Wireless Module Datasheet

Model No.: TWM-IA9Q5A

Version： V1.0

Release Date: 2017-11-08

TONLY ELECTRONICS HOLDINGS LIMITED

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Document Revision History

Revision	Date	Author	Checked by	Description
V1.0	2017-11-08	Jackie He	Jianli Liang	First release.

Table of Contents

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1. System overview

1.1 General Descriptions

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TWM-IA9Q5A is a 5.8GHz ISM Band wireless module .It is based on IA9Q5 SOC incorporate SYNIC proprietary wireless protocol. TWM-IA9Q5A enables the seamless and bi-directional transmission of high quality audio. It can be used in family Mono /stereo wireless audio system.

1.2 Features

- Compact size :20 mm *30 mm SMD package

- 5.8GHz ISM Band

- GFSK modulation

- Integrated RX diversity antenna on the module

- Long distance >30m

- Support 1-1 duplex mode or 1-N broadcasting mode

- RF frequency hopping in 35 channels

- Digital I2S audio interface

- Support no audio detection function

- Audio format 16bit,32/44.1/48KHz sampling rate

- Robust Packet error correction

- Low power consumption

- No RF induced audio noise

1.3 System Block Diagram
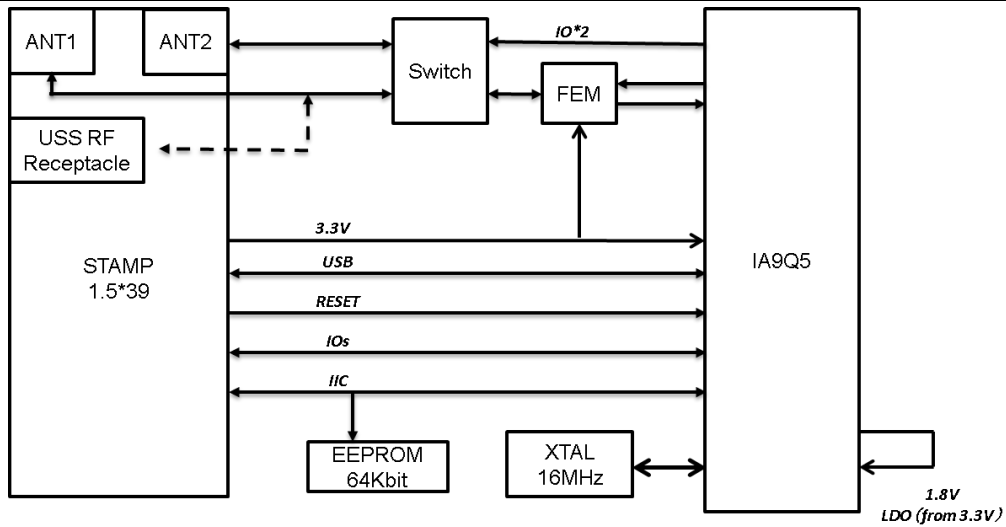
2. Production Description

2.1 Pin Layout & Pin Description

Pin Layout
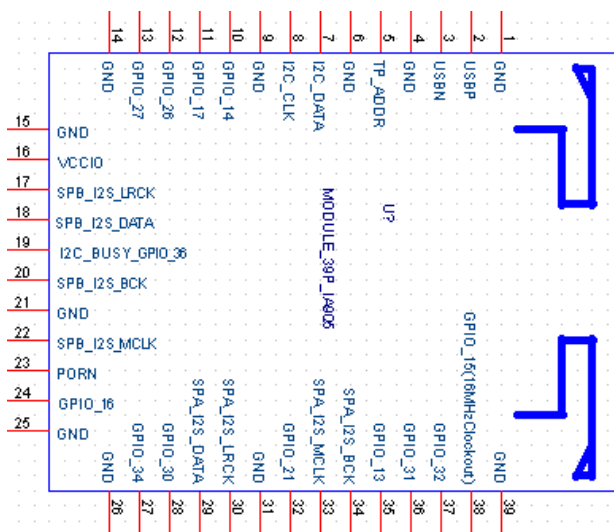
Pin Description

PIN NO.	Symbol	Description	Function
1	GND	Ground	Ground
2	USBP	USB transceiver pair, positive polarity D+	I/O
3	USBN	USB transceiver pair, negative polarity D-	I/O

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4	GND	Ground	Ground
5	TP_ADDR	EPPROM address	For EPPROM address test
6	GND	Ground	Ground
7	I2C_DATA	I2C Master/Slave data signal	I/O
8	I2C_CLK	I2C Master/Slave clock signal.	I/O
9	GND	Ground	Ground
10	GPIO_14	programmable I/O	I/O
11	GPIO_17	programmable I/O	I/O
12	GPIO_26	programmable I/O	I/O
13	GPIO_27	programmable I/O	I/O
14	GND	Ground	Ground
15	GND	Ground	Ground
16	VCCIO	DC 3.3V Voltage input power supply for system.	Power
17	SPB_I2S_LRCK	Sound port B, I2S audio LRCK output or input	I/O
18	SPB_I2S_DATA	Sound port B, I2S audio Data output or input	I/O
19	I2C_BUSY_GPIO_36	Indication of I2C Bus busy state,/ programmable I/O	I/O
20	SPB_I2S_BCK	Sound Port B, I2S audio BCK output or input.	I/O
21	GND	Ground	Ground
22	SPB_I2S_MCLK	Sound port B, I2S audio system clock I/O	I/O
23	PORN	Internal power on reset output signal	I/O
24	GPIO_16	programmable I/O	I/O
25	GND	Ground	Ground
26	GND	Ground	Ground
27	GPIO_34	programmable I/O	I/O
28	GPIO_30	programmable I/O	I/O
29	SPA_I2S_DATA	Sound port A, I2S audio Data output or input.	I/O
30	SPA_I2S_LRCK	Sound port A, I2S audio LRCK output or input.	I/O
31	GND	Ground	Ground
32	GPIO_21	programmable I/O	I/O
33	SPA_I2S_MCLK	Sound port A, I2S audio system clock output or input	I/O
34	SPA_I2S_BCK	Sound port A, I2S audio BCK output or input	I/O

35	GPIO_13	Programmable I/O	I/O
36	GPIO_31	programmable I/O	I/O
37	GPIO_32	Programmable I/O	I/O
38	GPIO_15	programmable I/O	I/O
39	GND	Ground	Ground

2.2 Appearance & Dimension

WEIGHT AND DIMENSIONS	
Size	30mm*20mm*2.5mm (L x W x H)
Weight	1.8g
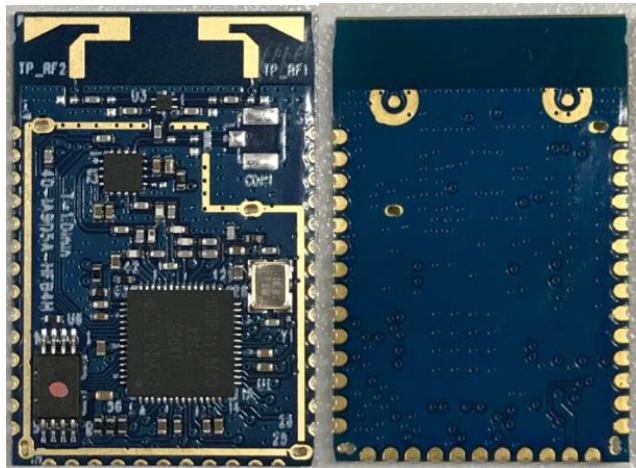
3. Application Explanations

- **Soundbar**

- **Wireless HTiB Rear Speaker**

- **Wireless TV theater**

- **Wireless Headphone**

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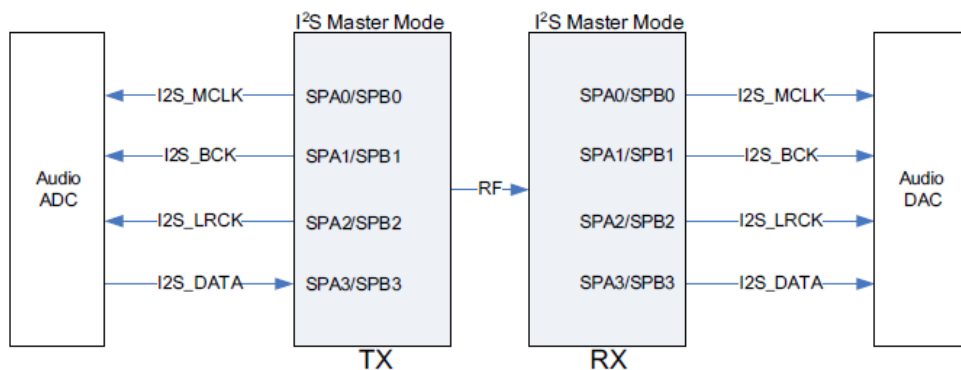
I2S slave mode application (TX Slave Mode, RX Master Mode)
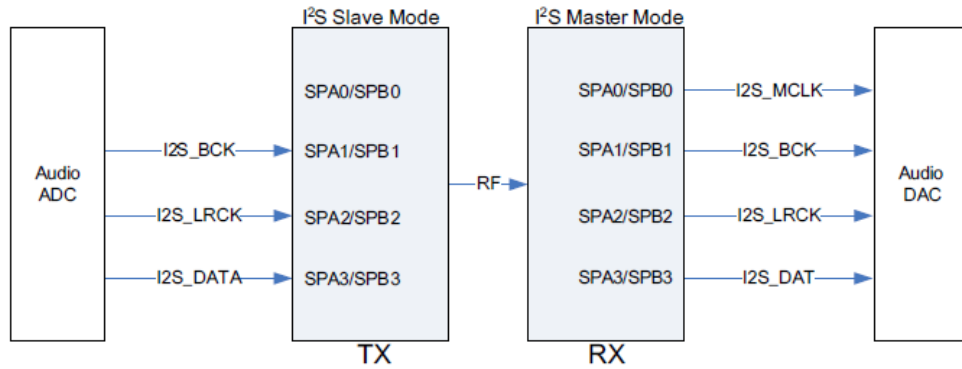
I2S slave mode application (TX Slave Mode, RX Slave Mode)

4. Electrical Characteristics

Item	
Supply Voltage	3.3V typical, 3.0-3.6V DC
Consumption Current(TX_MODE)	76mA (at 12dBm, continue mode)
Consumption Current(RX_MODE)	65 mA(Receiving only)
Operating Temperature	0~55℃
Storage Temperature	-40℃~80℃

5. RF Performance

Specification	Description
Frequency Band	5725~5850 MHz
Modulation	GFSK
Maximum Data Rate	2 Mbps
Antenna	Integrated diversity antenna on the module
Operation Range(Line of sight)	> 30 m
Sensitivity(typical)	-91 dBm at 5725~5850 MHz
RF TX Power(typical)	12 dBm at 5725~5850 MHz

6. Certification& Regulation

Complies with NAFTA FCC& IC, EU RED, China SRRC standards

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.

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

Please notice that if the FCC identification number is not visible when the module is installed inside another device, then the outside of the device into which the module is installed must also display a label referring to the enclosed module. This exterior label can use wording such as the following: "Contains FCC ID:ZVA13" any similar wording that expresses the same meaning may be used.

Note: The OEM integrator is responsible for ensuring that the host product which is installed and operating with the module is in compliant with Part 15B unintentional Radiator requirements, please note that For a Class B digital device or peripheral, the instructions furnished the user manual of the end-user product shall include the following or similar statement, placed in a prominent location in the text of the host product manual:

Note : This equipment has been tested and found to comply with the limits for a Class B

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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 module is limited to installation in mobile application; A separate approval is required

for all other operating configurations, including portable configurations with respect to Part

2.1093 and difference antenna configurations.

Please notice that if the IC identification number is not visible when the module is installed

inside another device, then the outside of the device into which the module is installed must

also display a label referring to the enclosed module. This exterior label can use wording

such as the following: "Contains IC:9976A-13" any similar wording that expresses the same meaning may be used.

L'étiquette d'homologation d'un module d'Innovation, Sciences et Développement économique Canada devra être posée sur le produit hôte à un endroit bien en vue, en tout temps. En l'absence d'étiquette, le produit hôte doit porter une étiquette sur laquelle figure le numéro d'homologation du module d'Innovation, Sciences et Développement économique Canada, précédé du mot « contient », ou d'une formulation similaire allant dans le même sens et qui va comme suit :

Contient IC : 9976A-13est le numéro d'homologation du module

This equipment complies with FCC/IC RSS-102 radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator and your body.

Cet équipement est conforme aux limites d'exposition aux radiationsFCC/ IC CNR-102 établies pour un environnement non contrôlé. Cet équipement doit être installé et utilisé avec une distance minimale de 20 cm entre le radiateur et votre corp

7. Packaging & Orderable Information

The following pages include packaging, and orderable information. This information is the most current data available for the designated devices. This data is subject to change without notice and revision of this document.

1. This product is packed in pallets, each with 35 PCS, packed in a vacuum bag, with a

total of 10 bags per box, for a total of 350 pcs per box.
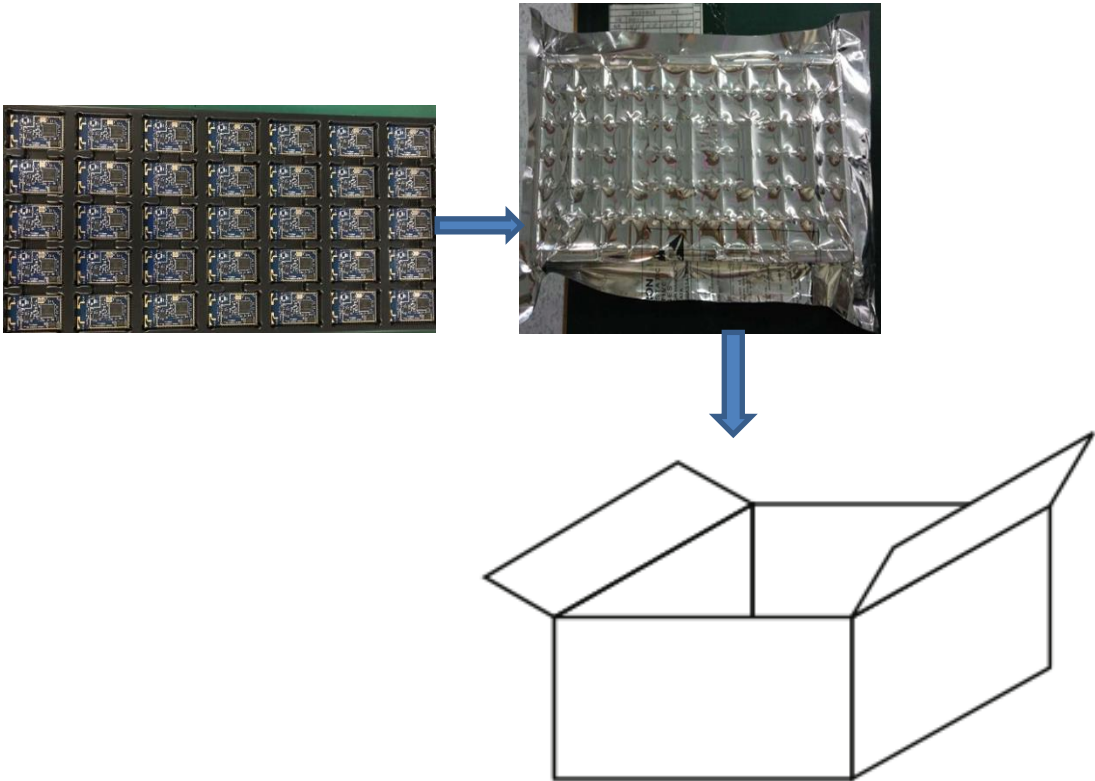
2. The Module Part No.

    08-IA9Q5A-HF0

8.Green Policy

This module can meet ROHS&REACH

9. ESD Protection

ESD CAUTION

TWM-IA9Q5A module is ESD (electrostatic discharge) sensitive device and may be damaged with ESD or spike voltage. Although TWM-IA9Q5A module is built-in protection circuits, please handle with care to avoid the permanent malfunction or performance degradation

10. Application Package information

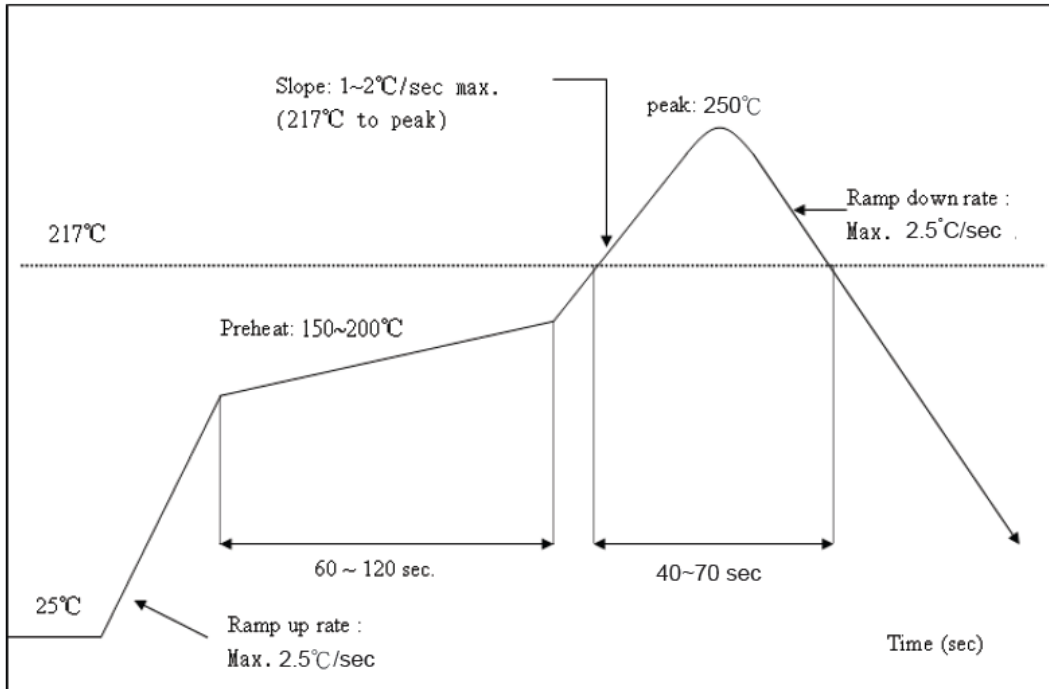Reference application package size as shown below:
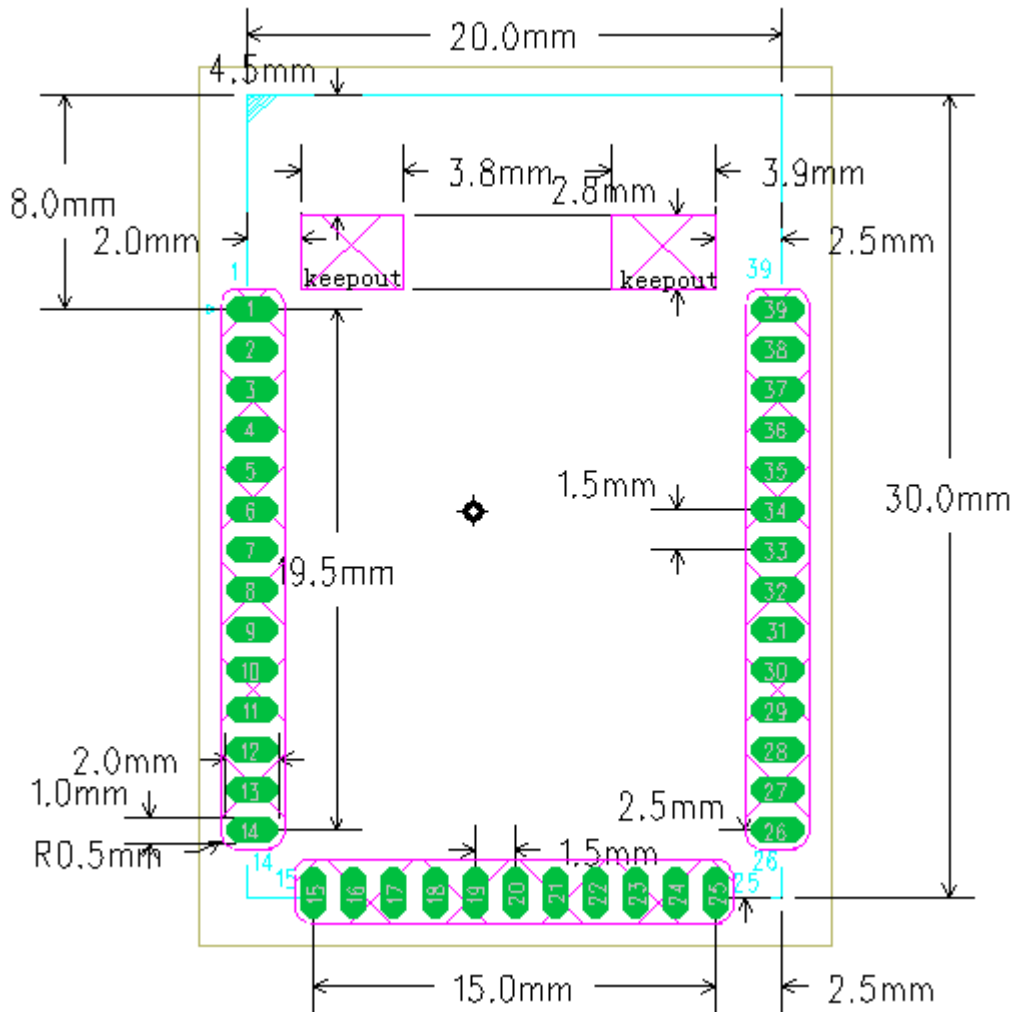
11. Recommended Reflow Profile

Referred to IPC/JEDEC standard.

Peak Temperature : <250°C

Number of Times : 2 times

Slope: 1~2℃/sec max.
(217℃ to peak)

peak: 250℃

Ramp down rate :
Max. 2.5°C/sec .

217℃

Preheat: 150~200℃

60 ~ 120 sec.

40~70 sec

25℃

Ramp up rate :
Max. 2.5℃/sec

Time (sec)

-------------------------**END**-------------------------

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