

Bluetooth®+Wireless LAN Module

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

WYSBMVGXB

Brief Data Report

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Rev. record

13-Dec-2012> Ver.1.0

Initial Release

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Control No. HD-AG-A100041	(1/1)	Control name General Items
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Scope

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

1. Part Number: WYSBMVGXB
2. Function: Radio frequency transceiver Module (**IEEE802.11abgn** 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: 77-pin leadless chip carrier
7. Marking: Part Number, Lot Number
8. Features:
 - IEEE802.11abgn** standard conformity
 - Bluetooth® 3.0, 2.1+EDR (QDID: B017555)**
 - Interface: SDIO, PCM
 - Embedded MPU for reducing loads on host processor
 - Built-in EEPROM
9. WLAN Channel Supported:
 - 1~13ch in 11bgn mode , W52/W53/W56 in 11an 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 11ag 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

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Control No. HD-AM-A100041	(1/1)	Control name Absolute maximum ratings
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Absolute maximum ratings

Item	Symbol	Rating				Remark
		Min.	Typ.	Max.	Unit	
Supply voltage 1	VIO	-	-	4.0	V	
Supply voltage 2	VDD18	-	-	1.98	V	
Supply voltage 3	VBAT	-	-	5.6	V	
Storage temperature range	Tstg	-30	-	100	Degrees C	
Operation temperature range	Topr	-20	25	70	Degrees C	

Recommended operating range

Item	Symbol	Rating				Remark
		Min.	Typ.	Max.	Unit	
Supply voltage 1	VIO	1.62/2.97	1.8/3.3	1.98/3.63	V	
Supply voltage 2	VDD18	1.71	1.8	1.89	V	
Supply voltage 3	VBAT	3.2	3.3	4.3	V	

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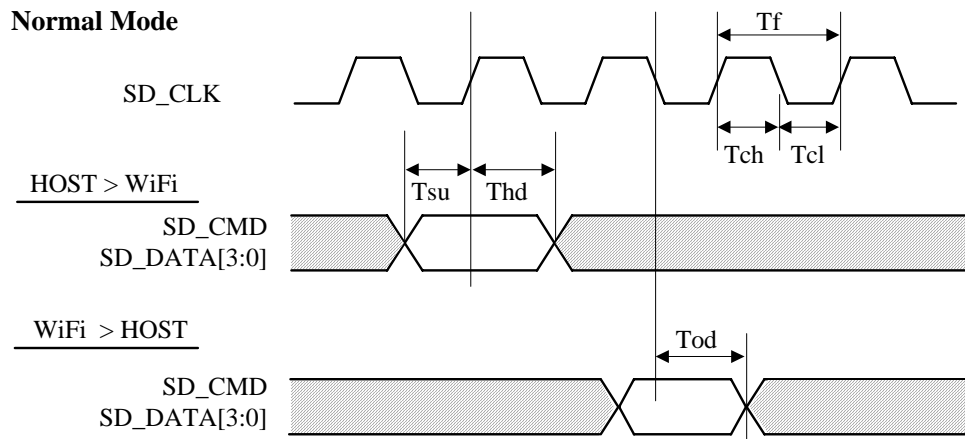
Control No. HD-AE-A100041	(1/2)	Control name Electrical characteristics
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SDIO Interface Specifications

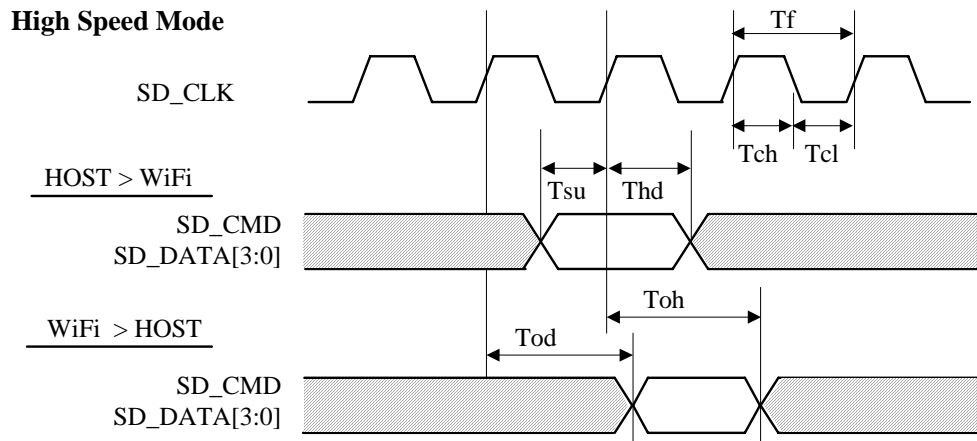
The Specification applies for Topr.= -20 to 70 degrees C , Supply voltage=Typical voltage

	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



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Control No. HD-AE-A100041	(2/2)	Control name Electrical characteristics
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WLAN RF Specification

		Condition	Value	Unit
11b(11Mbps)	Tx	Power	16	dBm
	Rx	Sensitivity	-87	dBm
11g(54Mbps)	Tx	Power	15	dBm
	Rx	Sensitivity	-74	dBm
11a (54Mbps)	Tx	Power	14	dBm
	Rx	Sensitivity	-75	dBm

BT RF Specification

		Condition	Value	Unit
Basic Rate	Tx	Power	8	dBm
	Rx	Sensitivity	-86	dBm

Power Consumption

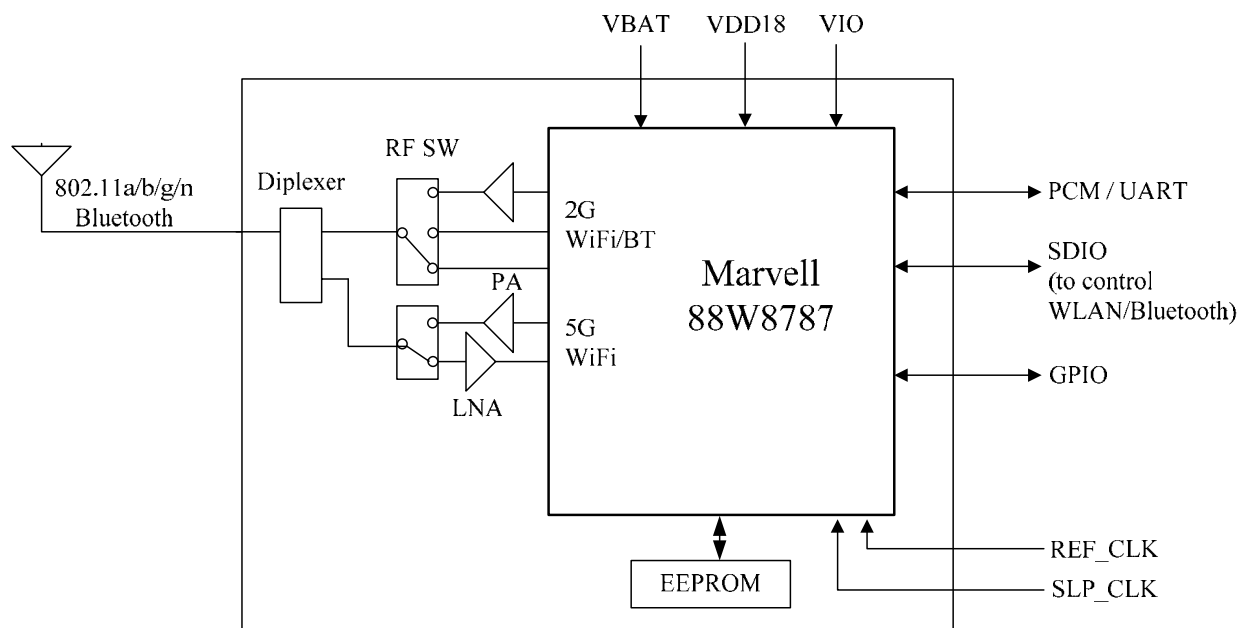
	Condition	Value	Unit
WLAN Tx	11b / 11Mbps	520	mW
WLAN Rx	11b / 11Mbps	230	mW
BT	Basic Rate	50	mW
Low Power	Deep Sleep	3.0	mW

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Control No. HD-MC-A100041	(1/1)	Control name Circuit Schematic
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Block Diagram



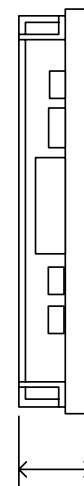
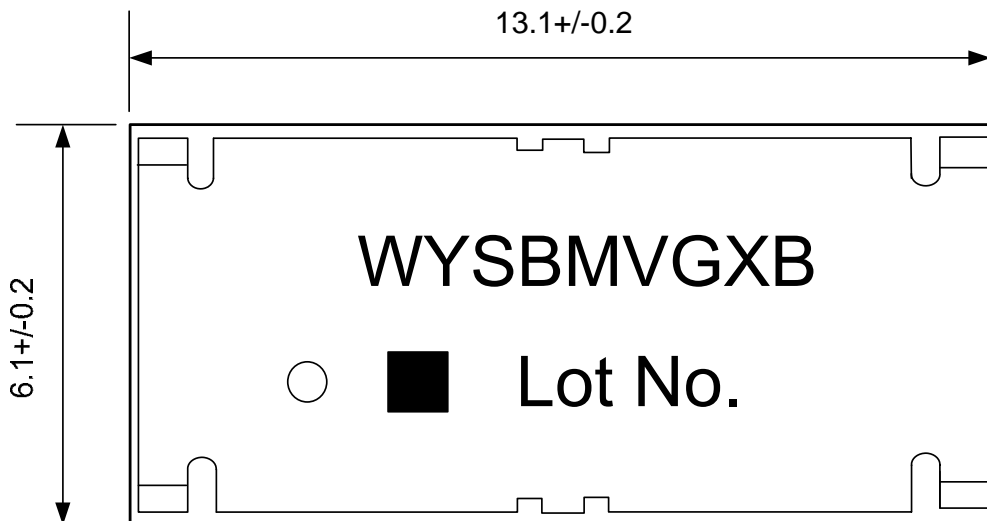
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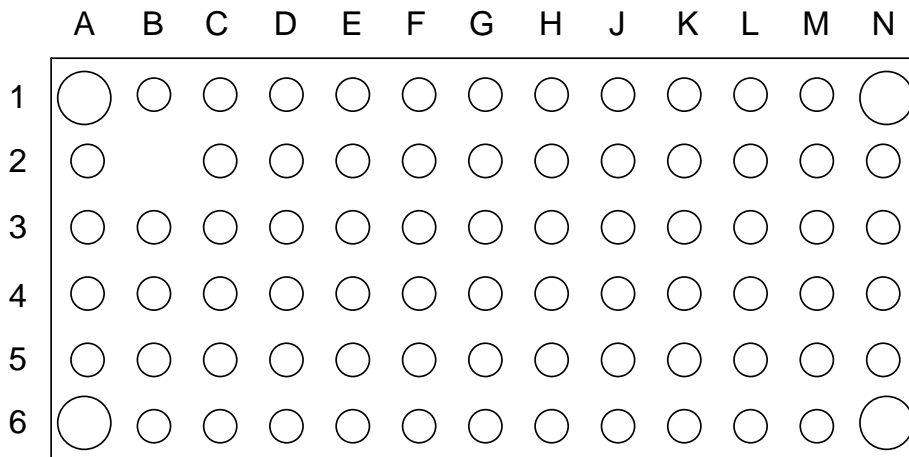
Control No. HD-AD-A100041	(1/1)	Control name Outline/Appearance
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OUTLINE

Unit: mm



1.35Max



Bottom View

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Control No. HD-BA-A100041	(1/3)	Control name Pin Layout
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Pin Descriptions

Loc.	Pin Name	I/O	Pwr Domain	Description
A1	GND	-	-	ground
A2	GND	-	-	ground
A3	ANT	I/O	-	2G/5G RF (WiFi-11abgn, BT) Antenna
A4	GND	-	-	ground
A5	GND	-	-	ground
A6	GND	-	-	ground
B1	TDO	O	VIO	JTAG Test Data Output
B3	GND	-	-	ground
B4	GND	-	-	ground
B5	GND	-	-	ground
B6	GND	-	-	ground
C1	TDI	I	VIO	JTAG Test Data Input
C2	TCK	I	VIO	JTAG Test Clock Input
C3	RES	-	-	(Reserved)
C4	RES	-	-	(Reserved)
C5	VBAT	I	VBAT	Battery power supply
C6	VBAT	I	VBAT	Battery power supply
D1	RESETn	I	VIO	Reset
D2	TMS	I	VIO	JTAG Controller Select
D3	RES	-	-	(Reserved)
D4	RES	-	-	(Reserved)
D5	UART_CTS	I	VIO	UART_CTSN
D6	UART_SIN	I	VIO	UART_SIN
E1	PDn	I	VIO	Power Down
E2	HM	I	-	Host I/F Select
E3	GND	-	-	ground
E4	GND	-	-	ground
E5	UART_SOUT	O	VIO	UART_SOUT
E6	UART_RTS	O	VIO	UART_RTSN
F1	VDD18	I	VDD18	1.8V power supply
F2	VDD18	I	VDD18	1.8V power supply
F3	GND	-	-	ground
F4	GND	-	-	ground
F5	RES	-	-	(Reserved)
F6	VDD18	I	VDD18	1.8V power supply

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Control No. HD-BA-A100041	(2/3)	Control name Pin Layout
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Loc.	Pin Name	I/O	Pwr Domain	Description
G1	GND	-	-	ground
G2	RES	-	-	(Reserved)
G3	GND	-	-	ground
G4	GND	-	-	ground
G5	GPIO0	I/O	VIO	GPIO0
G6	GND	-	-	ground
H1	RES	-	-	(Reserved)
H2	GPIO4	I/O	VIO	GPIO4
H3	GND	-	-	ground
H4	PCM_MCLK	O	VIO	PCM_MCLK
H5	GND	-	-	ground
H6	REF_CLK	I	VDD18	Reference Clock Input
J1	RES	-	-	(Reserved)
J2	RES	-	-	(Reserved)
J3	GND	-	-	Ground
J4	PCM_DIN	I	VIO	PCM_DIN
J5	GND	-	-	ground
J6	RES	-	-	(Reserved)
K1	RES	-	-	(Reserved)
K2	RES	-	-	(Reserved)
K3	PCM_DOUT	O	VIO	PCM_DOUT
K4	PCM_SYNC	I/O	VIO	PCM_SYNC
K5	VBAT	I	VBAT	Battery power supply
K6	GND	-	-	Ground
L1	GND	-	-	Ground
L2	RES	-	-	(Reserved)
L3	RES	-	-	(Reserved)
L4	PCM_CLK	I/O	VIO	PCM_CLK
L5	LDO30_OUT	O	LDO30	3.0V Voltage Output
L6	VDD30	I	VDD30	3.0/3.3V Digital IO Power Supply
M1	SLP_CLK	I	VDD18	Sleep Clock Input
M2	RES	-	-	(Reserved)
M3	SD_CMD	I/O	VIO	SDIO Command
M4	SD_DATA[0]	I/O	VIO	SDIO Data[0]
M5	WL_HOST_WKUP	O	VIO	WLAN -> Host Wake up
M6	VIO	I	VIO	1.8V/3.3V Digital IO Power Supply

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Control No. HD-BA-A100041	(3/3)	Control name Pin Layout
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Loc.	Pin Name	I/O	Pwr Domain	Description
N1	GND	-	-	Ground
N2	SD_DATA[2]	I/O	VIO	SDIO Data[2]
N3	SD_DATA[3]	I/O	VIO	SDIO Data[3]
N4	SD_CLK	I	VIO	SDIO Clock
N5	SD_DATA[1]	I/O	VIO	SDIO Data[1]
N6	GND	-	-	ground