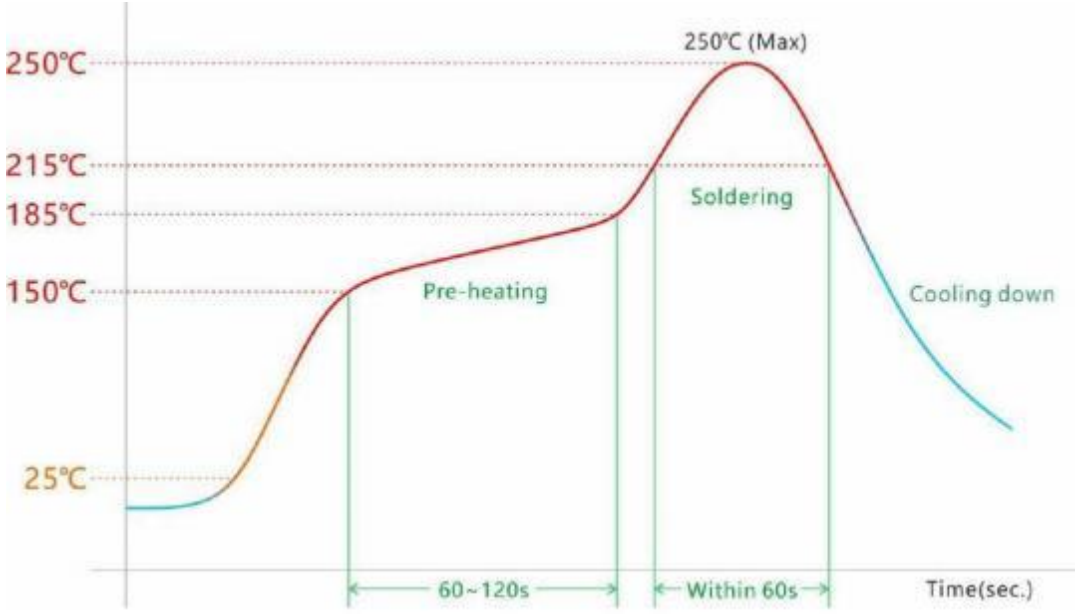
1. ANT_A, ANT_B are all support 2.4G/5G function,ANT_B is support Bluetooth also;
2. The module requires independent power supply, supply capacity ≥ 1000mAand ripple less than 150mV;
3. Do not share power with amplifier, camera, etc.

6.The Key Material List

No.	Parts	Specification	Manufacturer	Note
1	Chipset	RTL8852BS-CG	Realtek Semiconductor Corp	
2	PCB	FT1900BS-53SW6BA22D1	Shenzhen xiangyu circuit co., LTD	
3	PCB	FT1900BS-53SW6BA22D1	Shenzhen Kexiang Precision Circuit Technology Co., LTD	
4	Crystal oscillator	2016 40MHz ±8ppm 12pF (-30~85°C)晶威特 CN4040M00012T2893016（常用	hefei jing wei Electronics Co. Ltd.	
5	Crystal oscillator	2016 40MHz ±8ppm 12pF (-20~85°C)蓝晶 L214S400L（常用）	ZhejiangLanjingxin Microelectronics Co., LTD.	

7 Recommended Reflow Profile

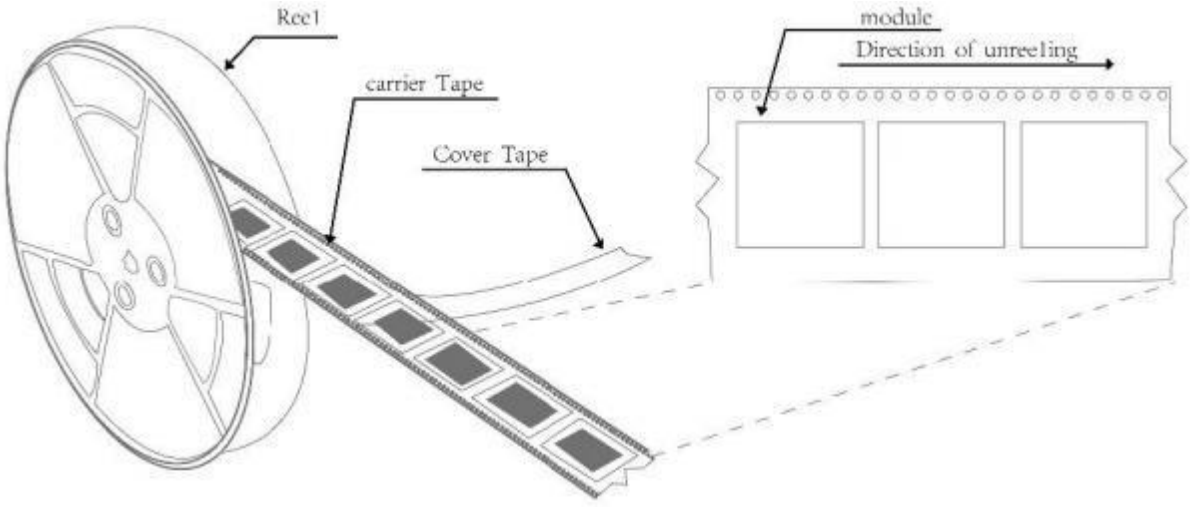
Referred to IPC/JEDEC standard.
Peak Temperature : <250° C
Number of Times : ≤2 times



8 Package Information

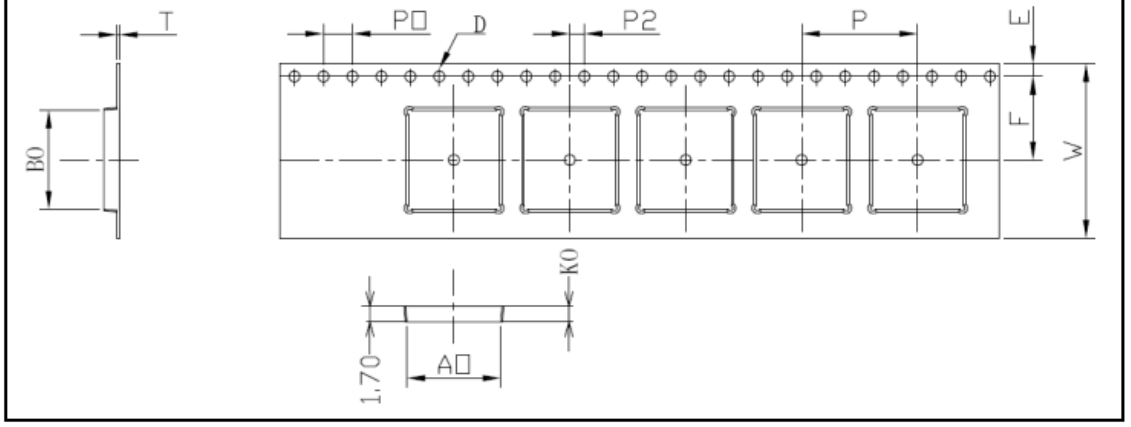
8.1Reel

A roll of 2000pcs

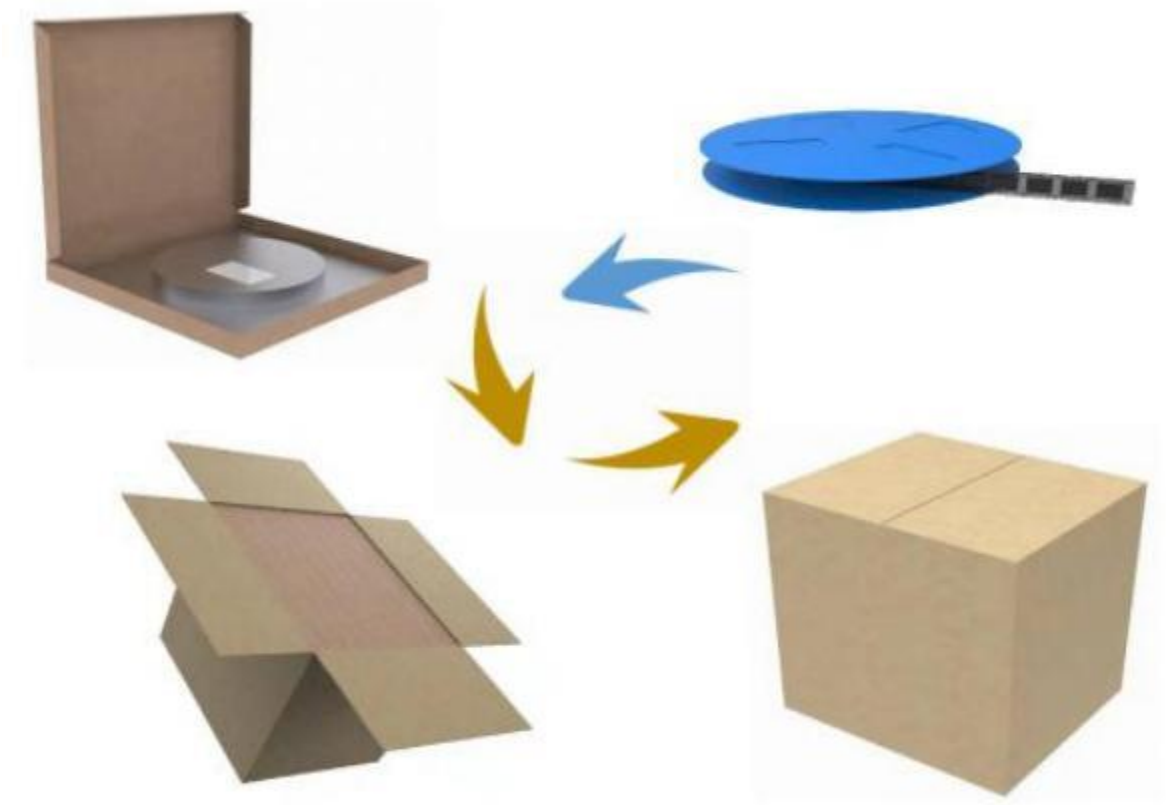


8.2 Carrier Tape Detail

ITEM	W	A0	B0	D	F	E	K0	P0	P2	P	T
DIM	24	12.61	13.62	1.50	11.5	1.75	1.70	4.0	2.0	16.0	0.30
TOLE	+0.3 -0.3	±0.15	±0.15	+0.1 -0.0	+0.1 -0.1	±0.1	±0.10	±0.1	±0.1	±0.1	±0.05



8.3 Packaging Detail



8.4 Moisture sensitivity

The Modules is a Moisture Sensitive Device level 3, in according with standard IPC/JEDEC J-STD-020, take care all the relatives requirements for using this kind of components.

Moreover, the customer has to take care of the following conditions:

a) Calculated shelf life in sealed bag: 12 months at <40°C and <90% relative humidity (RH).

b)Environmental condition during the production: 30°C / 60% RH according to IPC/JEDEC J-STD-033A paragraph 5.

c) The maximum time between the opening of the sealed bag and the reflow process must be 168 hours if condition

b) “IPC/JEDEC J-STD-033A paragraph 5.2” is respected

e) Baking is required if conditions b) or c) are not respected

f) Baking is required if the humidity indicator inside the bag indicates 10% RH or more