FN-LINK 欧智通

PRODUCT SPECIFICATION

6252B-SR

Wi-Fi Dual-band 2x2 11ax + Bluetooth 5.2

Combo Module

Version:v1.2

6252B-SR Module Datasheet

Ordering Information	Part NO.	Description
	FG6252BSRX-01	RTL8852BS ,a/b/g/n/ac/ax,Wi-Fi+BT5.2,2T2R,SDIO+UART, 3 Antenna ,no shielding

Customer: _____

Customer P/N:_____

Signature:_____

Date:_____

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Factory: NO.8, Litong RD., Liuyang Economic & Technical Development Zone, Changsha, CHINA

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Revision History

Version	Date	Contents of Revision Change	Preparde	Checked	Approved
V1.0	2021/08/27	Initial Release	FC	Lgp	Szs
V1.1	2021/7/30	Modify DBDC to DBSC	FC	LXY	QJP
V1.2	2021/11/5	Update the specification format	FC	LXY	QJP

1. General Description

1.1 Introduction

Fn-Link Technology would like to announce a low-cost and low-power consumption module which has all of the Wi-Fi functionalities.It is a highly-integrated IEEE 802.11 a/b/g/n/ac/ax MAC/Baseband/RF WLAN single chip.For Wireless LAN operation. The integrated module provides SDIO interface for Wi-Fi.The module provides simple legacy and 20MHz/40MHz/80MHz co-existence mechanism to ensure backward and network compatibility.

The wireless module complies with IEEE 802.11 a/b/g/n/ac/ax 2x2 MIMO standard and the speed can achieve up to 1201Mbps with dual stream in 802.11ax. The integrated module provides SDIO interface for Wi-Fi, UART / PCM interface for Bluetooth.

This combo module is a total solution for a combination of Wi-Fi and Bluetooth V5.2 technologies. The module is specifically developed for all portable devices.

1.2 Description

Model Name	6252B-SR
Product Description	Support Wi-Fi/Bluetooth functionalities
Dimension	L x W x H: 15 x 13 x1.8 mm
Wi-Fi Interface	Support SDIO V1.0/V2.0/V3.0
BT Interface	UART / PCM
OS supported	Android /Linux/iOS /WIN10
Operating temperature	0°C to 70°C
Storage temperature	-40°C to 85°C

2. Features

General

- Highly integrated wireless local area network (WLAN) system-on-chip (SOC) for 802.11a/b/g/n/ac/ax WLAN applications
- Supports Dual band Single concurrent (2.4G/5G).

PHY Features

- Dual-stream spatial multiplexing up to 1201 Mbps data rate.
- Supports 20/40MHz at 2.4GHz and supports 20/40/80MHz at 5GHz
- Supports Transmit Beamforming

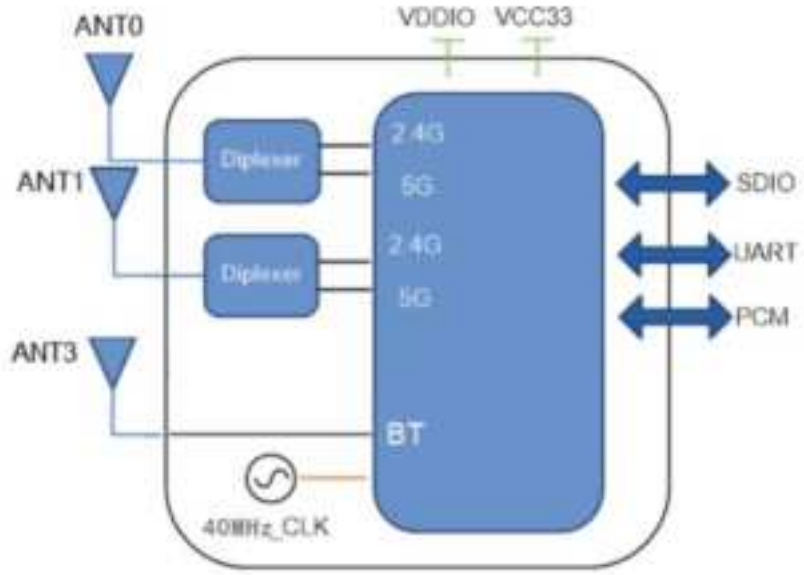
Host Interface

- Supports low power SDIO3.0(complies with SDIO 1.1/2.0) interface for WLAN and UART/PCM interface for Bluetooth.

Bluetooth Features

- Supports Bluetooth system (BT5.2 Logo Compliant)
- Supports WLAN/Bluetooth coexistence
- Compatible with Bluetooth v2.1+EDR.
- Dual Mode support: Simultaneous LE and BR/EDR
- BT host digital interface:
    - HCI UART
    - PCM for audio data

3. Block Diagram



--- 3 antenna version

4. General Specification

4.1 WI-FI 2.4GHz Specification

Feature	Description	
WLAN Standard	IEEE 802.11 b/g/n/ac/ax Wi-Fi compliant	
Frequency Range	2.412 GHz ~ 2.462 GHz (2.4 GHz ISM Band)	
Number of Channels	2.4GHz：Ch1 ~ Ch11	
Test Items	**Typical Value**	**EVM**
Output Power[1]	802.11b /11Mbps : 22dBm ± 2 dB	EVM ≤ -10dB
	802.11g /54Mbps : 20dBm ± 2 dB	EVM ≤ -25dB
	802.11n /MCS7 : 22dBm ± 2 dB	EVM ≤ -28dB
	802.11ac vHT20 MCS8: 20dBm ± 2 dB	EVM ≤ -30dB
	802.11ac vHT40 MCS9: 20dBm ± 2 dB	EVM ≤ -32dB
	802.11ax HE20 MCS11: 20dBm ± 2 dB	EVM ≤ -35dB
	802.11ax HE40 MCS11: 19dBm ± 2 dB	EVM ≤ -35dB
Spectrum Mask	Meet with IEEE standard	
Freq. Tolerance	±20ppm	
SISO Receive Sensitivity (11b,20MHz) @8% PER	- 1Mbps PER @ -94 dBm	≤-83
	- 11Mbps PER @ -85 dBm	≤-76
SISO Receive Sensitivity (11g,20MHz) @10% PER	- 6Mbps PER @ -90 dBm	≤-85
	- 54Mbps PER @ -71 dBm	≤-68
SISO Receive Sensitivity (11n,20MHz) @10% PER	- MCS=0 PER @ -90 dBm	≤-85
	- MCS=7 PER @ -69 dBm	≤-67
SISO Receive Sensitivity (11n,40MHz) @10% PER	- MCS=0 PER @ -87 dBm	≤-82
	- MCS=7 PER @ -66 dBm	≤-64
SISO Receive Sensitivity (11ac,20MHz) @10% PER	- MCS=0 PER @ -90 dBm	≤ -82
	- MCS=8 PER @ -66 dBm	≤ -60
SISO Receive Sensitivity (11ac ,40MHz) @10% PER	- MCS=0 PER @ -87 dBm	≤ -79
	- MCS=9 PER @ -59 dBm	≤ -55
SISO Receive Sensitivity (11ax,20MHz) @10% PER	- MCS=0 PER @ -90 dBm	≤-74
	- MCS=11 PER @ -60 dBm	≤-52
SISO Receive Sensitivity (11ax ,40MHz) @10% PER	- MCS=0 PER @ -87 dBm	≤-71
	- MCS=11 PER @ -57 dBm	≤-49
Maximum Input Level	802.11b : -10 dBm	
	802.11g/n : -20 dBm	
Antenna Reference	Small antennas with 0~2.98 dBi peak gain	

4.2 WI-FI 5GHz Specification

Feature	Description	
WLAN Standard	IEEE 802.11a/n/ac/ax, Wi-Fi compliant	
Frequency Range	5.15 GHz ~ 5.850 GHz(5.0 GHz ISM Band)	
Test Items	**Typical Value**	**EVM**
Output Power[1]	802.11a /54Mbps: 14 dBm ± 2 dB	EVM ≤ -25dB
	802.11n /MCS7: 13 dBm ± 2 dB	EVM ≤ -28dB
	802.11ac vHT20 MCS8: 12 dBm ± 2 dB	EVM ≤ -30dB
	802.11ac vHT40 MCS9: 13 dBm ± 2 dB	EVM ≤ -32dB
	802.11ac vHT80 MCS9: 12 dBm ± 2 dB	EVM ≤ -32dB
	802.11ax HE20 MCS11: 10 dBm ± 2 dB	EVM ≤ -35dB
	802.11ax HE40 MCS11: 11 dBm ± 2 dB	EVM ≤ -35dB
	802.11ax HE80 MCS11: 10 dBm ± 2 dB	EVM ≤ -35dB
Spectrum Mask	Meet with IEEE standard	
Freq. Tolerance	±20ppm	
SISO Receive Sensitivity (11a,20MHz) @10% PER	- 6Mbps PER @ -90 dBm	≤-85
	- 54Mbps PER @ -71 dBm	≤-68
SISO Receive Sensitivity (11n,20MHz) @10% PER	- MCS=0 PER @ -90 dBm	≤-85
	- MCS=7 PER @ -69 dBm	≤-67
SISO Receive Sensitivity (11n,40MHz) @10% PER	- MCS=0 PER @ -87 dBm	≤-82
	- MCS=7 PER @ -66 dBm	≤-64
SISO Receive Sensitivity (11ac,20MHz) @10% PER	- MCS=0, NSS1 PER @ -90 dBm	≤ -82
	- MCS=8, NSS1 PER @ -66 dBm	≤ -60
SISO Receive Sensitivity (11ac ,40MHz) @10% PER	- MCS=0, NSS1 PER @ -87 dBm	≤ -79
	- MCS=9, NSS1 PER @ -59 dBm	≤ -55
SISO Receive Sensitivity (11ac,80MHz) @10% PER	- MCS=0, NSS1 PER @ -84 dBm	≤-79
	- MCS=9, NSS1 PER @ -56 dBm	≤-54
SISO Receive Sensitivity (11ax,20MHz) @10% PER	- MCS=0 PER @ -90 dBm	≤-74
	- MCS=11 PER @ -60 dBm	≤-52
SISO Receive Sensitivity (11ax ,40MHz) @10% PER	- MCS=0 PER @ -87 dBm	≤-71
	- MCS=11 PER @ -57 dBm	≤-49
SISO Receive Sensitivity (11ax,80MHz) @10% PER	- MCS=0 PER @ -84 dBm	≤-68
	- MCS=11 PER @ -54 dBm	≤-46
Maximum Input Level	802.11a/n: -30 dBm	
Antenna Reference	Small antennas with 0~4.56 dBi peak gain	

2. 2.4G,5G output power control by firmware power by rate table, the table value must same with module target power

[1]5GHz(20MHz) Channel table

Band range	Operating Channel Numbers	Channel center frequencies(MHz)
5180MHz~5240MHz	36	5180
	40	5200
	44	5220
	48	5240
5260MHz~5320MHz	52	5260
	56	5280
	60	5300
	64	5320
5550MHz~5700MHz	100	5500
	104	5520
	108	5540
	112	5560
	116	5580
	132	5660
	136	5680
	140	5700
5745MHz~5825MHz	149	5745
	153	5765
	157	5785
	161	5805
	165	5825

Note: The Wi-Fi RF specification data will be updated in future version.

4.3 Bluetooth Specification

Feature	Description		
General Specification			
Bluetooth Standard	Bluetooth V5.2.		
Host Interface	UART		
Antenna Reference	Small antennas with 0~2.98dBi peak gain		
Frequency Band	2402 MHz ~ 2480 MHz		
Number of Channels	79 channels		
Modulation	GFSK, π/4-DQPSK, 8-DPSK		
RF Specification			
	Min(dBm)	**Typical**(dBm)	**Max**(dBm)
Output Power (Class 1)	-0.468	1.202	2.872
Sensitivity @ BER=0.1% for GFSK (1Mbps)		-92	
Sensitivity @ BER=0.01% for π/4-DQPSK (2Mbps)		-86	
Sensitivity @ BER=0.01% for 8DPSK (3Mbps)		-85	
Maximum Input Level	GFSK (1Mbps):-20dBm		
	π/4-DQPSK (2Mbps) :-20dBm		
	8DPSK (3Mbps) :-20dBm		

Note: The Bluetooth Specification will be updated in future version.

5. ID setting information

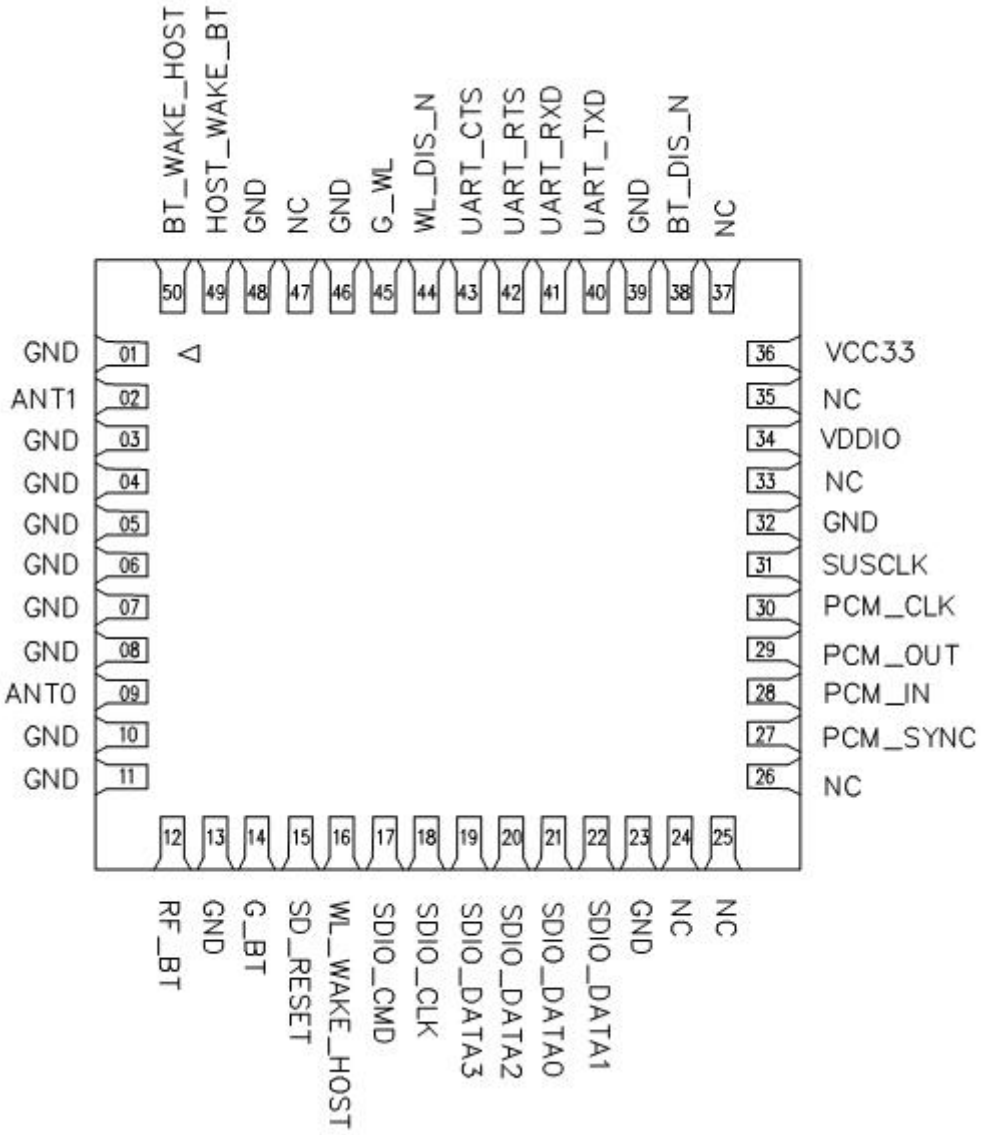
WI-FI

Vendor ID	TBD
Product ID	TBD

6. Pin Definition

6.1 Pin Outline

< TOP VIEW >



6.2 Pin Definition details

NO.	Name	Type	Description	Voltage

1	GND	—	Ground connections	
2	ANT1	I/O	RF I/O port chain1, dual band Wi-Fi and BT （for 2ant type)	
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	ANT0	I/O	RF I/O port chain0, dual band Wi-Fi	
10	GND	—	Ground connections	
11	GND	—	Ground connections	
12	NC or BT_TRX	I/O	Reserved for BT RF I/O port, used only in 3 ANT version	
13	GND	—	Ground connections	
14	G_BT	—	GPIO5. G_BT If not used keep NC. Do not connect to GND.	VDDIO
15	SD_RESET	I	Reset Pin for SDIO interface ON: pull high; OFF: pull low Low for disable SDIO interface	VDDIO
16	WL_WAKE_HOST	O	GPIO10. WLAN to wake-up HOST	VDDIO
17	SDIO_CMD	I/O	SDIO command line	VDDIO
18	SDIO_ CLK	I/O	SDIO clock line	VDDIO
19	SDIO_DATA3	I/O	SDIO data line 3	VDDIO
20	SDIO_DATA2	I/O	SDIO data line 2	VDDIO
21	SDIO_DATA0	I/O	SDIO data line 0	VDDIO
22	SDIO_DATA1	I/O	SDIO data line 1	VDDIO
23	GND	—	Ground connections	
24	NC	—	No connect	
25	NC	—	No connect	
26	NC	—	No connect	
27	PCM_SYNC	I/O	PCM sync signal	VDDIO
28	PCM_IN	I	PCM data input	VDDIO
29	PCM_OUT	O	PCM Data output	VDDIO
30	PCM_CLK	I/O	PCM clock	VDDIO

31	SUSCLK	I	External Low Power Clock input (32.768KHz) If not used keep NC	
32	GND	—	Ground connections	
33	NC	—	No connect	
34	VDDIO	P	I/O Voltage supply input 1.8V or 3.3V	1.8V or3.3V
35	NC	—	No connect	
36	VCC33	P	Main power voltage source input 3.3V	3.3V
37	NC	—	No connect	
38	BT_DIS_N	I	Enable pin for Bluetooth device ON: pull high; OFF: pull low External pull low to shut down BT	VDDIO
39	GND	—	Ground connections	
40	UART_TXD	O	Bluetooth UART interface	VDDIO
41	UART_RXD	I	Bluetooth UART interface	VDDIO
42	UART_RTS	O	Bluetooth UART interface	VDDIO
43	UART_CTS	I	Bluetooth UART interface	VDDIO
44	WL_DIS_N	—	Enable pin for WLAN Radio ON: pull high; OFF: pull low External pull low to disable WLAN Radio	VDDIO
45	G_WL	—	GPIO4, G_WL If not used keep NC. Do not pull high on this pin.	VDDIO
46	GND	—	Ground connections	
47	NC	—	No connect	
48	GND	—	Ground connections	
49	HOST_WAKE_BT	I	HOST wake-up Bluetooth device	VDDIO
50	BT_WAKE_HOST	O	Bluetooth device to wake-up HOST	VDDIO

P:POWER I:INPUT O:OUTPUT VDDIO:3.3V

7. Electrical Specifications

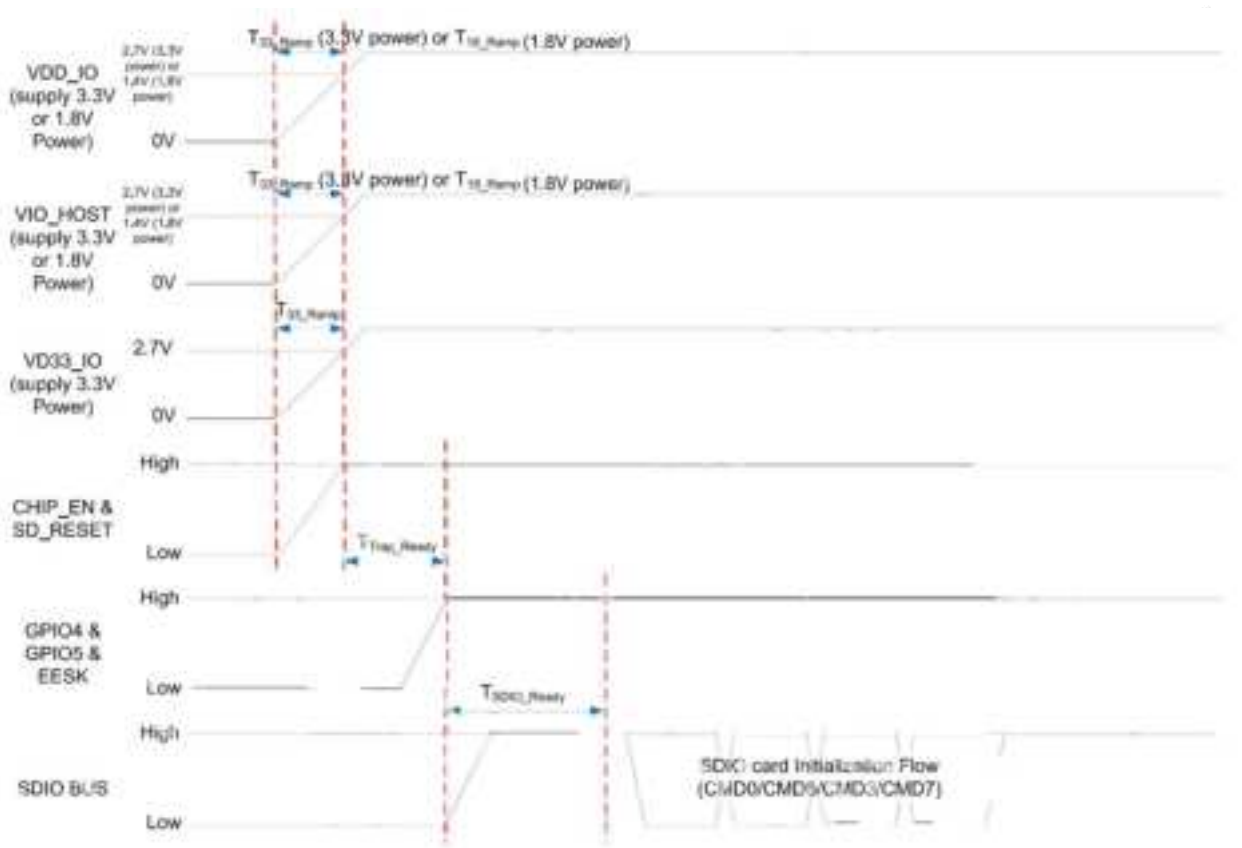
7.1 Power Supply DC Characteristics

	Min.	Typ.	Max.	Unit
Operating Temperature	0	25	70	deg.C

VCC33	3.15	3.3	3.45	V
VDDIO (3.3V)	-	3.3	3.6	V
VDDIO (1.8V)	1.68	1.8	1.98	V

7.2 Interface Circuit time series

7.2.1 Power on sequence



	Min.	Typical	Max.	Unit	Description
T18_Ramp	0.5	1.5	5	ms	The 1.8V power ramp up duration.
T33_Ramp	0.5	1.5	5	ms	The 3.3V power ramp up duration.
TTrap_Ready	400	500	X	ms	WLAN eFuse autoload. TTrap_Ready = 500ms (Typical)
TSDIO_Ready	10	20	X	ms	SDIO Not Ready Duration. In this state, the RTL8852BS may respond to commands without the ready bit being set. After the ready bit is set, the host will initiate complete card detection procedure.

7.2.2 SDIO Pin Description

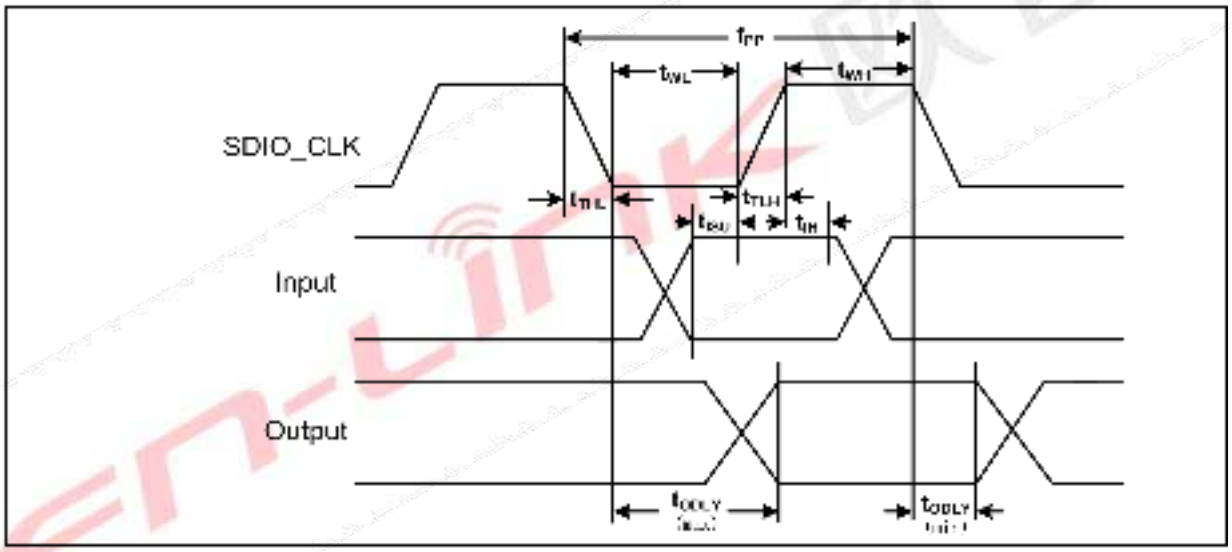
The module supports SDIO version 3.0 for all 1.8V 4-bit UHSI speeds: SDR50(100 Mbps), SDR104(208MHz) and DDR50(50MHz, dual rates) in addition to the 3.3V default speed(25MHz) and high speed (50 MHz). It has the ability to stop the SDIO clock and map the interrupt signal into a GPIO pin. This ‘out-of-band’

interrupt signal notifies the host when the WLAN device wants to turn on the SDIO interface. The ability to force the control of the gated clocks from within the WLAN chip is also provided.

SDIO Pin Description

SD 4-Bit Mode	
DATA0	Data Line 0
DATA1	Data Line 1 or Interrupt
DATA2	Data Line 2 or Read Wait
DATA3	Data Line 3
CLK	Clock
CMD	Command Line

7.2.3 SDIO Default Mode Timing Diagram



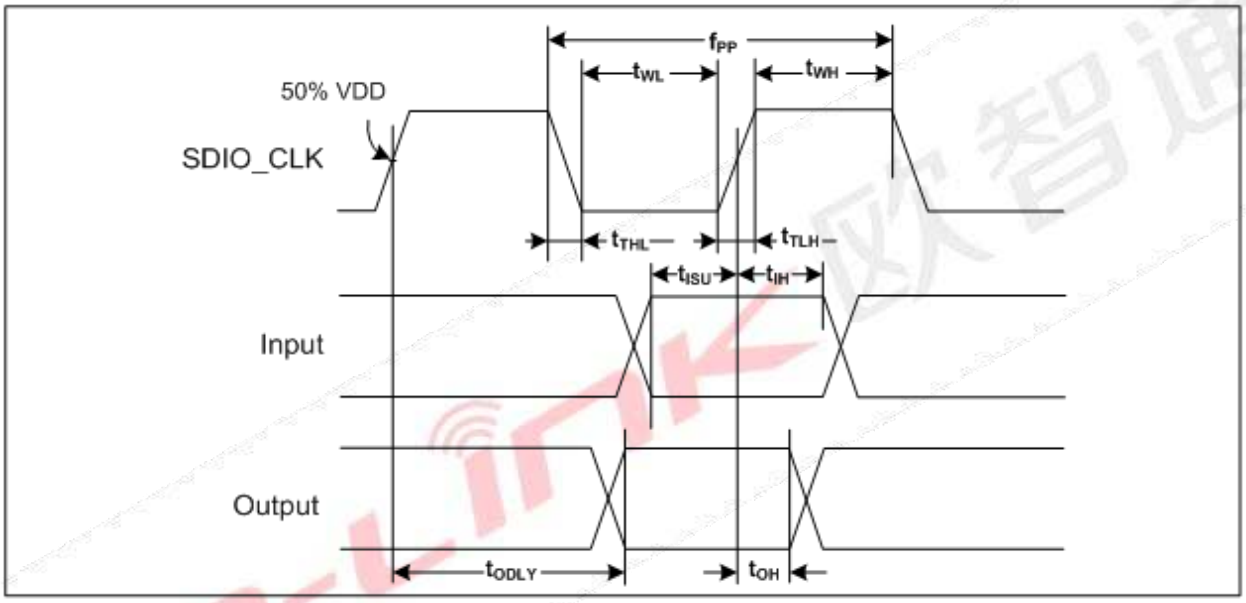
Parameter	*Symbol*	*Minimum*	*Typical*	*Maximum*	*Unit*
SDIO CLK(All values are referred to minimum VIH and maximum VIL[b])					
Frequency - Data Transfer mode	fPP	0	-	25	MHz
Frequency - Identification mode	fOD	0	-	400	kHz
Clock low time	tWL	10	-	-	ns
Clock high time	tWH	10	-	-	ns
Clock rise time	tTLH	-	-	10	ns
Clock low time	tTHL	-	-	10	ns
Inputs:CMD, DAT(referenced to CLK)					
Input setup time	tISU	5	-	-	ns
Input hold time	tIH	5	-	-	ns

Outputs:CMD, DAT(referenced to CLK)					
Output delay time - Data Transfer mode	tODLY	0	-	14	ns
Output delay time - Identification mode	tODLY	0	-	50	ns

a. Timing is based on CL ≤ 40 pF load on CMD and Data.

b. Min(Vih) = 0.7 × VDDIO and max(Vil) = 0.2 × VDDIO.

7.2.4 SDIO High Speed Mode Timing Diagram



Parameter	*Symbol*	*Minimum*	*Typical*	*Maximum*	*Unit*
SDIO CLK(all values are referred to minimum VIH and maximum VIL[b])					
Frequency - Data Transfer mode	fPP	0	-	50	MHz
Frequency - Identification mode	fOD	0	-	400	kHz
Clock low time	tWL	7	-	-	ns
Clock high time	tWH	7	-	-	ns
Clock rise time	tTLH	-	-	3	ns
Clock low time	tTHL	-	-	3	ns
Inputs:CMD, DAT(referenced to CLK)					
Input setup time	tISU	6	-	-	ns
Input hold time	tIH	2	-	-	ns
Outputs:CMD, DAT(referenced to CLK)					
Output delay time - Data Transfer mode	tODLY	-	-	14	ns
Output delay time - Identification mode	tODLY	2.5	-	-	ns

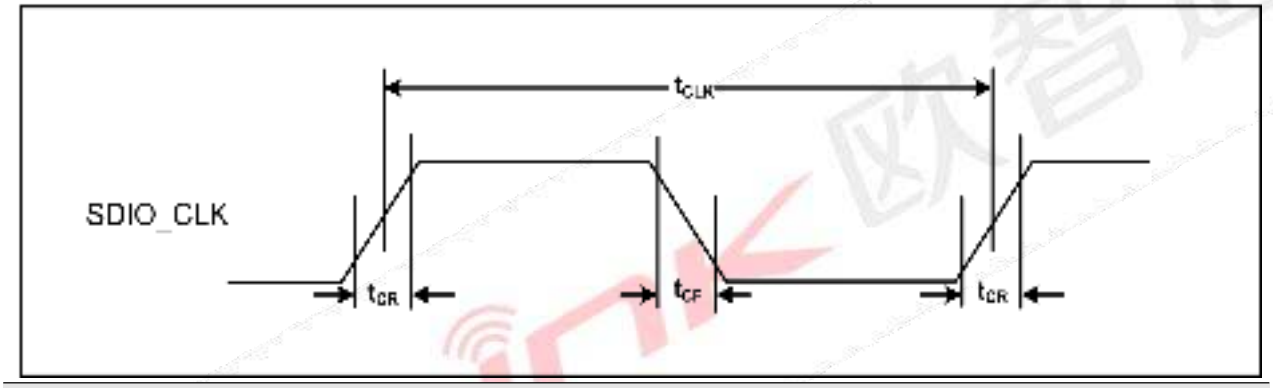
Total system capacitance(each line)	CL	-	-	40	pF

a. Timing is based on CL ≤ 40 pF load on CMD and Data.

b. Min(Vih) = 0.7 × VDDIO and max(Vil) = 0.2 × VDDIO.

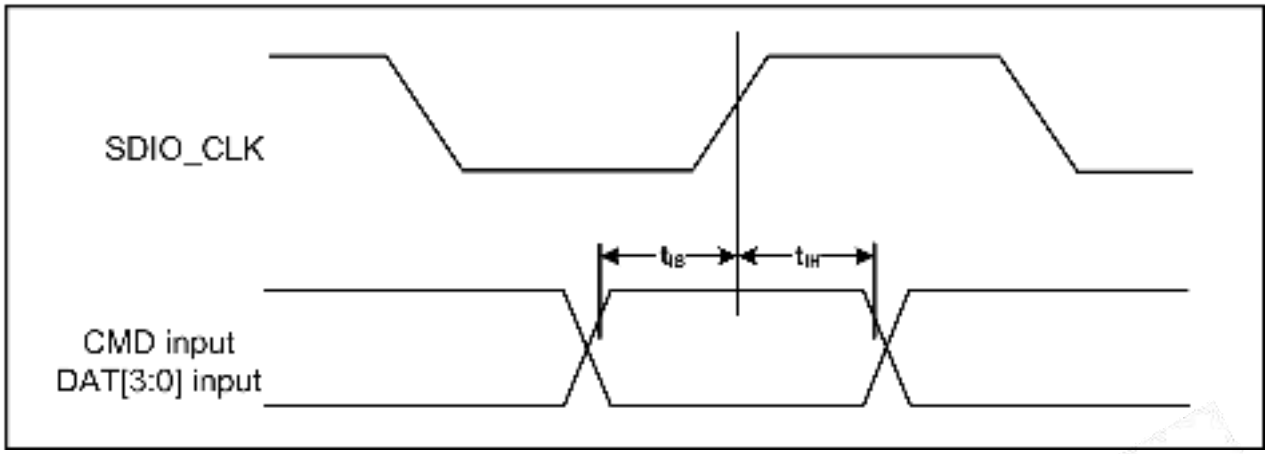
7.2.5 SDIO Bus Timing Specifications in SDR Modes

Clock timing (SDR Modes)



Parametwer	*Symbol*	*Minimum*	*Maximum*	*Unit*	*Comments*
-	t_{CLK}	40	-	ns	SDR12 mode
		20	-	ns	SDR25 mode
		10	-	ns	SDR50 mode
		4.8	-	ns	SDR104 mode
-	t_{CR}, t_{CF}	-	0.2 × t_{CLK}	ns	t_{CR}, t_{CF} < 2.00 ns (max)@100 MHz, C_{CARD} = 10 pF t_{CR}, t_{CF} < 0.96 ns (max)@208 MHz, C_{CARD} = 10 pF
Clock duty	-	30	70	%	-

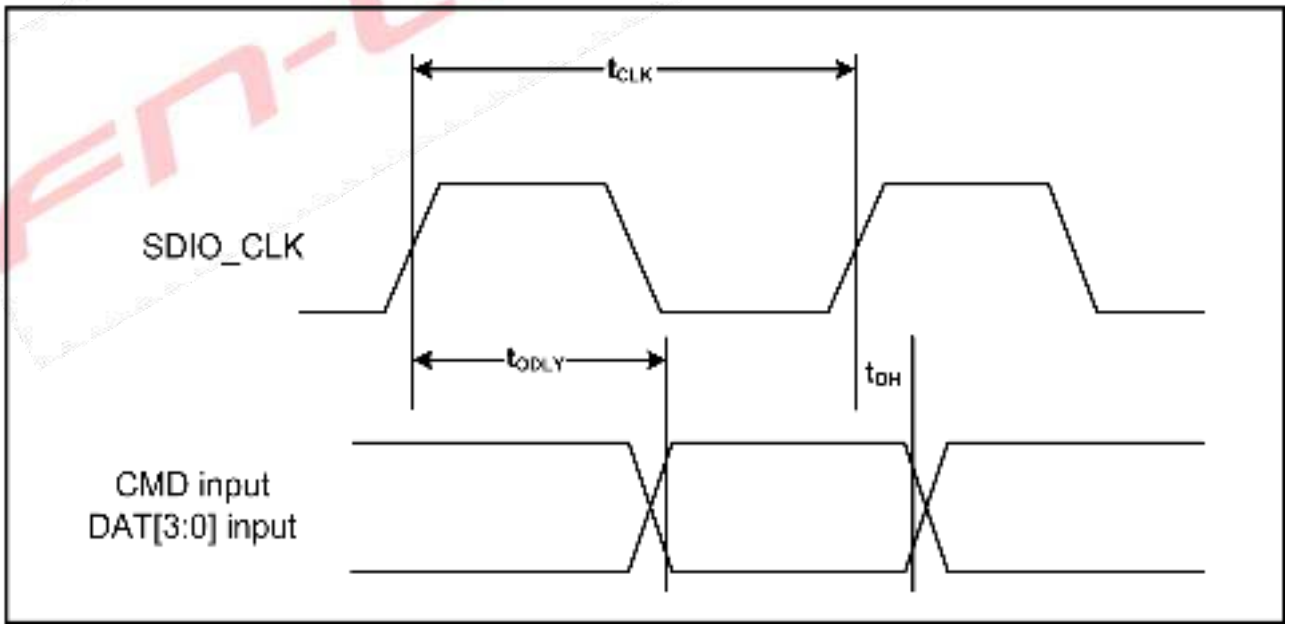
Card Input timing (SDR Modes)



Symbol	Minimum	Maximum	Unit	Comments
SDR104 Mode				
t_{IS}	1.70[a]	-	ns	C_{CARD} = 10pF, VCT = 0.975V
t_{IH}	0.80	-	ns	C_{CARD} = 5pF, VCT = 0.975V
SDR50 Mode				
t_{IS}	3.00	-	ns	C_{CARD} = 10pF, VCT = 0.975V
t_{IH}	0.80	-	ns	C_{CARD} = 5pF, VCT = 0.975V

a. SDIO 3.0 specification value is 1.40 ns.

Card output timing (SDR Modes up to 100MHz)

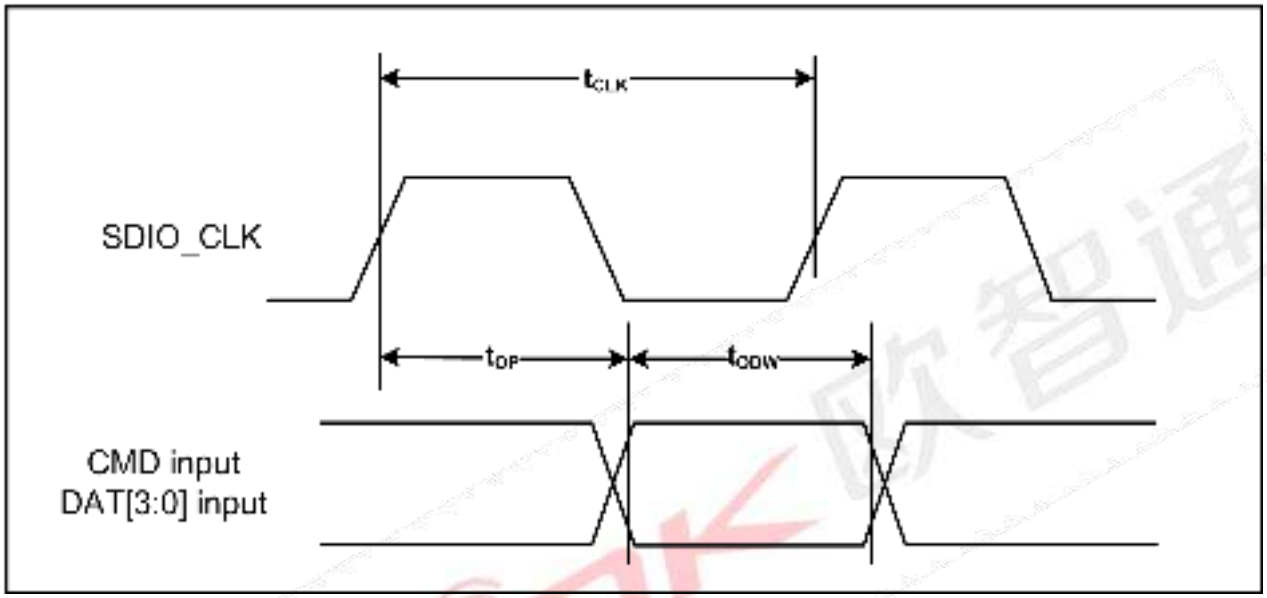


Symbol	Minimum	Maximum	Unit	Comments

t_{ODLY}	-	7.85[a]	ns	t_{CLK}≥10 ns C_L=30 pF using driver type B for SDR50
t_{ODLY}	-	14.0	ns	t_{CLK}≥20 ns C_L=40 pF using for SDR12, SDR25
t_{OH}	1.5	-	ns	Hold time at the t_{ODLY}(min) CL=15 pF

a. SDIO 3.0 specification value is 7.5 ns.

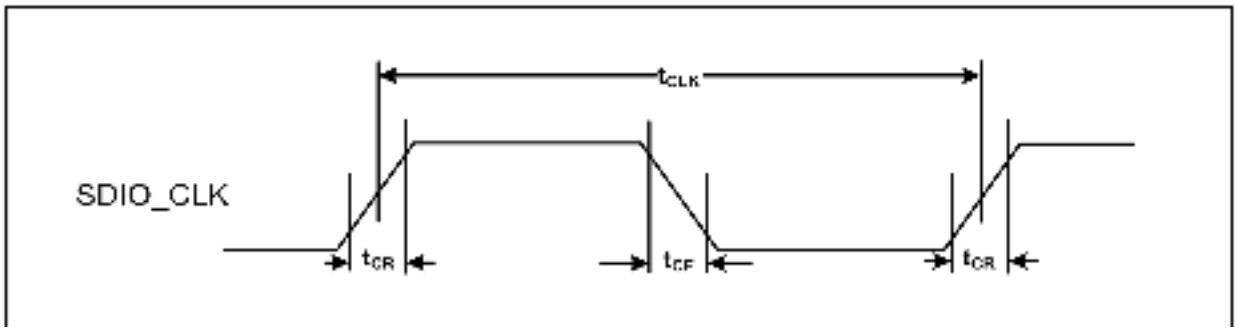
Card output timing (SDR Modes 100MHz to 208MHz)



Symbol	*Minimum*	*Maximum*	*Unit*	*Comments*
t_{OP}	0	2	UI	Card output phase
△t_{OP}	-350	+1550	ps	Delay variation due to temp change after tuning
t_{ODW}	0.6	-	UI	t_{ODW} = 2.88 ns @ 208 MHz

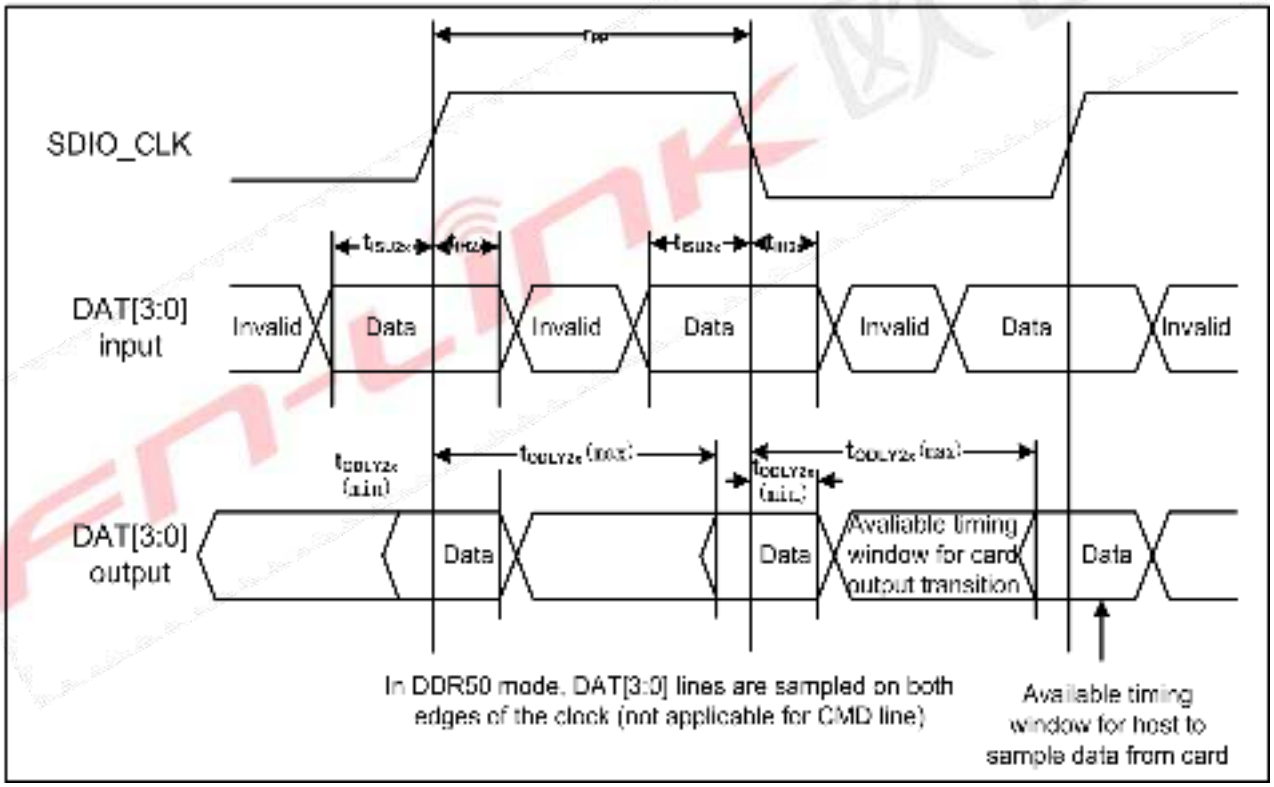
- △t_{OP} = +1550 ps for junction temperature of △t_{OP} = 90 degrees during operation
- △t_{OP} = -350 ps for junction temperature of △t_{OP} = -20 degrees during operation
- △t_{OP} = +2600 ps for junction temperature of △t_{OP} = -20 to +125 degrees during operation

7.2.6 SDIO Bus Timing Specifications in DDR50 Mode



parameter	*Symbol*	*Minimum*	*Maximum*	*Unit*	*Comments*
-	t_{CLK}	20	-	ns	DDR50 mode
-	t_{CR}, t_C	-	0.2 ×t_{CLK}	ns	t_{CR}, t_{CF} < 4.00 ns (max)@50 MHz, C_{CARD} = 10 pF
Clock duty	-	45	55	%	-

Data Timing



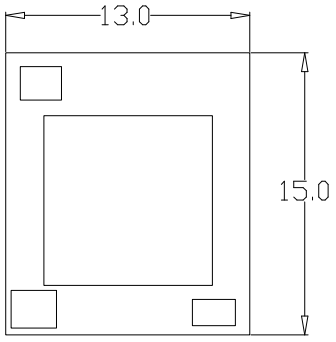
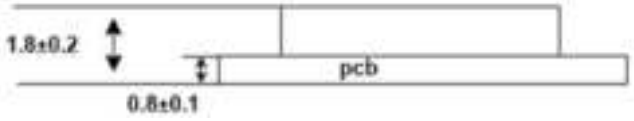
parameter	*Symbol*	*Minimum*	*Maximum*	*Unit*	*Comments*
Input CMD					
Input setup time	t_{ISU}	6	-	ns	C_{CARD} < 10 pF (1 Card)
Input hold time	t_{IH}	0.8	-	ns	C_{CARD} < 10 pF (1 Card)
Output CMD					

Output delay time	t_{ODLY}	-	13.7	ns	C_{CARD} < 30 pF (1 Card)
Output hold time	t_{OH}	1.5	-	ns	C_{CARD} < 15 pF (1 Card)
Input DAT					
Input setup time	t_{ISU2x}	3	-	ns	C_{CARD} < 10 pF (1 Card)
Input hold time	t_{IH2x}	0.8	-	ns	C_{CARD} < 10 pF (1 Card)
Output CMD					
Output delay time	t_{ODLY2x}	-	7.85[a]	ns	C_{CARD} < 25 pF (1 Card)
Output hold time	t_{ODLY2x}	1.5	-	ns	C_{CARD} < 15 pF (1 Card)

a. SDIO 3.0 specification value is 7.0 ns

8. Size reference

8.1 Module Picture

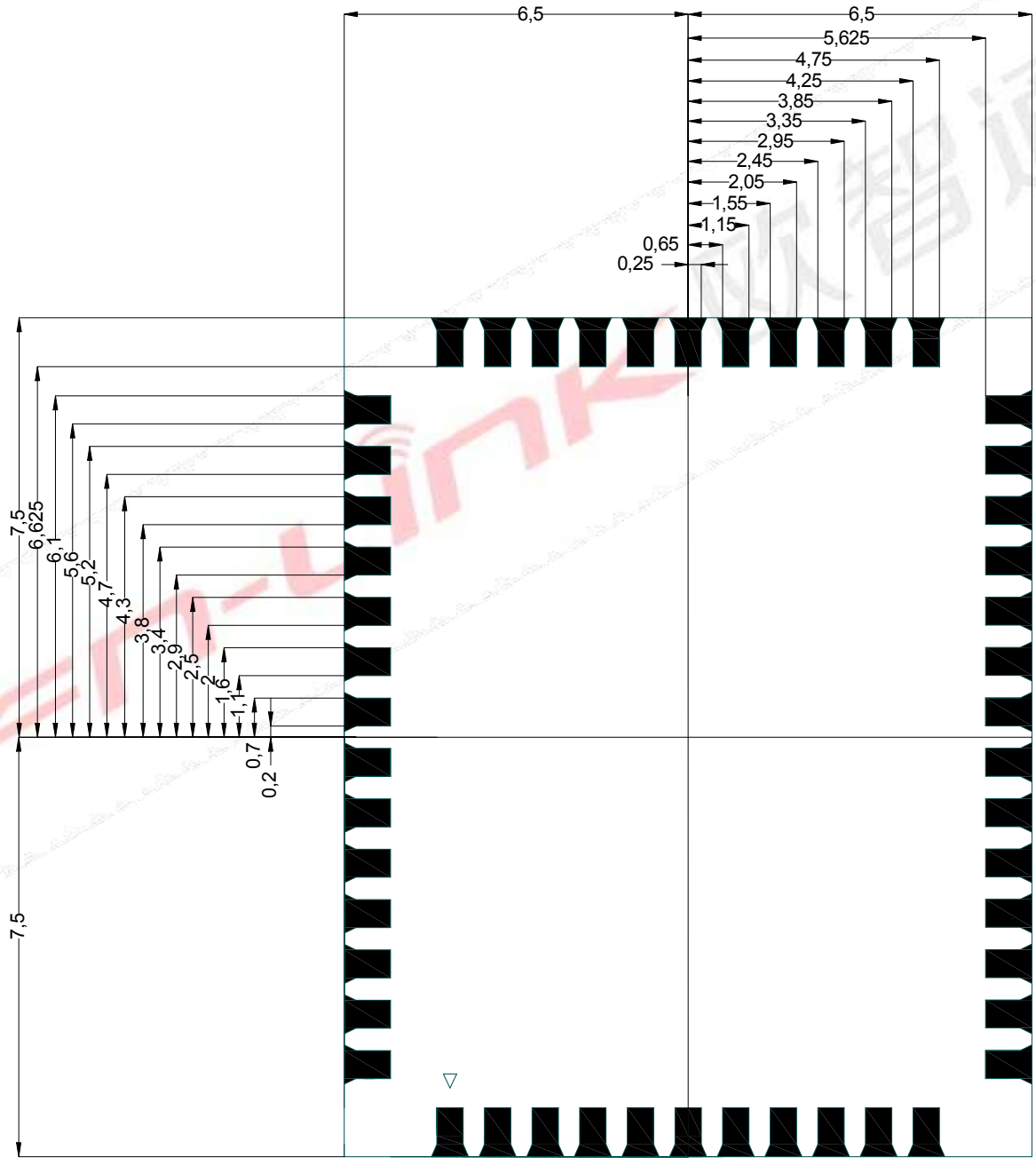
<table>
<tr><td>L x W : 15 x 13 (+0.3/-0.1) mm
PIN1
  </td><td> 
</td></tr>
<tr><td>H: 1.8 (±0.2) mm</td><td> 
</td></tr>
<tr><td>Weight</td><td>0.67g</td></tr>
</table>

8.2 Marking Description

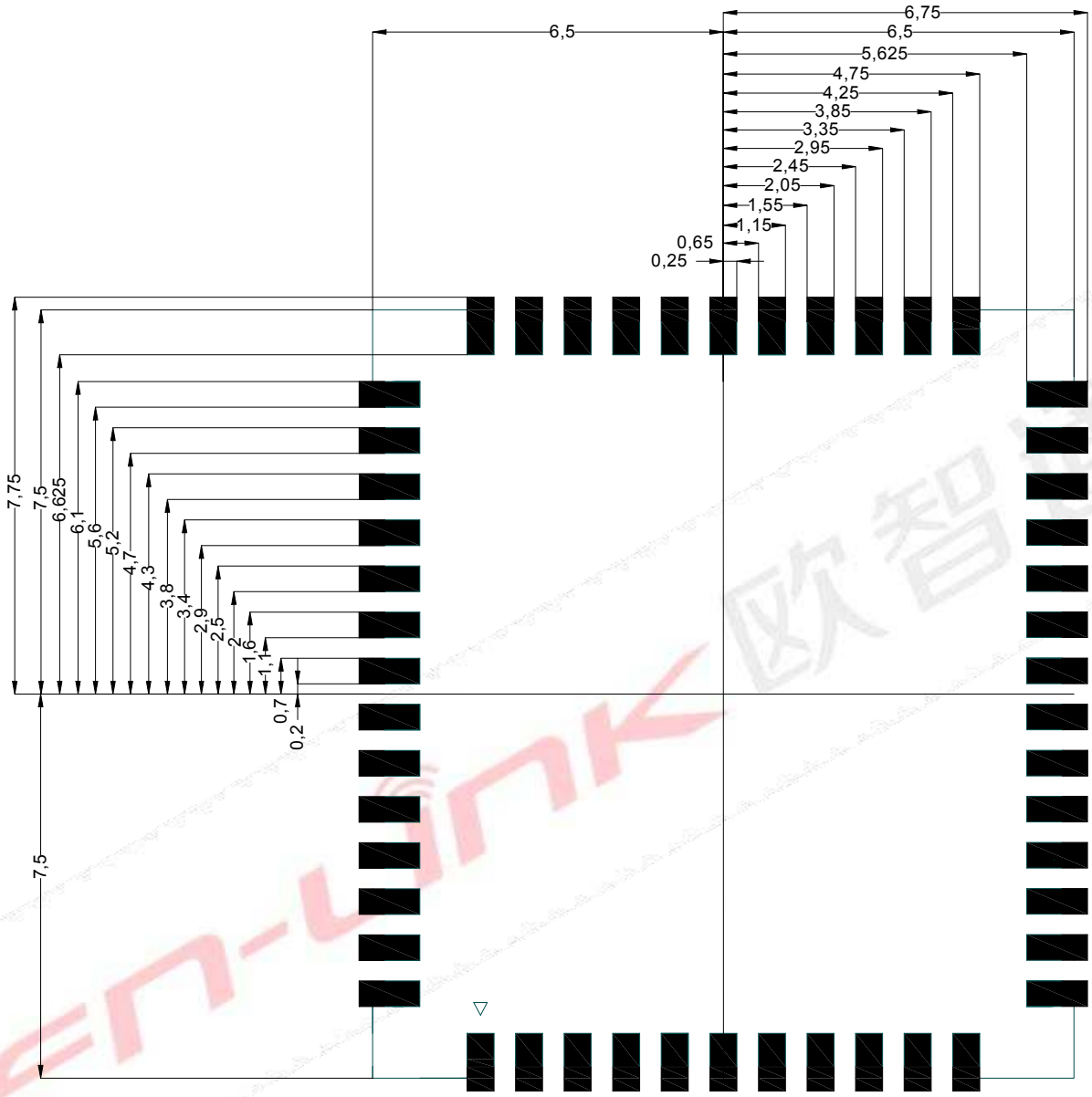
NA

8.3 Physical Dimensions

<TOP View>



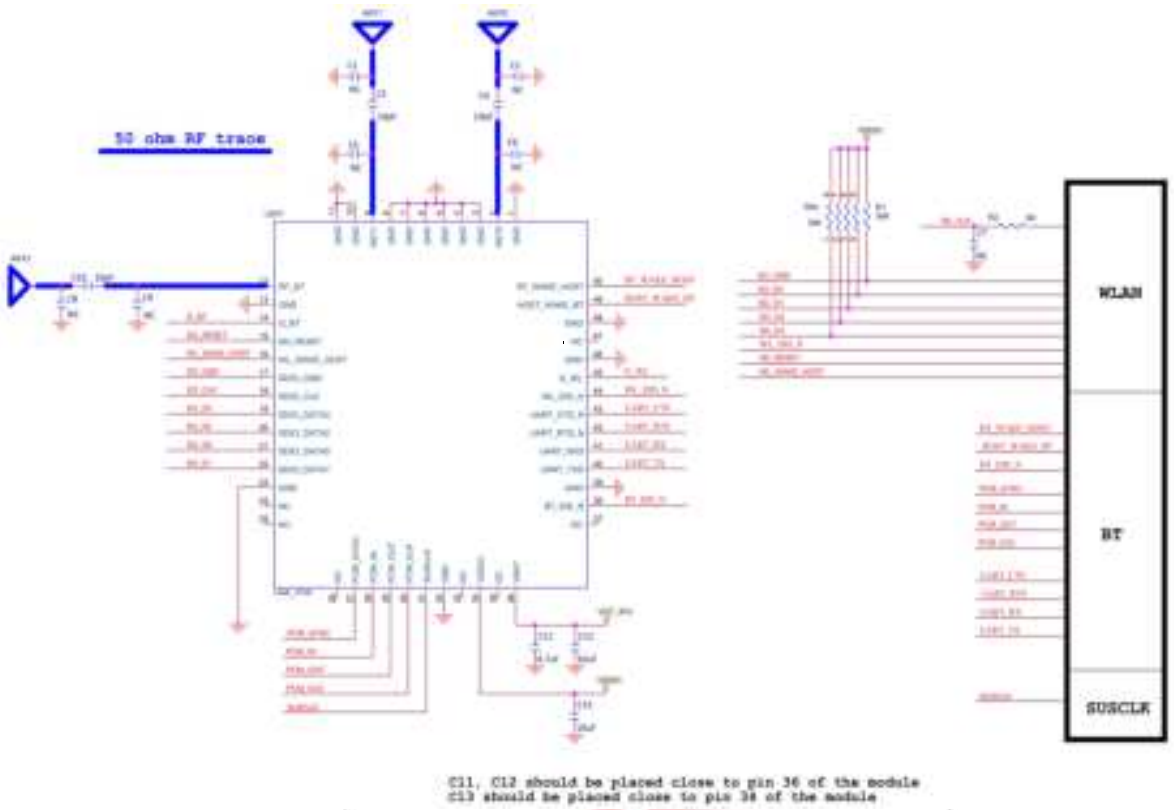
8.4 Layout Recommendation



9. The Key Material List

Chipset	RTL8852BS	Realtek
PCB	FR4, 4 LAYER, GREEN	XY-PCB, GDKX, Sunlord, SLPCB
Crystal	2016 40MHz ±10ppm	ECEC, TKD, Hosonic, JWT, TXC
Inductor	2016 1.0uH,±20%	Sunlord, Ceaiya, Cenker
Inductor	0603 2.2UH,±10%	Sunlord, Ceaiya, Cenker
Diplexer	1608 Dual-band, dual-mode 2.4GHz/5GHz WLAN	Glead, Walsin, ACX, Murata, MAG.LAYERS

10. Reference Design



Note:

ANT3 is optional for 3 ANT vertion

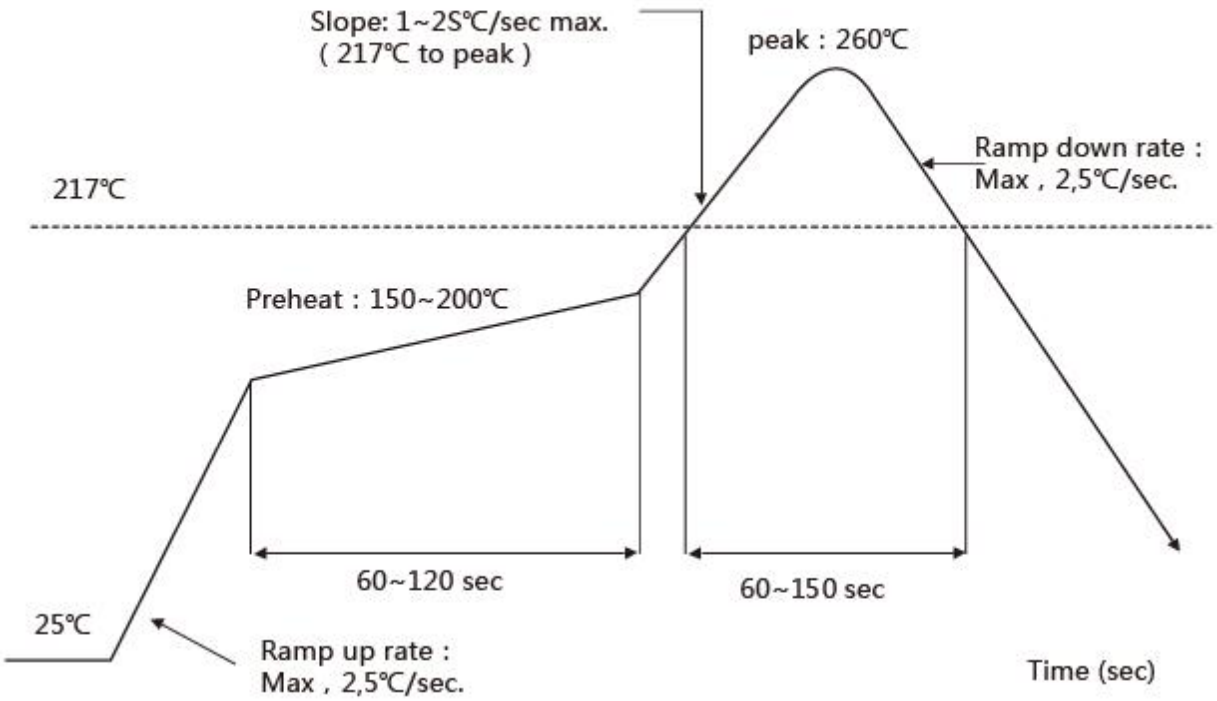
11. Recommended Reflow Profile

Referred to IPC/JEDEC standard.

Peak Temperature : <260°C

Time within 5° C of peak temperature：≥10s

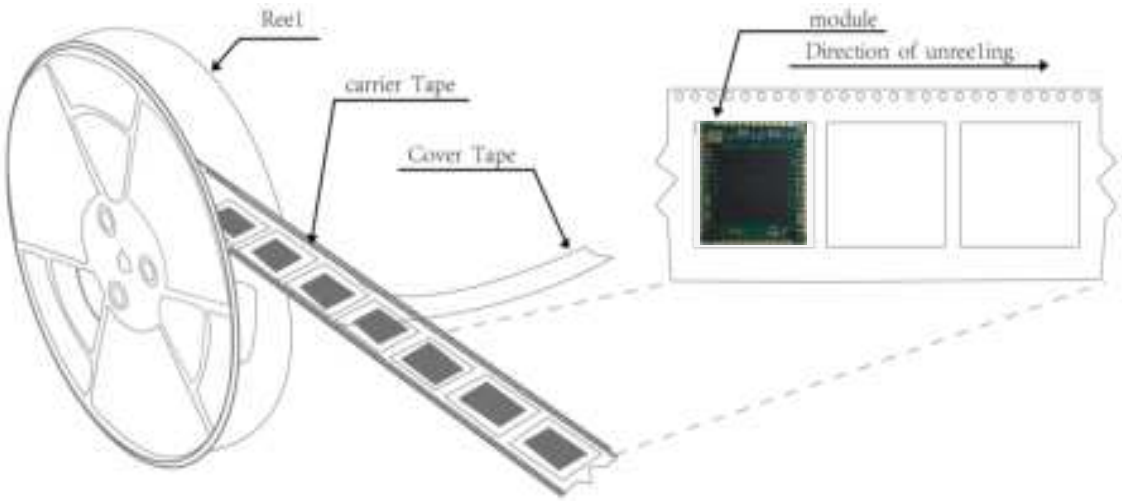
Number of Times : ≤2 times



12. Package

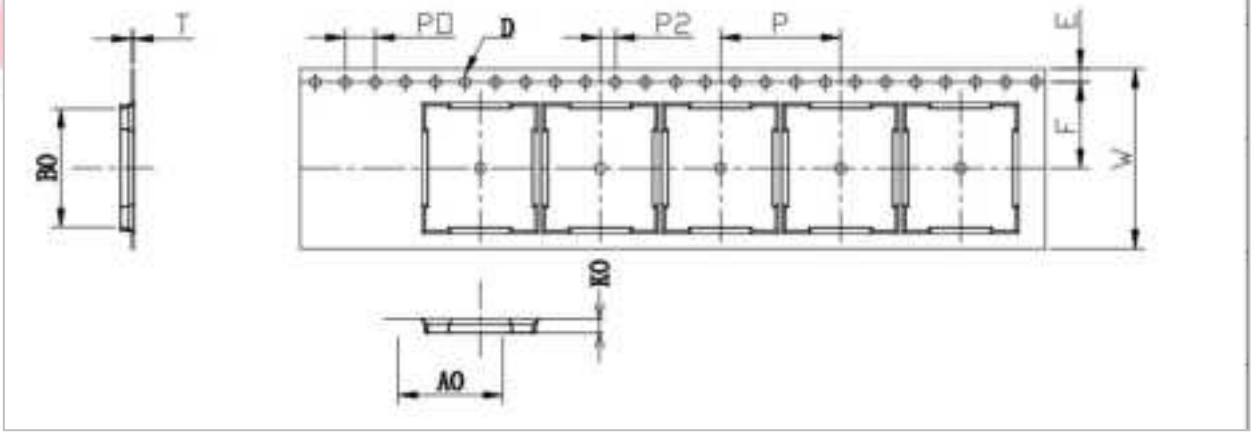
12.1 Reel

A roll of 1500pcs



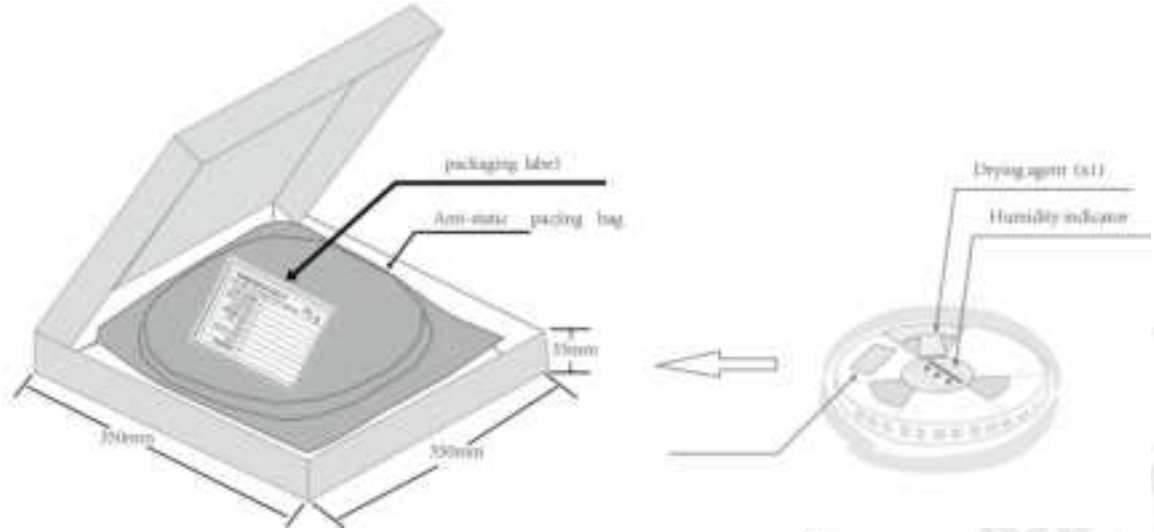
12.2 Carrier Tape Detail

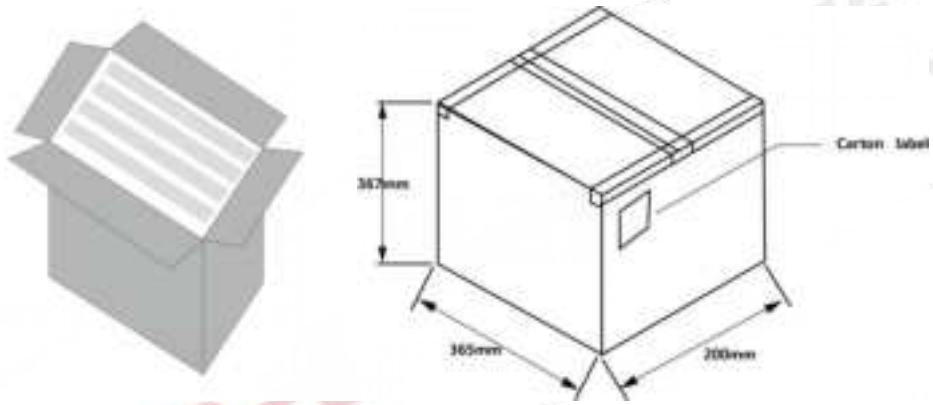
ITEM	W	A0	B0	D	F	E	K0	P0	P2	P	T
DIM	24	13.40	15.40	1.50	11.5	1.75	2.65	4.0	2.0	16.0	0.30
TOLE	+0.3 -0.3	±0.15	±0.15	+0.1 -0.0	+0.1 -0.1	±0.1	±0.10	±0.1	±0.1	±0.1	±0.05



12.3 Packaging Detail

the take-up package





13. 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.

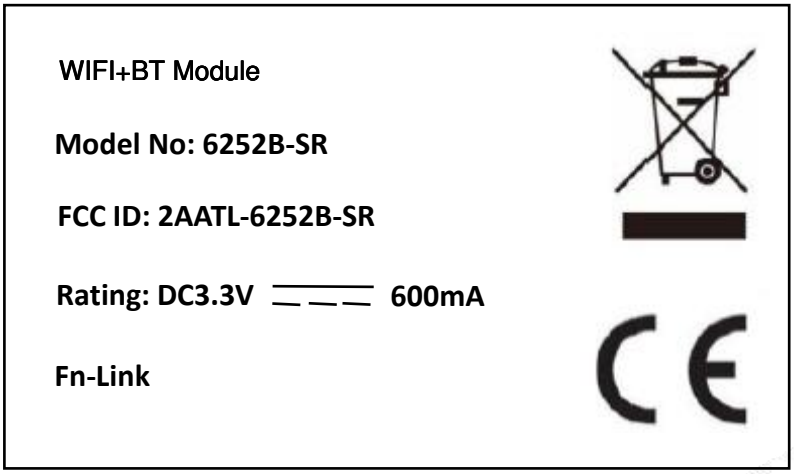
c) The maximum time between the opening of the sealed bag and the reflow process must be 168 hours if condition

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

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

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

14.Label



FCC Statements:

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:
(1) This device may not cause harmful interference, and
(2) this device must accept any interference received, including interference that may cause undesired operation.

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.

However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

--- Reorient or relocate the receiving antenna.
--- Increase the separation between the equipment and receiver.
---Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
--- Consult the dealer or an experienced radio/TV technician for help.

Warning: Changes or modifications to this unit not expressly approved by the part responsible for compliance could void the user's authority to operate the equipment.

LABELING AND USER INFORMATION REQUIREMENTS OF THE END PRODUCT:
The final end product must be labelled in a visible area with the following "Contains TX FCC ID: 2AATL-6252B-SR" or "Contains Transmitter Module FCC ID: 2AATL-6252B-SR. If the size of the end product is smaller than 8x10cm, then additional FCC part 15.19 statement is required to be available in the users' manual: This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

A user's manual for the finished product should include one of the following statements:- For a Class A digital device or peripheral, the instructions furnished the user shall include the following or similar statement, placed in a prominent location in the text of the manual:

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

- For a Class B digital device or peripheral, the instructions furnished the user shall include the following or similar statement, placed in a prominent location in the text of the manual:

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.
However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:
--- Reorient or relocate the receiving antenna.
--- Increase the separation between the equipment and receiver.
---Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
--- Consult the dealer or an experienced radio/TV technician for help.

The User's Manual for The finished product should include the following statements:

Any changes or modifications to this equipment not expressly approved by the OEM/Integrator may cause harmful interference and void the user's authority to operate this equipment.

RF Exposure
This device has been evaluated and shown compliant with the FCC RF Exposure limits under fixed exposure conditions (antennas are greater than 20cm from a person’s body) when installed in certain specific OEM configurations.

General Statements

The module is limited to OEM installation only.

The OEM integrator is responsible for ensuring that the end-user has no manual instruction to remove or install module.

This module should be installed and operated with a minimum distance 20cm between the radiator and your body. OEM integrator shall equipped the antenna to compliance with antenna requirement part 15.203& 15.204 and must not be co-located or operating in conjunction with any other antenna or transmitters. And OEM host shall implement a Class II Permissive Change (C2PC) or a new FCC ID to demonstrate complied with FCC standard.

This module is for use with external antennas only, and the antenna is recommended as below:

Antenna Information

Ant. (Chain)	Brand	Model name	Antenna Type	Connector	Gain (dBi)	Application range
1,2	FN-LINK	K212-10037-A	Diople	RP-SMA(M)	2.98	2400-2500MHz
					3.59	5150-5250MHz
					3.79	5250-5350MHz
					4.56	5470-5725MHz
					3.85	5725-5850MHz

Changes or modifications not expressly approved by the manufacturer could void the user's authority to operate the module.

The OEM integrator is still responsible for testing their end-product for any additional compliance requirements required with this module installed.

This module support Bluetooth 2402-2480MHz & 2.4G WLAN 2412-2462MHz which compliance with part 15.247. And support 5150-5850MHz which compliance with part 15.407.

The product is typically use in industrial, household and general office / ITE and audio & video end-products.