Bluetooth® + *Wireless LAN* Module

IEEE802.11b/g/n
Bluetooth® 3.0, 2.1+EDR

WYSBCVGXA

Brief Data Report

Document constituent list

Rev. record

17-Dec.-2012> Ver.1.0 Initial Release

WYSBCVGXA

Control No.		Control name
HD-AG-A091235	(1/1)	General Items

Scope

This specification ("Specification") applies to the hybrid IC for use ***Wireless LAN*** and ***Bluetooth***® module ("Product") manufacture by TAIYO YUDEN Co., Ltd. ("TAIYO YUDEN")

1. Part Number: WYSBCVGXA
2. Function: Radio frequency transfer Module. (***IEEE802.11b/g/n*** standard conformity)
   (***Bluetooth® 3.0,*** 2.1+EDR standard conformity)
3. Application: Hand Held Device
4. RoHS Directive (2002/95/EC) comply
5. MSL : Level 3.
6. Outline: 57-pin leadless chip carrier
7. Marking: Part Number, Lot Number
8. Features:
   -***IEEE802.11b/g/n*** standard conformity
   - ***Bluetooth 3.0,*** 2.1+EDR conformity (QDID : B017677)
   Interface: SDIO/UART/PCM
   Built-in EEPROM, Crystal
9. WLAN Channel Supported:
   1~13ch in 11bgn mode ,
10. WLAN Data Rate Supported:
    1/2/5.5/11 Mbps in 11b mode
    6/9/12/18/24/36/48/54 Mbps in 11g mode
    MCS0~MCS7 (HT20/HT40) in 11n mode
11. Host Interface: SDIO (4bits), upto 50MHz
12. Security: WEP (64/128), AES, TKIP, WPA/WPA2, WAPI
13. Packing:
    Packaging method: Tape and Reel
    Packaging unit: 1500pcs/reel

Control No.	Control name
HD-AM-A091235 (1/1)	Absolute maximum ratings

Absolute maximum ratings

Item	Symbol	Rating				Remark
		Min.	Typ.	Max.	Unit	
Supply voltage 1	3.3V	-0.3		5.6	V	
Supply voltage 2	VIO	-0.3		4.0	V	
Supply voltage 3	1.8V	-0.3		1.98	V	
Supply voltage 4	1.8V_1 to 4	-0.3		1.98	V	
Storage temperature range	Tstg	-20		85	Degrees C	
Operation temperature range	Topr	-10	25	70	Degrees C	

Recommendation operating range

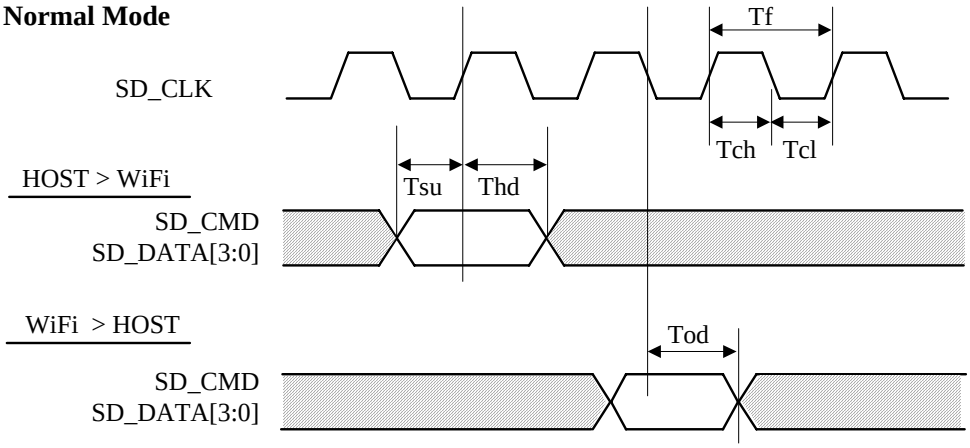
Item	Symbol	Rating				Remark
		Min.	Typ.	Max.	Unit	
Supply voltage 1	3.3V	3.0	3.3	3.6	V	
Supply voltage 2	VIO	1.62/2.97	1.8/3.3	1.98/3.63	V	
Supply voltage 3	1.8V	1.71	1.8	1.89	V	
Supply voltage 4	1.8V_1 to 4	1.71	1.8	1.89	V	

SDIO Interface Specifications

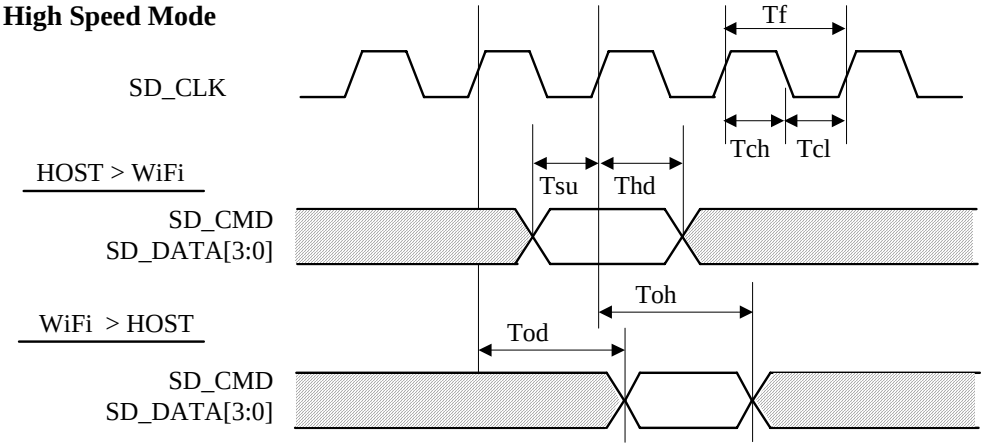
The Specification applies for Topr.= -10 to 70 degrees C , Supply voltage=Typical voltage

	Parameter	Symbol	Condition	Min	Typ	Max	Unit	Remark
1	Input SDIO_CLK Frequency	Tf	Normal	0	-	25	MHz	
			High Speed	0	-	50		
2	Input SDIO_CLK High Time	Tch	Normal	10	-	-	ns	
			High Speed	7	-	-		
3	Input SDIO_CLK Low Time	Tcl	Normal	10	-	-	ns	
			High Speed	7	-	-		
4	Input SDIO_CMD, DATA[3:0] Setup time	Tsu	Normal	5	-	-	ns	
			High Speed	6	-	-		
5	Input SDIO_CMD, DATA[3:0] Hold time	Thd	Normal	5	-	-	ns	
			High Speed	2	-	-		
6	Output SDIO_CMD, DATA[3:0] Delay time	Tod	-	-	-	14	ns	
7	Output SDIO_CMD, DATA[3:0] Hold time	Toh	High Speed	2.5	-	-	ns	

Normal Mode



High Speed Mode



Control No.		Control name
HD-AE-A091235	(2/2)	Electrical characteristics

WLAN RF Specification

		Condition	Value	Unit
11b(11Mbps)	Tx	Power	15	dBm
	Rx	Sensitivity	-86	dBm
11g(54Mbps)	Tx	Power	12	dBm
	Rx	Sensitivity	-72	dBm

BT RF Specification

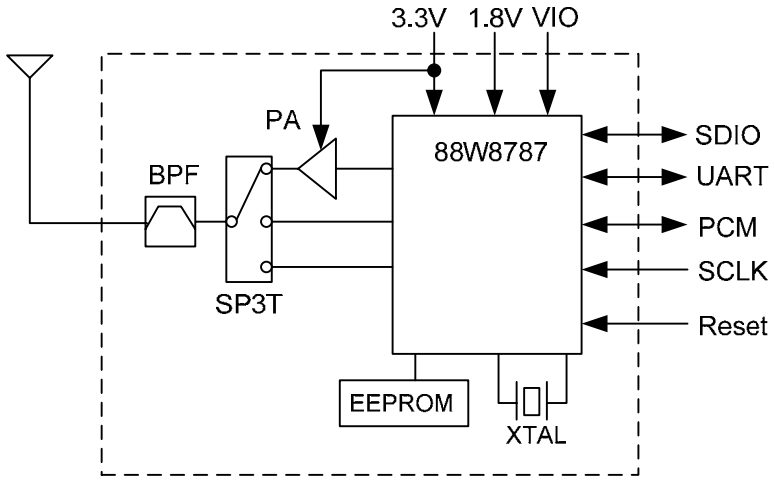
		Condition	Value	Unit
Basic Rate	Tx	Power	5	dBm
	Rx	Sensitivity	-86	dBm

Power Consumption

	Condition	Value	Unit
WLAN Tx	11b / 11Mbps	395	mW
WLAN Rx	11b / 11Mbps	230	mW
BT	Basic Rate	50	mW
Low Power	Deep Sleep	0.7	mW

Control No.		Control name
HD-MC-A091235	(1/1)	Circuit Schematic

Block Diagram

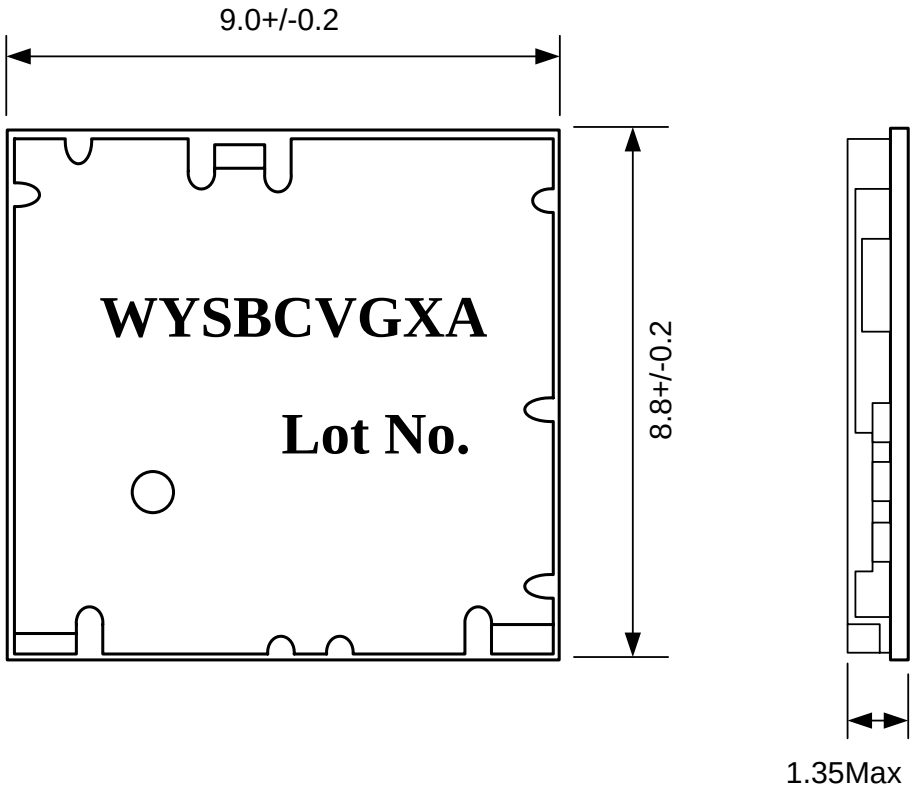


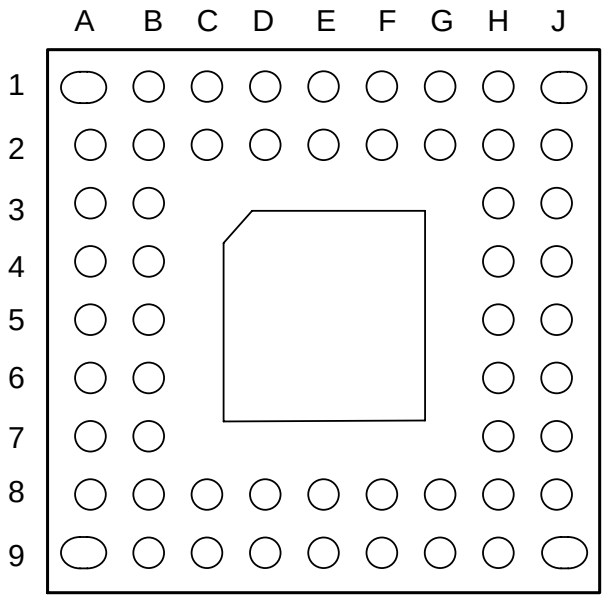
WYSBCVGXA

Control No.		Control name
HD-AD-A091235	(1/1)	Outline/Appearance

OUTLINE

Unit: mm





Control No.	Control name
HD-BA-A091235 (1/2)	Pin Layout

Pin Descriptions

No.	Pin Name	I/O	Type	Pwr Domain	Description
A1	GND	P	Ground	GND	-
A2	3.3V	P	Power	3.3V	3.3V Supply Voltage
A3	GND	P	Ground	GND	-
A4	SD_DATA3	IO		VIO	SDIO data-3
A5	SD_CLK	I		VIO	SDIO clock input
A6	SD_DATA1	IO		VIO	SDIO data-1
A7	GND	P	Ground	GND	-
A8	SLP_CLK	I		1.8V	Sleep clock input
A9	GND	P	Ground	GND	-
B1	VDD30	P	Power	VDD30	3.0V for decupling
B2	VIO	P	Power	VIO	1.8V/3.3V Digital I/O Supply
B3	1.2V_OUT	O	Power	1.2V	LDO 1.2V Voltage Output
B4	SD_DATA2	IO		VIO	SDIO data-2
B5	SD_CMD	IO		VIO	SDIO command
B6	SD_DATA0	IO		VIO	SDIO data-0
B7	GPIO18	IO		VIO	GPIO18
B8	GND	P	Ground	GND	-
B9	TCK	IO		VIO	JTAG Test Clock Input
C1	1.2V	P	Power	1.2V	LDO 1.2V Voltage Input
C2	VBLDO3V	P	Power	VBLDO3V	LOO 3.0V Voltage Output
C8	PDN	I		VIO	Power Down
C9	TMS	I		VIO	JTAG TMS (input)
D1	1.8V	P	Power	1.8V	1.8V Supply Voltage
D2	GPIO15	IO		VIO	GPIO15
D8	RES	-		-	(Reserved) Should be left open
D9	TDO	IO		VIO	JTAG TDO (output)
E1	1.8V_1	P	Power	1.8V_1	1.8V Supply Voltage
E2	1.8V_4	P	Power	1.8V_4	1.8V Supply Voltage
E5	GND	P	Ground	GND	-
E8	RESETN	I		VIO	Reset (active low)
E9	TDI	I		VIO	JTAG TDI (input)
F1	1.8V_2	P	Power	1.8V_2	1.8V Supply Voltage
F2	1.8V_3	P	Power	1.8V_3	1.8V Supply Voltage
F8	UART_CTS	I		VIO	UART_CTSn (input) (active low)
F9	UART_RTS	O		VIO	UART_RTSn (output) (active low)
G1	GPIO4	IO		VIO	GPIO4
G2	GPIO0	IO		VIO	GPIO0
G8	UART_SIN	I		VIO	UART_SIN (input)
G9	UART_SOUT	O		VIO	UART_SOUT (output)
H1	GPIO16	IO		VIO	GPIO16 WLAN -> Host wakeup
H2	PCM_DOUT	O		VIO	PCM_DOUT (output)

Control No.	Control name
HD-BA-A091235 (2/2)	Pin Layout

No.	Pin Name	I/O	Type	I/O Vol-lvl	Description
H3	PCM_SYNC	IO		VIO	PCM_SYNC (input/output)
H4	GND	P	Ground	GND	-
H5	HM2	I			Host mode select
H6	WP	I		VIO	E2PROM data write protect (active high)
H7	GND	P	Ground	GND	-
H8	GND	P	Ground	GND	-
H9	GND	P	Ground	GND	-
J1	GND	P	Ground	GND	-
J2	PCM_CLK	IO		VIO	PCM_CLK (input/output)
J3	PCM_DIN	I		VIO	PCM_DIN (input)
J4	GND	P	Ground	GND	-
J5	HM1	I			Host mode select
J6	RES	-		-	(Reserved) Should be left open
J7	GND	P	Ground	GND	-
J8	WLBT_ANT	IO		-	WLAN/BT Antenna
J9	GND	P	Ground	GND	-