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欧智通科技

Fn-Link

8223A-SR

WiFi Dual-band 1X1 +
11ac + Bluetooth v4.2

User's Manual

Revision History

Date	Revision Content	Revised By	Version
2016/05/30	-Preliminary	Ken	1.0
2016/06/11	Pin Definition Modified	Ken	1.1
2016/11/01	Added power timing requirements	Ken	1.2
2016/11/22	Modified power timing requirements	Ken	1.3
2016/12/12	Deleted Pin 45 46 47	ken	1.4
2016-12-13	Add the key material list and reference design	Colin Ming	1.5
2017-1-17	Modified the BT version	Colin Ming	1.6
2017-02-09	Modified the RF Specification	Colin Ming	1.7
2017-03-08	Update shield cover image	Colin Ming	1.8
2017-04-11	Modified cover of the datasheet	Colin	1.9

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1. Introduction

Fn-Link Technology would like to announce a low-cost and low-power consumption module which has all of the Wi-Fi, Bluetooth functionalities. The highly integrated module makes the possibilities of web browsing, VoIP, Bluetooth headsets applications. With seamless roaming capabilities and advanced security, also could interact with different vendors' 802.11a/b/g/n/ac Access Points in the wireless LAN.

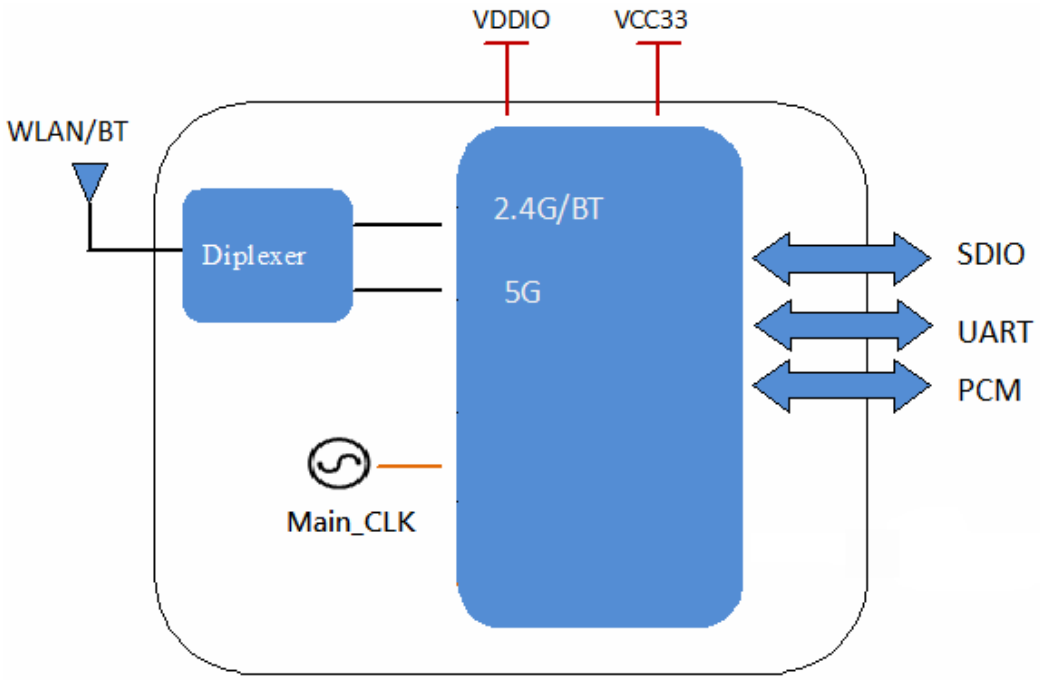
The wireless module complies with IEEE 802.11 a/b/g/n/ac standard and it can achieve up to a speed of 433.3Mbps with single stream in 802.11ac draft to connect to the wireless LAN. The integrated module provides SDIO interface for Wi-Fi, UART / PCM interface for Bluetooth.

This compact module is a total solution for a combination of Wi-Fi + BT technologies. The module is specifically developed for Smart phones and Portable devices.

2. Features

- Highly integrated wireless local area network(WLAN) system-on-chip (SOC) for 5 GHZ 802.11ac, or 2.4G/5G 802.11n WLAN applications.
- Supports 20/40MHz at 2.4GHz and supports 20/40/80MHz at 5GHz
- Supports low power SDIO3.0 interface for WLAN and UART/PCM interface for Bluetooth.
- Supports Bluetooth V4.2+HS, BLE and be backwards compatible with Bluetooth 1.2, 2.X+ enhance data rate.
- Supports WLAN-Bluetooth coexistence and ISM-LTE coexistence.
- Supports Bluetooth for class1 and class2 power level transmissions without requiring an external PA.
- BT host digital interface:
  - HCI UART (up to 4 Mbps)
  - PCM for audio data

The block diagram of module is depicted in the figure below.



3. General Specification

3.1 General Specification

Model Name	8223A-SR
Product Description	Support WiFi/Bluetooth functionalities
Dimension	L x W x H: 12 x 12 x 1.7 (typical) mm
WiFi Interface	Support SDIO V3.0
BT Interface	UART / PCM
Operating temperature	-40°C to 85°C
Storage temperature	-40°C to 125°C

3.1.2 Recommended Operating Rating

	Min.	Typ.	Max.	Unit
Operating Temperature	-40	25	85	deg.C
VCC33	3.15	3.3	3.45	V
VDDIO	1.7	1.8 or 3.3	3.45	V

4. WiFi RF Specification

4.1 2.4GHz RF Specification

Feature	Description	
WLAN Standard	IEEE 802.11b/g/n, WiFi compliant	
Frequency Range	2.400 GHz ~ 2.4835 GHz (2.4 GHz ISM Band)	
Number of Channels	2.4GHz：Ch1 ~ Ch11	
EVM	802.11b /CCK : EVM ≤ -9dB	
	802.11g /64-QAM(R=3/4): EVM ≤ -25dB	
	802.11n /64-QAM(R=5/6): EVM ≤ -28dB	
Test Items	**Typical Value**	**Standard Value**
Receive Sensitivity (11b) @8% PER	- 1Mbps PER @ -96 dBm	⩽-83
	- 2Mbps PER @ -90 dBm	⩽-80
	- 5.5Mbps PER @ -88 dBm	⩽-79
	- 11Mbps PER @ -87 dBm	⩽-76
Receive Sensitivity (11g) @10% PER	- 6Mbps PER @ -90 dBm	⩽-85
	- 9Mbps PER @ -88 dBm	⩽-84
	- 12Mbps PER @ -87 dBm	⩽-82
	- 18Mbps PER @ -85 dBm	⩽-80
	- 24Mbps PER @ -83 dBm	⩽-77
	- 36Mbps PER @ -80 dBm	⩽-73
	- 48Mbps PER @ -76 dBm	⩽-69
	- 54Mbps PER @ -74 dBm	⩽-68
Receive Sensitivity (11n,20MHz) @10% PER	- MCS=0 PER @ -89 dBm	⩽-85
	- MCS=1 PER @ -85 dBm	⩽-82
	- MCS=2 PER @ -84 dBm	⩽-80
	- MCS=3 PER @ -80 dBm	⩽-77
	- MCS=4 PER @ -77 dBm	⩽-73
	- MCS=5 PER @ -75 dBm	⩽-69
	- MCS=6 PER @ -72 dBm	⩽-68
	- MCS=7 PER @ -71 dBm	⩽-67
Receive Sensitivity (11n,40MHz) @10% PER	- MCS=0 PER @ -89 dBm	⩽-82
	- MCS=1 PER @ -85 dBm	⩽-79
	- MCS=2 PER @ -84 dBm	⩽-77
	- MCS=3 PER @ -80 dBm	⩽-74
	- MCS=4 PER @ -76 dBm	⩽-70

	- MCS=5	PER @ -72 dBm	≤-66
	- MCS=6	PER @ -70 dBm	≤-65
	- MCS=7	PER @ -69 dBm	≤-64

4.2 5GHz RF Specification

Feature	**Description**	
WLAN Standard	IEEE 802.11a/n/ac, Wi-Fi compliant	
Frequency Range	5.150 GHz ~ 5.250 GHz and 5.725 ~ 5.850 GHz (5.0GHz Band)	
Number of Channels	5.0GHz：Please see the table[1]	
Modulation	802.11a/n : 64-QAM,16-QAM, QPSK, BPSK 802.11ac : 256-QAM, 64-QAM,16-QAM, QPSK, BPSK	
Output Power	802.11a /64-QAM(R=3/4): EVM ≤ -25dB	
	802.11n /64-QAM(R=5/6): EVM ≤ -28dB	
	802.11ac/256-QAM(R=3/4): EVM ≤ -30dB	
	802.11ac/256-QAM(R=5/6): EVM ≤ -32dB	
Test Items	**Typical Value**	**Standard Value**
Receive Sensitivity (11a, 20MHz) @10% PER	- 6Mbps PER @ -91 dBm	≤-85
	- 9Mbps PER @ -89 dBm	≤-84
	- 12Mbps PER @ -88 dBm	≤-82
	- 18Mbps PER @ -86 dBm	≤-80
	- 24Mbps PER @ -82 dBm	≤-77
	- 36Mbps PER @ -79 dBm	≤-73
	- 48Mbps PER @ -74 dBm	≤-69
	- 54Mbps PER @ -73 dBm	≤-68
Receive Sensitivity (11n,20MHz) @10% PER	- MCS=0 PER @ -90 dBm	≤-85
	- MCS=1 PER @ -88 dBm	≤-82
	- MCS=2 PER @ -85 dBm	≤-80
	- MCS=3 PER @ -82 dBm	≤-77
	- MCS=4 PER @ -78 dBm	≤-73
	- MCS=5 PER @ -74 dBm	≤-69
	- MCS=6 PER @ -72 dBm	≤-68
	- MCS=7 PER @ -71 dBm	≤-67
Receive Sensitivity (11n,40MHz) @10% PER	- MCS=0 PER @ -88 dBm	≤-85
	- MCS=1 PER @ -85 dBm	≤-82
	- MCS=2 PER @ -83 dBm	≤-80

	- MCS=3	PER @ -79 dBm	≤-76
	- MCS=4	PER @ -76 dBm	≤-73
	- MCS=5	PER @ -71 dBm	≤-68
	- MCS=6	PER @ -70 dBm	≤-67
	- MCS=7	PER @ -68 dBm	≤-65
Receive Sensitivity (11ac,20MHz) @10% PER	- MCS=0	PER @ -89 dBm	≤-83
	- MCS=1	PER @ -87 dBm	≤-82
	- MCS=2	PER @ -84 dBm	≤-80
	- MCS=3	PER @ -81 dBm	≤-75
	- MCS=4	PER @ -77 dBm	≤-72
	- MCS=5	PER @ -73 dBm	≤-68
	- MCS=6	PER @ -71 dBm	≤-67
	- MCS=7	PER @ -70 dBm	≤-62
	- MCS=8	PER @ -66 dBm	≤-60
Receive Sensitivity (11ac,40MHz) @10% PER	- MCS=0	PER @ -87 dBm	≤-80
	- MCS=1	PER @ -83 dBm	≤-77
	- MCS=2	PER @ -81 dBm	≤-74
	- MCS=3	PER @ -78 dBm	≤-70
	- MCS=4	PER @ -75 dBm	≤-69
	- MCS=5	PER @ -70 dBm	≤-65
	- MCS=6	PER @ -68 dBm	≤-64
	- MCS=7	PER @ -66 dBm	≤-59
	- MCS=8	PER @ -64 dBm	≤-57
	- MCS=9	PER @ -63 dBm	≤-55
Receive Sensitivity (11ac,80MHz) @10% PER	- MCS=0	PER @ -83 dBm	≤-79
	- MCS=1	PER @ -80 dBm	≤-76
	- MCS=2	PER @ -78 dBm	≤-74
	- MCS=3	PER @ -74 dBm	≤-71
	- MCS=4	PER @ -71 dBm	≤-67
	- MCS=5	PER @ -69 dBm	≤-63
	- MCS=6	PER @ -65 dBm	≤-62
	- MCS=7	PER @ -63 dBm	≤-61
	- MCS=8	PER @ -60 dBm	≤-56
	- MCS=9	PER @ -59 dBm	≤-54

[1]5GHz Channel table

Band (GHz)	Operating Channel Numbers	Channel center frequencies(MHz)
5.15GHz~5.25GHz	36	5180
	38	5190
	40	5200
	42	5210
	44	5220
	46	5230
	48	5240
5.725GHz~5.825GHz	149	5745
	151	5755
	153	5765
	155	5775
	157	5785
	159	5790
	161	5805
	165	5825

5. Bluetooth Specification

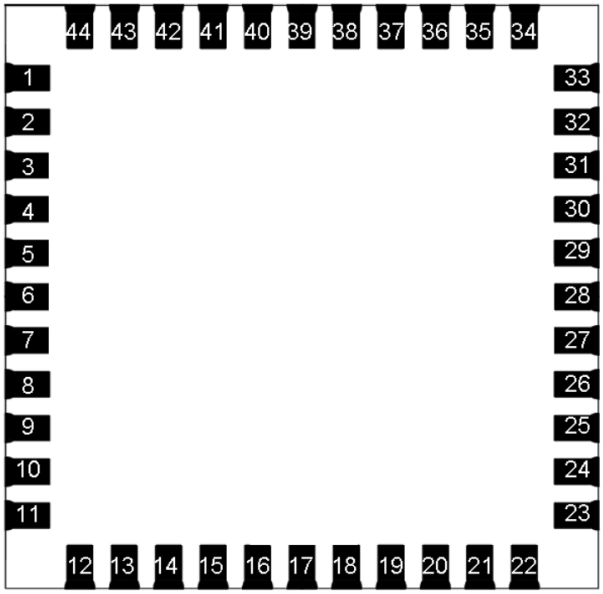
5.1 Bluetooth Specification

Feature	Description		
General Specification			
Bluetooth Standard	Bluetooth V4.2 of 1, 2 and 3 Mbps.		
Host Interface	UART		
Antenna Reference	External Antenna		
Frequency Band	2402 MHz ~ 2480 MHz		
Number of Channels	79 channels		
Modulation	FHSS, GFSK, DPSK, DQPSK		
RF Specification			
	Min.	**Typical.**	**Max.**
Output Power		Class 1.5	
Sensitivity @ BER=0.1% for GFSK (1Mbps)		-92 dBm	
Sensitivity @ BER=0.01% for π/4-DQPSK (2Mbps)		-92 dBm	
Sensitivity @ BER=0.01% for 8DPSK (3Mbps)		-85 dBm	
Maximum Input Level	GFSK (1Mbps):-20dBm		
	π/4-DQPSK (2Mbps) :-20dBm		
	8DPSK (3Mbps) :-20dBm		

6. Pin Assignments

6.1 Pin Outline

< TOP VIEW >



6.2 Pin Definition

NO	Name	Type	Description
1	GND	—	Ground connections
2	WL_BT_ANT	I/O	RF I/O port
3	GND	—	Ground connections
4	NC	—	Floating (Don't connected to ground)
5	NC	—	Floating (Don't connected to ground)
6	HOST_WAKE_BT	I	HOST to wake-up Bluetooth device
7	BT_WAKE_HOST	O	Bluetooth device to wake-up HOST
8	NC	—	Floating (Don't connected to ground)
9	VCC33	P	Main power voltage source input 3.3V
10	NC	—	Floating (Don't connected to ground)
11	NC	—	Floating (Don't connected to ground)
12	WL_EN	I	Enable pin for WLAN device ON: pull high ; OFF: pull low
13	WL_HOST_WAKE	O	WLAN to wake-up HOST
14	SDIO_DATA_2	I/O	SDIO data line 2
15	SDIO_DATA_3	I/O	SDIO data line 3
16	SDIO_DATA_CMD	I/O	SDIO command line

17	SDIO_DATA_CLK	I/O	SDIO clock line
18	SDIO_DATA_0	I/O	SDIO data line 0
19	SDIO_DATA_1	I/O	SDIO data line 1
20	GND	—	Ground connections
21	NC	—	Floating (Don't connected to ground)
22	VDDIO	P	I/O Voltage supply input 1.8V or 3.3V
23	NC	—	Floating (Don't connected to ground)
24	LPO	I	External Low Power Clock input (32.768KHz)
25	PCM_OUT	O	PCM Data output
26	PCM_CLK	I/O	PCM clock
27	PCM_IN	I	PCM data input
28	PCM_SYNC	I/O	PCM sync signal
29	NC	—	Floating (Don't connected to ground)
30	NC	—	Floating (Don't connected to ground)
31	GND	—	Ground connections
32	NC	—	Floating (Don't connected to ground)
33	GND	—	Ground connections
34	BT_EN	I	Enable pin for Bluetooth device ON: pull high ; OFF: pull low
35	NC	—	Floating (Don't connected to ground)
36	GND	—	Ground connections
37	NC	—	Floating (Don't connected to ground)
38	NC	—	Floating (Don't connected to ground)
39	Debug_UART_TXD	O	Floating (Don't connected to ground)
40	Debug_UART_RXD	I	Floating (Don't connected to ground)
41	UART_RTS_N	O	Bluetooth UART interface
42	UART_TXD	O	Bluetooth UART interface
43	UART_RXD	I	Bluetooth UART interface
44	UART_CTS_N	I	Bluetooth UART interface

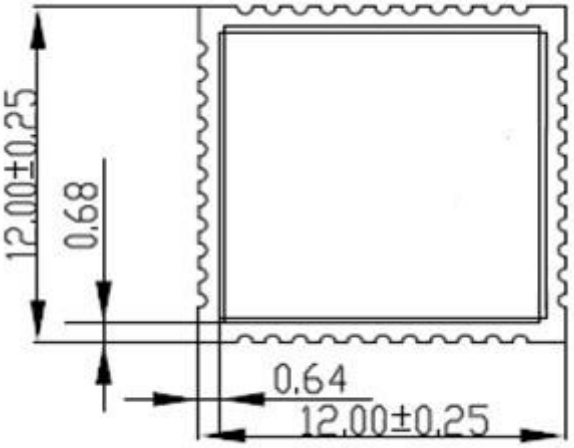
7. Dimensions

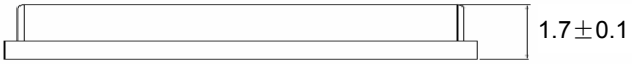
7.1 Physical Dimensions

(Unit: mm)

< TOP VIEW >

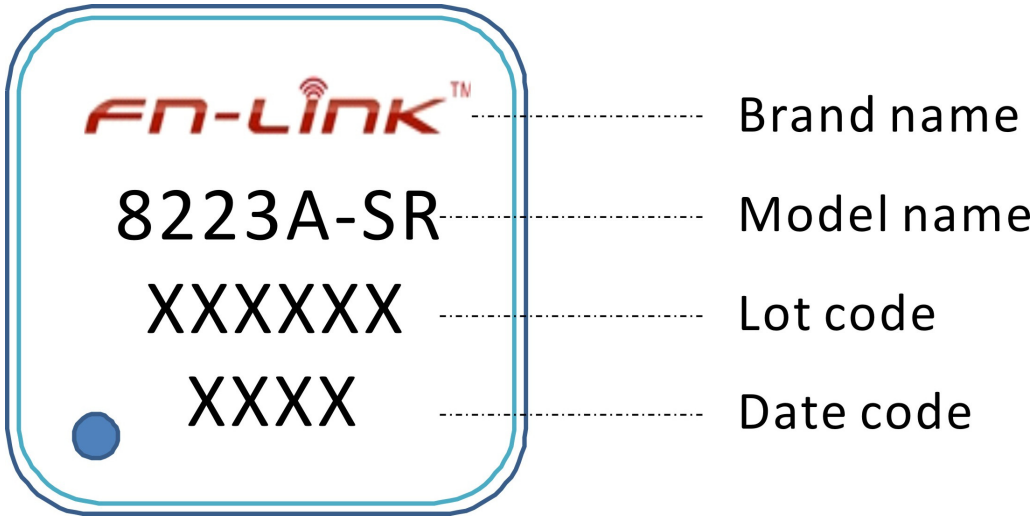
< Side View >





Marking Description

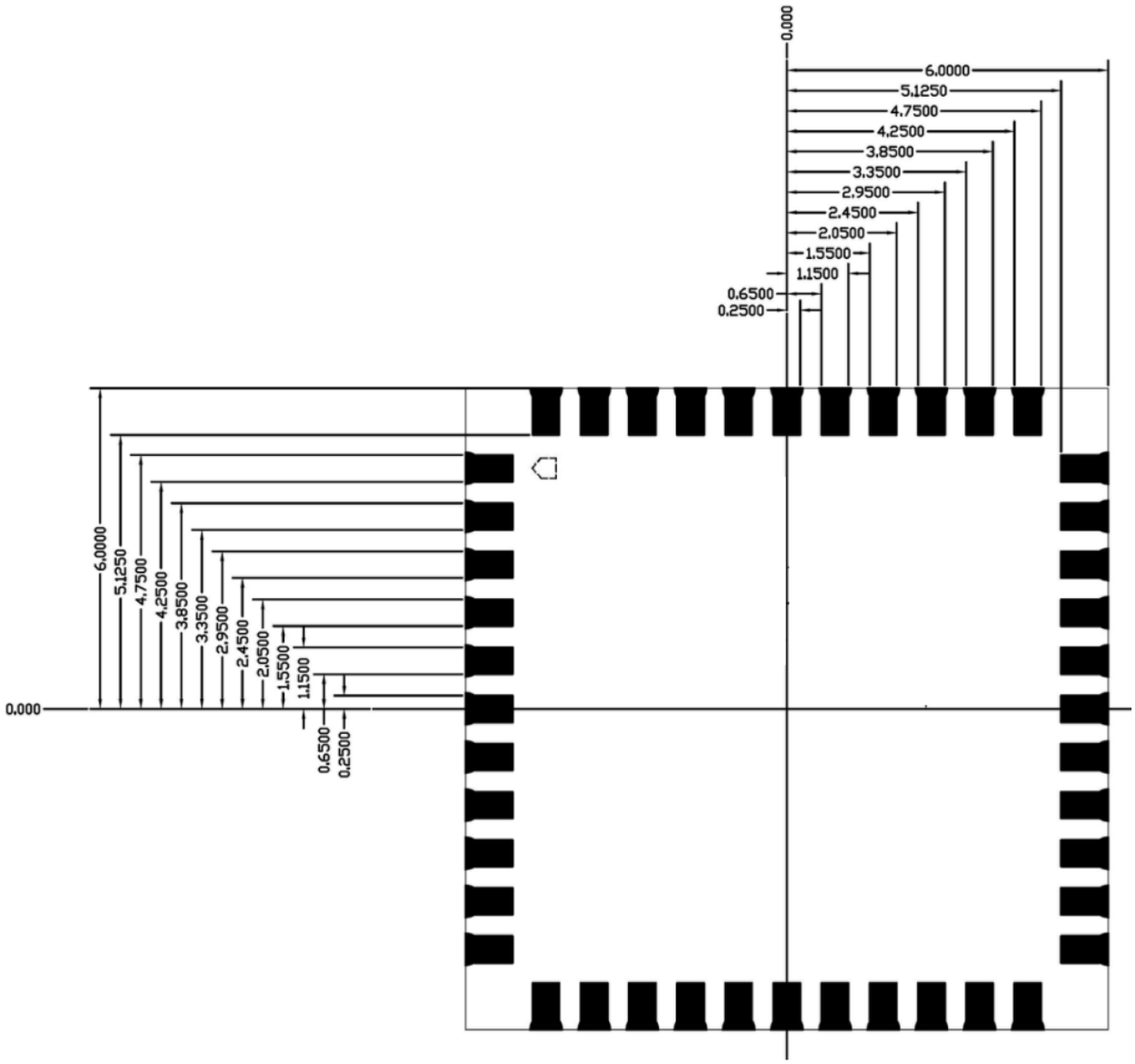
< TOP VIEW >



7.2 Module Physical Dimensions

(Unit: mm)

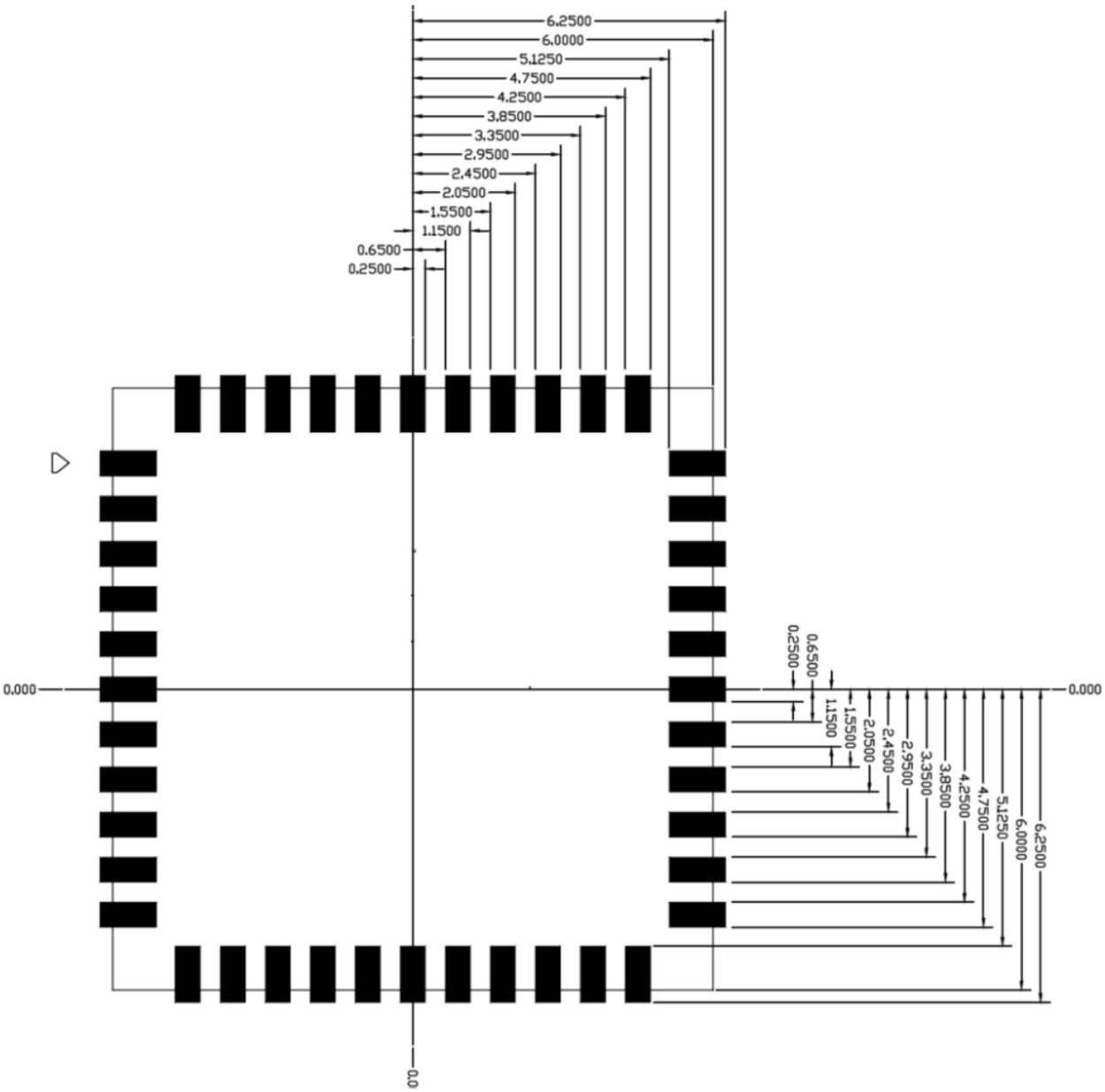
< TOP VIEW >



7.3 Layout Recommendation

(Unit: mm)

< TOP VIEW >



8. Host Interface Timing Diagram

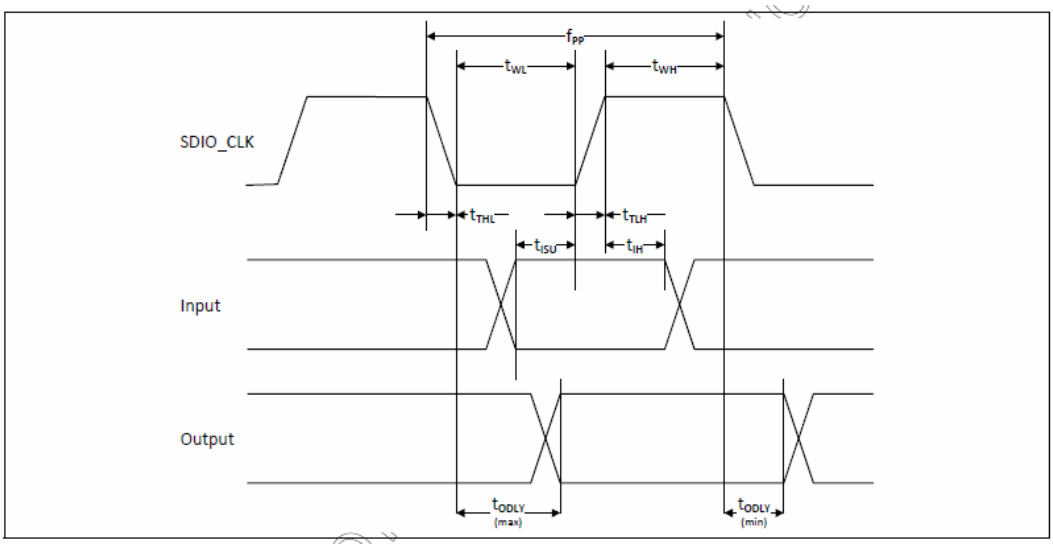
8.1 SDIO Pin Description

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

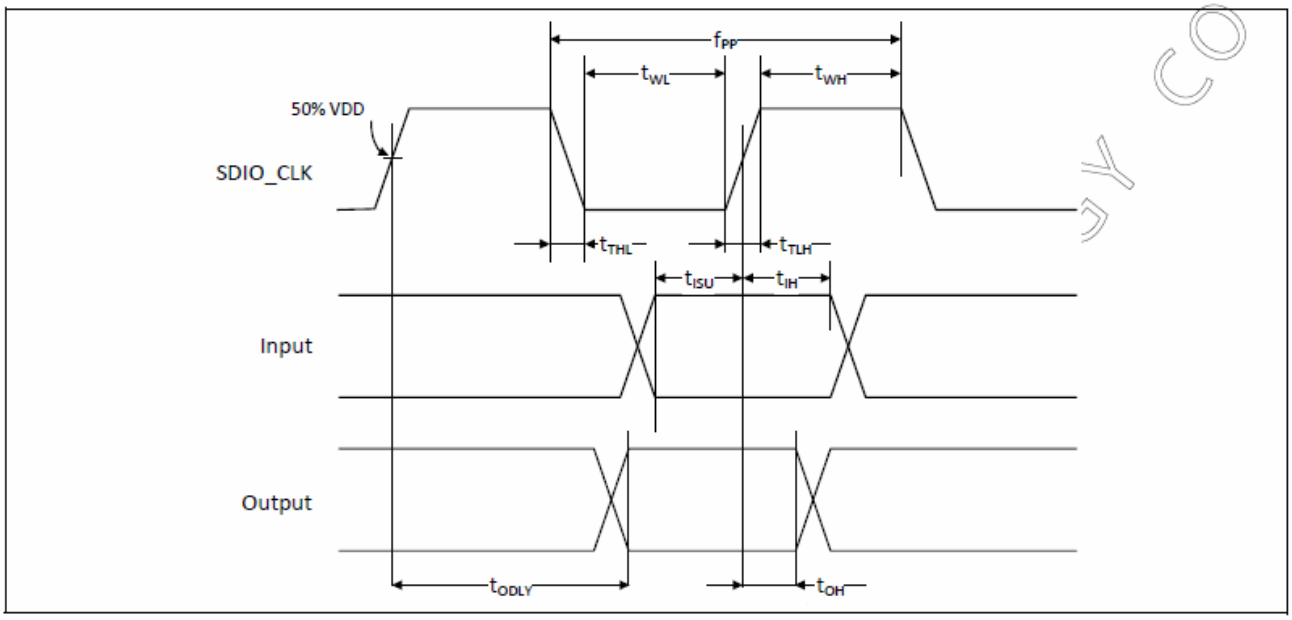
8.2 SDIO Default Mode Timing Diagram



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 ≤ 40pF load on CMD and Data.
b. min(Vih) = 0.7 × VDDIO and max(Vil) = 0.2 × VDDIO.

8.3 SDIO High Speed Mode Timing Diagram

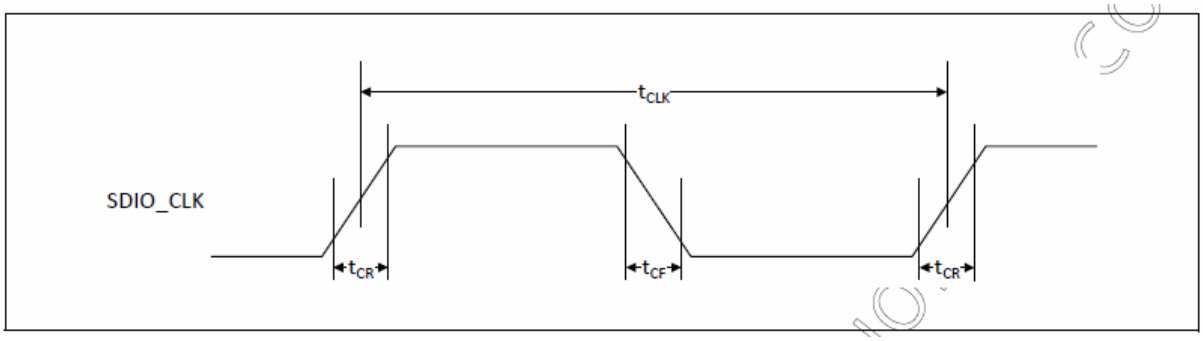


Parameter	Symbol	Minimum	Typical	Maximum	Unit
SDIO CLK (all values are referred to minimum VIH and maximum VIL[b])					
Frequency – Data Transfer Mode	fPP	0	–	50	MHz
Frequency – Identification Mode	fOD	0	–	400	kHz
Clock low time	tWL	7	–	–	ns
Clock high time	tWH	7	–	–	ns
Clock rise time	tTLH	–	–	3	ns
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 hold time	tOH	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.

8.4 SDIO Bus Timing Specifications in SDR Modes

Clock timing(SDR Modes)



Parameter	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	%	–

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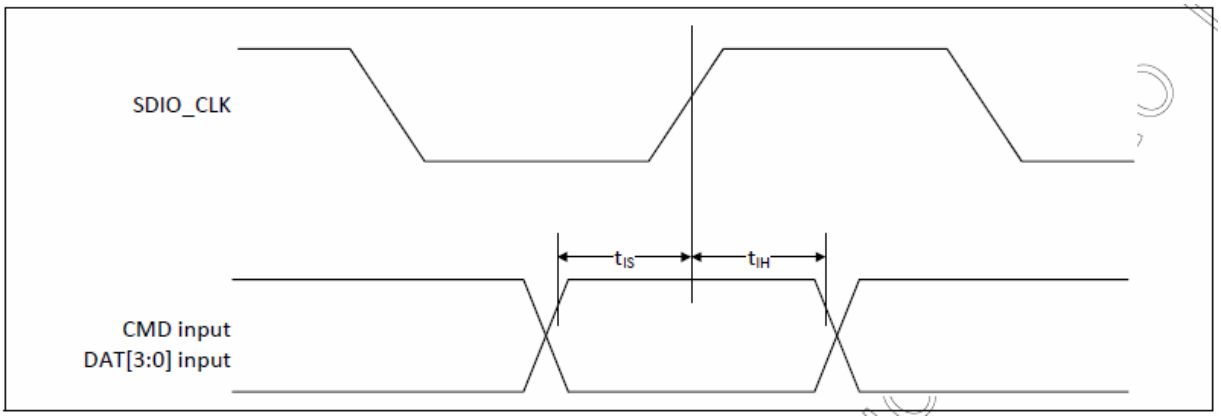
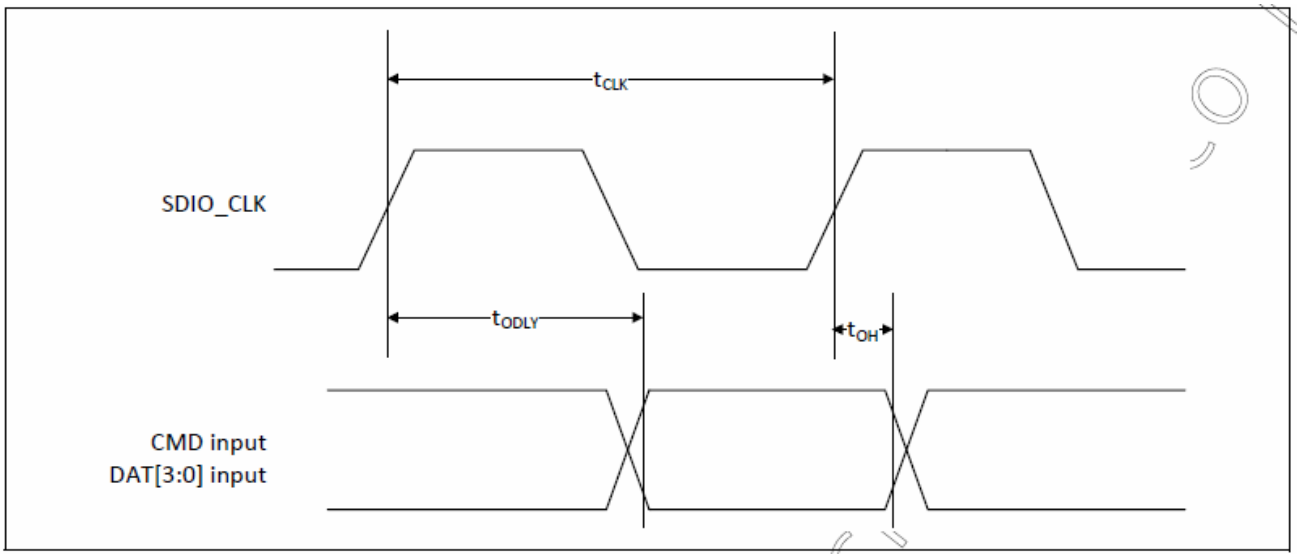
Card Input timing (SDR Modes)



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

a. SDIO 3.0 specification value is 1.40 ns.

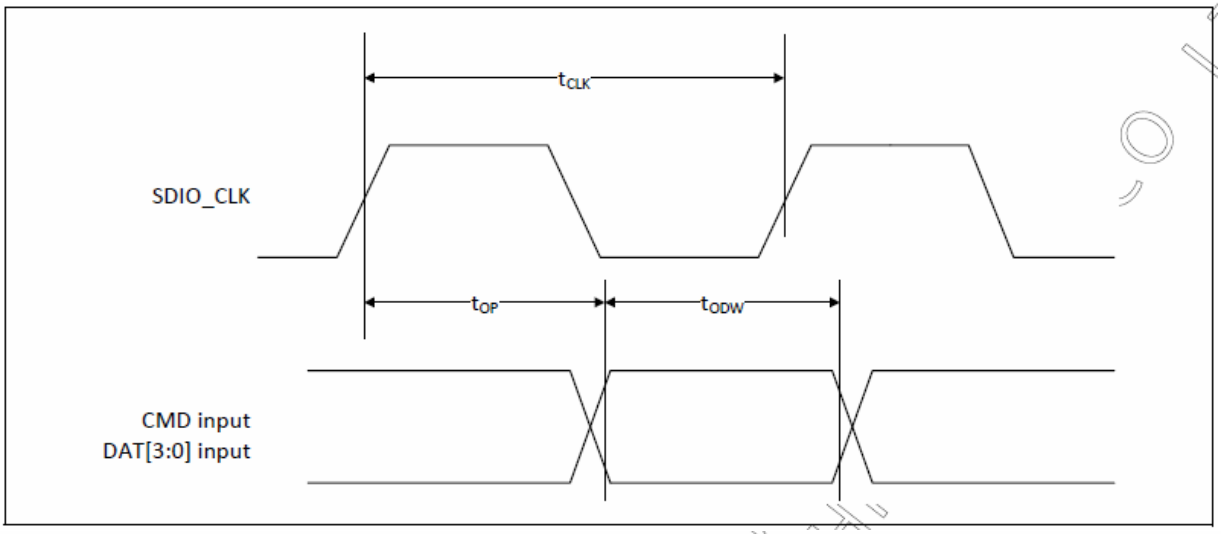
Card output timing (SDR Modes up to 100MHz)



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) C_L= 15 pF

a. SDIO 3.0 specification value is 7.5 ns.

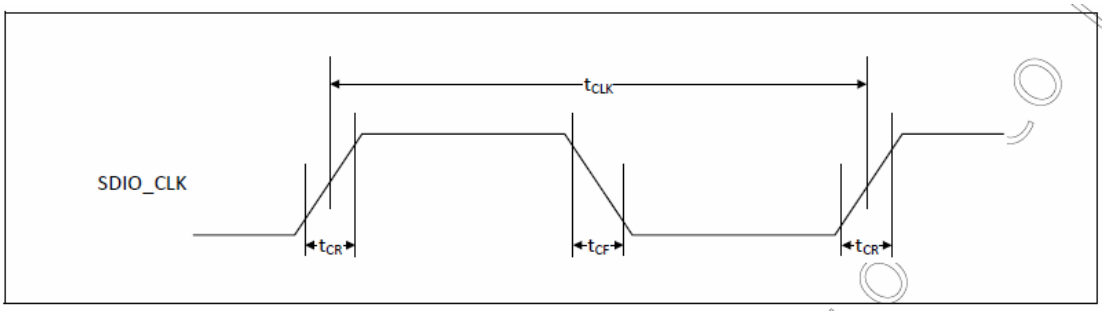
Card output timing (SDR Modes 100MHz to 208MHz)



Symbol	Minimum	Maximum	Unit	Comments
t_{OP}	0	2	UI	Card output phase
Δt_{OP}	–350	+1550	ps	Delay variation due to temp change after tuning
t_{ODW}	0.60	–	UI	t_{ODW}=2.88 ns @208 MHz

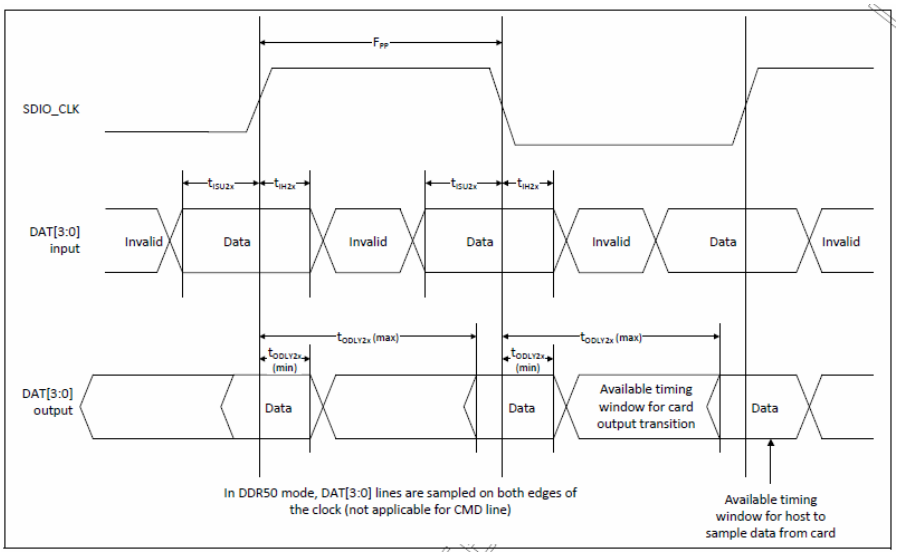
- Δt_{OP} = +1550 ps for junction temperature of Δt_{OP} = 90 degrees during operation
- Δt_{OP} = –350 ps for junction temperature of Δt_{OP} = –20 degrees during operation
- Δt_{OP} = +2600 ps for junction temperature of Δt_{OP} = –20 to +125 degrees during operation

8.5 SDIO Bus Timing Specifications in DDR50 Mode



Parameter	Symbol	Minimum	Maximum	Unit	Comments
–	t_{CLK}	20	–	ns	DDR50 mode
–	t_{CR},t_{CF}	–	0.2 × tCLK	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} < 10pF (1 Card)
Input hold time	t_{IH}	0.8	–	ns	C_{CARD} < 10pF (1 Card)
Output CMD					
Output delay time	t_{ODLY}	–	13.7	ns	C_{CARD} < 30pF (1 Card)
Output hold time	t_{OH}	1.5	–	ns	C_{CARD} < 15pF (1 Card)
Input DAT					
Input setup time	t_{ISU2x}	3	–	ns	C_{CARD} < 10pF (1 Card)
Input hold time	t_{IH2x}	0.8	–	ns	C_{CARD} < 10pF (1 Card)
Output DAT					
Output delay time	t_{ODLY2x}	–	7.85[a]	ns	C_{CARD} < 25pF (1 Card)
Output hold time	t_{ODLY2x}	1.5	–	ns	C_{CARD} < 15pF (1 Card)

a. SDIO 3.0 specification value is 7.0 ns.

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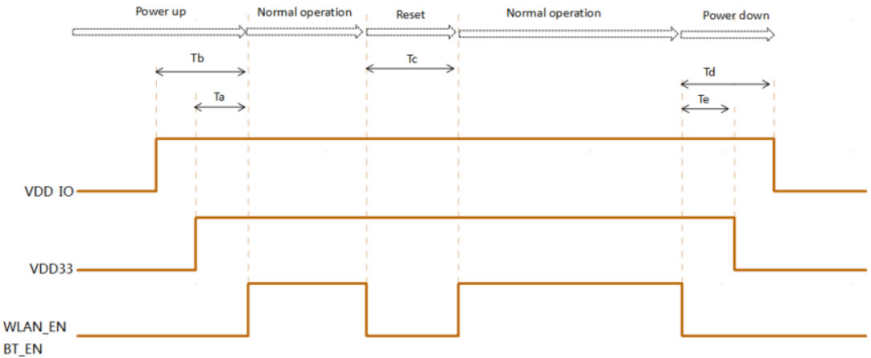
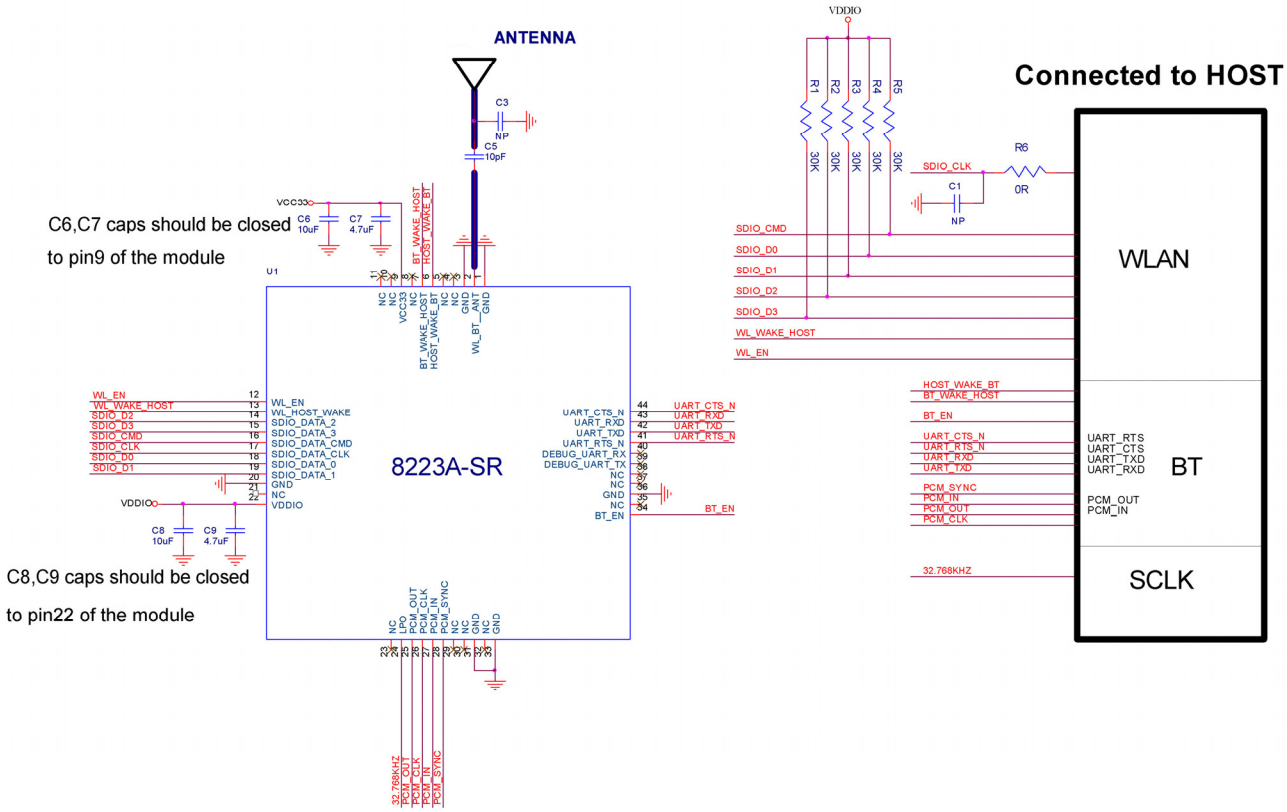
9. Power timing requirements



Symbol	Description	Min	Max	Unit
Ta	External 3.3V to chip enable	5	-	us
Tb	VDD_IO valid to chip enable	10	-	us
Tc	Minimum reset pulse length	10	-	ms
Td	chip disable to VDD33 powerdonw	TBD	-	us
Te	Chip disable to VDD_IO powerdonw	TBD	-	us

10. Reference Design

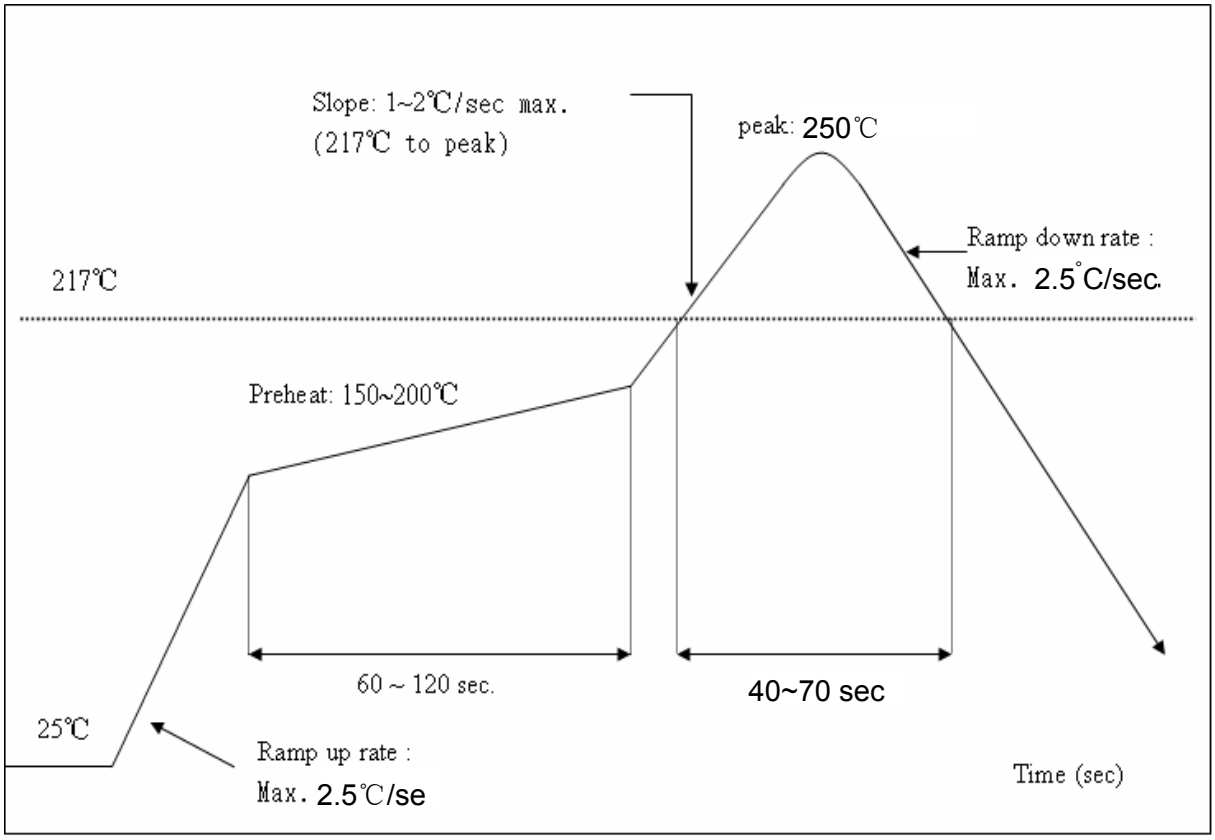


11. Recommended Reflow Profile

Referred to IPC/JEDEC standard.

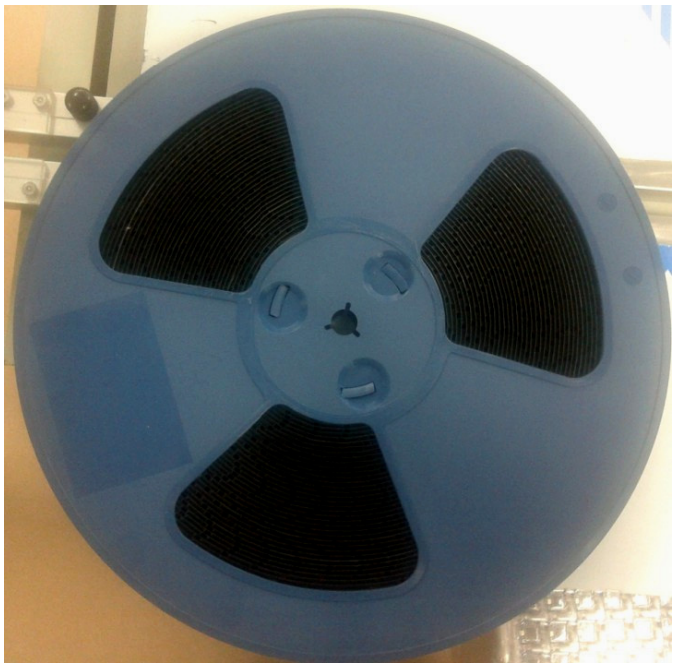
Peak Temperature : <250°C

Number of Times : ≤2 times



12. Packing Information

Tape and Reel Package



Using self-adhesive tape

Size of black tape: 24mm*32.6m the cover tape: 2.13mmm*32.6m

Color of plastic disc: blue

A roll of 2000pcs

NY bag size:460mm*385mm

size ： 350*350*35mm

The packing case size:350*210*370mm

FCC Statement:

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. (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 not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

LABEL OF THE END PRODUCT:

The final end product must be labelled in a visible area with the following "Contains TX FCC ID: 2AATL-8223A-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.

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.

This modular complies with FCC RF radiation exposure limits set forth for an uncontrolled environment. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter. Due to missing shielding the module is strictly limited to integration by the Grantee himself or his dedicated OEM integrator under control of the Grantee. However, the OEM integrator is still responsible for testing their end-product for any additional compliance requirements required with this module installed.

IMPORTANT NOTE:

This module is intended for OEM integrator only and the OEM integrators and instructed to ensure that the end user has no manual instructions to remove or install the device. The OEM integrator is still responsible for the FCC compliance requirement of the end product, which integrates this module.

Integration is typically strictly restricted to Grantee himself or dedicated OEM integrators under control of the Grantee.

In the event that these conditions can not be met (for example certain laptop configurations or co-location with another transmitter. then the FCC authorization is no longer considered valid and the FCC ID can not be used on the final product. In these circumstances, the OEM integrator will be responsible for re-evaluating the end product (including the transmitter) and obtaining a separate FCC authorization.

The module will be responsible to satisfy SAR/RF Exposure requirements, when the module integrated into any (portable, mobile, fixed) host device.

This module has been designed to operate with a PIFA antenna having a maximum gain of 2.95dBi. Only this type of antenna may be used, the manufacturer recommended antenna as below:

Ant.	Brand	Model name	Antenna Type	Connector	Gain (dBi)	Application range
1	XK	XKFPC-2D4-5D8-150	PIFA	I-PEX	0.0	2.4G Band
					2.95	5G Band
2	ZHONGTIAN XUN	2.00001050	PIFA	I-PEX	0.38	2.4/5G Dual Band

The module must in the end-product be installed in such manner that the authorized antennas can be used, any change of the antenna will void the certification.

EU Regulatory Conformance

Hereby, we(FN-LINK TECHNOLOGY LIMITED) declared that this device is in compliance with the essential requirements and other relevant provisions of Directive 2014/53/EU