Wireless Module Datasheet

Model No.:TWM-IA3S4

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版本变更说明 Document Revision History

Revision 版本	Date 日期	Author 作者	Description 描述
V1.0	2016-11-09	zzhjiang	First release.
V1.1	2016-11-15	zzhjiang	Update Frequency Band

目录 Table of Contents

1. 系统概览 System overview

1.1 通用说明 General Descriptions

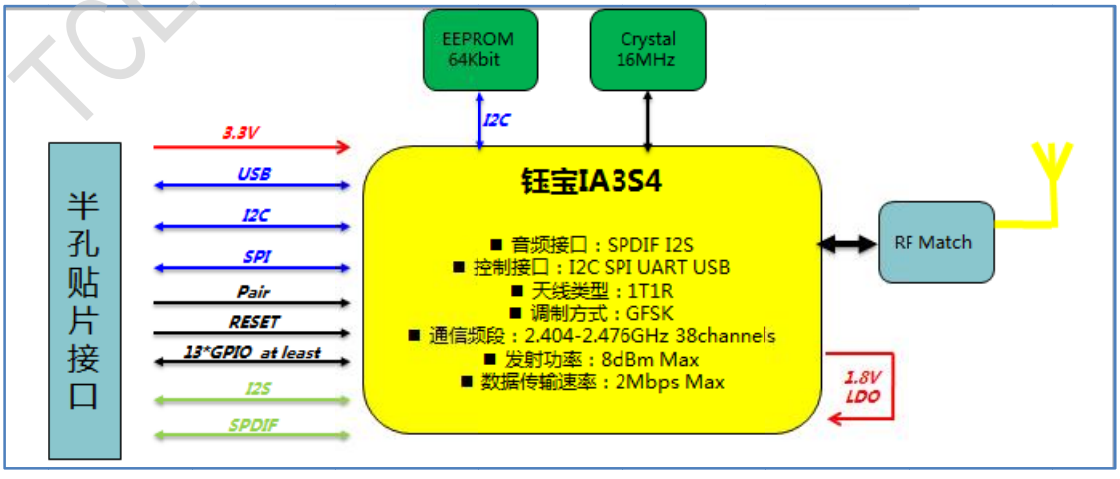
TWM-IA3S4 is a 2.4GHz ISM band 1T/1R wireless module.

This document is to specify the specification for TWM-IA3S4 wireless Module. It is based on IA3S4 chipset incorporate SYNIC proprietary wireless protocol. It can be integrated into your family Mono/Stereo wireless audio system, which enables the seamless and bi-directional transmission of high quality audio.

1.2 性能特点 Features

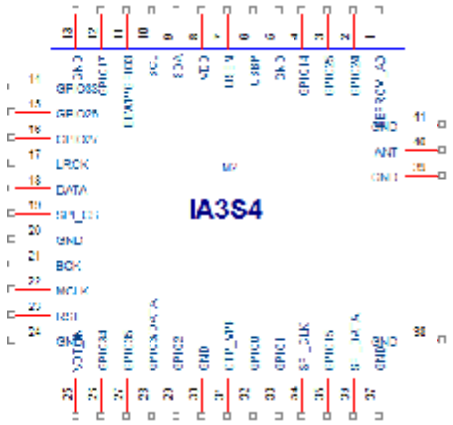
- >10m range
- Worldwide 2.4G ISM band
- 1T1R antenna type
- Integrate 8-bit MCU
- Support I2S/SPDIF audio interface
- Support I2C/SPI/UART/USB control interface
- Compact 17.6mm*15.6mm SMT package

1.3 系统方框图 Block Diagram

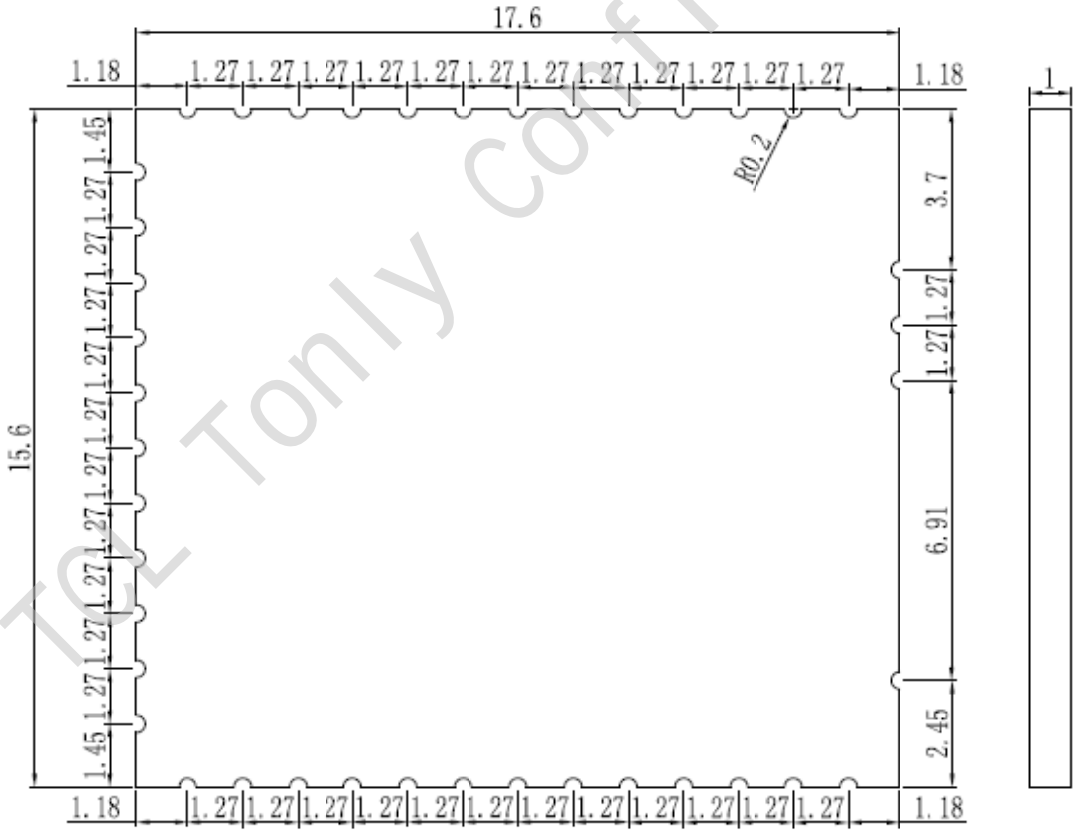


2.产品描述 Production Description

2.1 引脚与功能说明 Pin Description & Appearance



2.2 外形尺寸 Physical Dimensions



Tolerances are ±0.5 mm Unless otherwise specified (Unit : mm) .

2.3 引脚定义Pin descriptions

Pin.	Symbol	Description	Remark
1	GND	Ground	GND
2	GPIO24	GPIO24	IO
3	GPIO25	GPIO25	IO
4	GPIO14	1. GPIO14 2. External INT0	IO
5	GND	Ground	GND
6	USBP	USB D+	USB transceiver pair
7	USBN	USB D-	USB transceiver pair
8	VDD	Power Supply+3.3V	PI
9	SDA	1. I2C SDA1 2. GPIO1	IO
10	SCL	1. I2C SCL1 2. GPIO2	IO
11	EEWP/GPIO3	1. GPIO3 2. EEPROM write protect	IO
12	GPIO17	1. GPIO17 2. External INT2 3. SPDIF input/output	IO
13	GND	Ground	GND
14	GPIO33	GPIO33	IO
15	GPIO26	1. GPIO26 2. I2C slave SDA2	IO
16	GPIO27	1.GPIO27 2. I2C slave SCL2	IO
17	LRCK	1.I2S LRCK 2.PIO6	IO
18	DATA	1.I2S DATA 2.GPIO7	IO
19	SPI_CS	1.SPI_CS 2.GPIO36	IO
20	GND	Ground	GND
21	BCK	1.I2S BCK 2UART RXD 3GPIO5	IO
22	MCLK	1.I2S MCLK 2.UART TXD 3.GPIO4	IO
23	RST	System Reset	IO , Active low
24	GND	Ground	GND
25	VDT_IN	Voltage Detector input	Analog , normally 1.8V

26	SPI_MISO	1.SPI master In 2.GPIO34	IO
27	GPIO35	GPIO35	IO
28	GPIO3/DATA	1. GPIO3 2. I2SA DATA	IO
29	GPIO2	1. GPIO2 2. I2SA LRCK	IO
30	GND	Ground	GND
31	OTP_VPP	OTP programming VPP	IO
32	GPIO0	1. GPIO0 2. I2SA MCLK	IO
33	GPIO1	1. GPIO1 2. I2SA BCK	IO
34	SPI_CLK	1. SPI CLK 2. GPIO31	IO
35	GPIO15	1. GPIO15 2. External INT1	IO
36	SPI_MOSI	1. SPI MOSI 2. External INT3 3. GPIO11	IO
37	GND	Ground	GND
38	GND	Ground	GND
39	GND	Ground	GND
40	ANT	RF port	RF port
41	GND	Ground	GND

3.应用说明 Application Explanations

- Soundbar
- Wireless Headphone
- Wireless HTiB

4.电气特性 Electrical Characteristics

4.1 DC Electrical Characteristics

Supply Voltage	DC 3.0~3.6V
Current consumption	Max : 70mA@RX Max:100mA@TX Normal：58mA@RX Max:73mA@TX
Size (L x W x H)	17.6mm * 15.6mm *2.09mm
Weight	0.9g

4.2Thermal characteristic

- Storage Temperature -40 +80 ℃
- Ambient Operating Temperature 0~60 ℃
- Junction Temperature 0 ~125 ℃

5.射频性能 RF Characteristics(to be update)

Specification	Description
Frequency Band	2404~2476MHz
Channal number	37 channels
Modulation Method	GFSK
Maximum Data Rate	2 Mbps
TX Power	Max +8dBm Min-20dBm
RX Sensitivity	-79dBm (Sensitivity 0.1% BER)

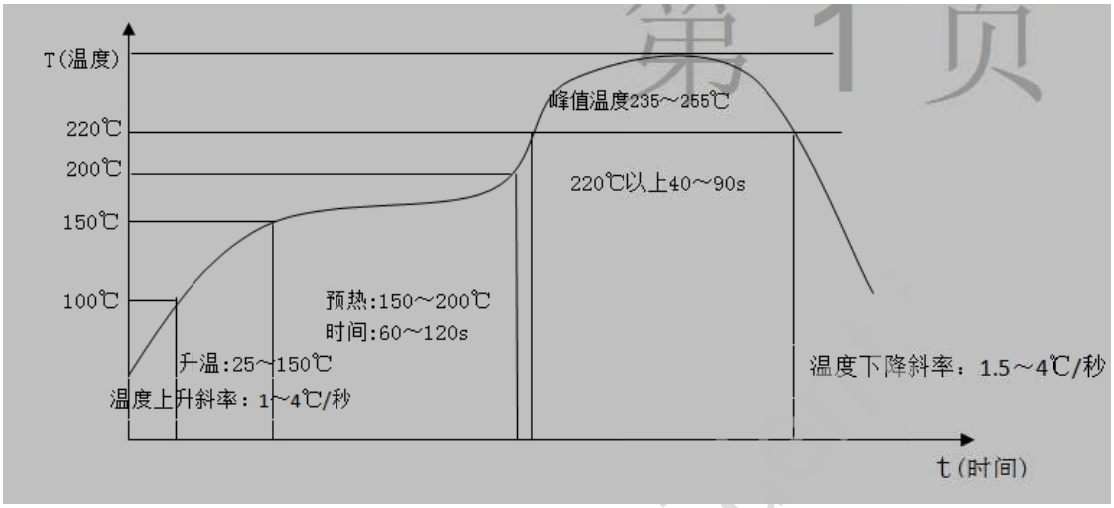
6.包装与订货说明 Package& Ordering information(to be update)

- **40 pcs per every Blister tray**
- **400 pcs per every Vacuum packing**

7.环保声明 Green Policy

This module can meet ROHS & REACH compliance.

8.推荐过炉温度 Recommended Temperature Reflow Profile



9.抗静电保护 ESD Protection

ESD CAUTION

TWM-IA3S4 is ESD(electrostatic discharge) sensitive device and may be damaged with ESD or spike voltage. Although TWM-M7632is with built-in ESD protection circuits, please handle with care to avoid the permanent malfunction or the performance degradation.

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For IC:

This device complies with RSS247 of Industry Canada. Cet appareil se conforme à RSS247 de Canada d'Industrie. This device complies with Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radioexempts de licence.L'exploitation est autorisée aux deux conditions suivantes:
(1) l'appareil ne doit pas produire de brouillage, et
(2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

This Class B digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe B est conforme a la norme NMB-003 du Canada.

The device should be installed and operated with a minimum distance of 20cm between the radiator and your body.

L'appareil doit être installé et utilisé avec une distance minimale de 20 cm entre le radiateu et votre corps.

For FCC:

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

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.**
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"The device must not be co-located or operating in conjunction with any other antenna or transmitter."

FCC RF Radiation Exposure Statement Caution: To maintain compliance with the FCC's RF exposure guidelines, place the product at least 20cm from nearby persons.

FCC Conditions

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.

This device is intended only for OEM integrators under the following conditions:

1) The antenna must be installed such that 20 cm is maintained between the antenna and users, and
2) The transmitter module may not be co-located with any other transmitter or antenna.
3) For all products market in United States, OEM has to limit the operation channels in CH1 to CH11 for 2.4G band by supplied firmware programming tool. And OEM shall not supply any tool or info to the end-user regarding to change the domain selection.
As long as 3 conditions above are met, further transmitter test will not be required. However, the OEM integrator is still responsible for testing their end-product for any additional compliance requirements required with this module installed (for example, digital device emissions, PC peripheral requirements, etc.).

IMPORTANT NOTE: In the event that these conditions cannot 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 cannot 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.

End Product Labeling
This transmitter module is authorized only for use in device where the antenna may be installed such that 20 cm may be maintained between the antenna and users (for example: Access point, Wireless Router, Notebook, etc.). The final end product must be labeled in a visible area with the following: “Contains FCC ID: ZVA11”.

For Sound Bar:
Antenna Type:FPCB Antenna
Antenna Gain :3.08dBi

For Subwoofer:
Antenna Type:PCB Antenna
Antenna Gain : 2dBi