TX-AH-R900xxx User Manual

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Zhuhai Huge-ic Co., Limited

Revision History

Date	Version	Description	Author
2021/1/4	V1.1	Add TX-AH-R900PTR	Wangying
2020-12-05	V1.0	Create	Wangying

目录

1 INTRODUCTION

TX-AH-R900xxx is a serial of 802.11ah wireless transceiver modules designed by Zhuhai Huge-IC Co.,LTD. The module is based on TXW83xx which complies with Wi-Fi 802.11ah standard. It could be widely applied to IOT devices for smart home, smart industry and healthcare.

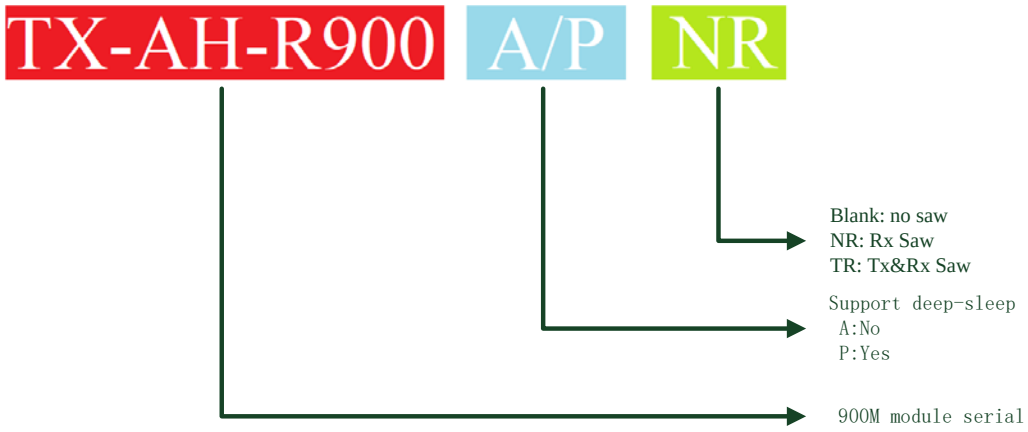
Note:
TX-AH-R900xxx includes TX-AH-R900A/ TX-AH-R900ANR/ TX-AH-R900P/ TX-AH-R900PNR/ TX-AH-R900PTR.

1.1 Basic Parameters

Up to 32.5Mbps of PHY rate
Support 802.11ah
1/2/4/8 Channel bandwidth
Support AP, STA
Rich peripheral interfaces: RMII, USB, SDIO, SPI, I2C, UART, GPIO
Support security method: WPA2

2 Specification

Item	Parameter
Model	TX-AH-R900xxx
Chipset	TXW83xx
Temperature	-20℃~70℃
Humidity	Working:0~85%（noncondensing） Storage:0~85%（noncondensing）
size	(17.00±0.10)mm×(15.00±0.10)mm×(2.40±0.10)mm



Type	Support deep-sleep	Support Rx Saw	Support Rx Saw
TX-AH-R900A	No	NO	NO
TX-AH-R900ANR	No	Yes	Yes
TX-AH-R900P	Yes	NO	NO
TX-AH-R900PNR	Yes	Yes	Yes
TX-AH-R900PTR	Yes	Yes	Yes

3 ELECTRONICAL CHARACTERISTICS

3.1 Input voltage

Item	Function	Min Voltage(V)	Typical Voltage(V)	Max Voltage(V)
VCC	Power of Module	3	3.3	3.6
VCC1/VCC2 (only apply to TX-AH-R900Pxx)	Power of RF	3	3.3	3.6

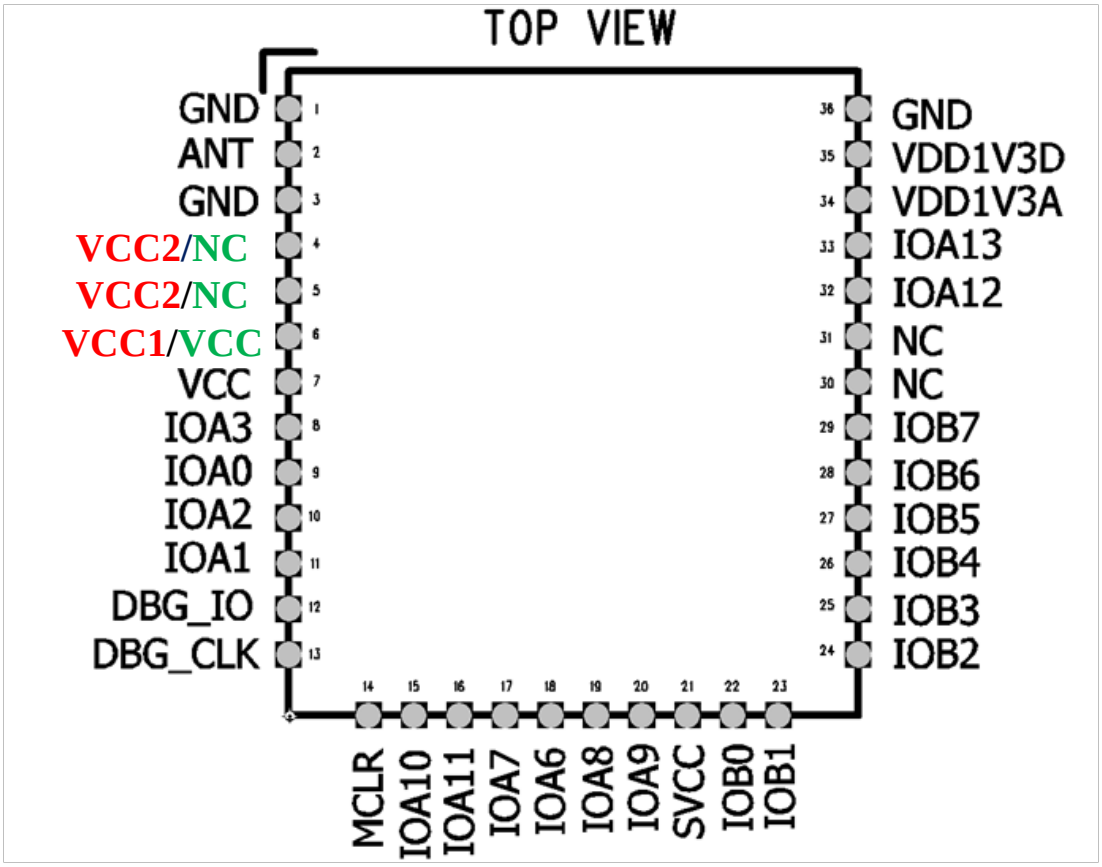
SVCC	Power of IOA6~11		3.3 or 1.8 (optional)	
VDD1V3A/VDD1V3D	Power of vdd of TXW83xx	1.3	1.3	1.4
IO other than IOA6~11	IO voltage	3	3.3	3.6

3.2 **RF Performance**

Common					
Item	Condition	Min.	Typ.	Max.	Unit
Frequency Range		902		928	MHz
Transmit					
Item	Condition	Min.	Typ.	Max.	Unit
Tx Power Level		18	20	22	dBm
Frequency Tolerance		-5	0	5	ppm
Spectral Mask（8M）	+/-8M offset			-28	dBc
Spectral Mask（4M）	+/-4M offset			-28	dBc
Spectral Mask（2M）	+/-2M offset			-28	dBc
Spectral Mask（1M）	+/-1M offset			-28	dBc
Modulation Accuracy				-27	dB
Receive					
Item	Condition	Min.	Typ.	Max.	Unit
Min. Input(8M)	MCS=0, PER<10%		-95		dBm
	MCS=2, PER<10%		-92		dBm
	MCS=7, PER<10%		-80		dBm
802.11ah Receive (4M)	MCS=0, PER<10%		-99		dBm
	MCS=2, PER<10%		-96		dBm
	MCS=7, PER<10%		-82		dBm
802.11ah	MCS=0,		-101		dBm

Receive (2M)	PER<10%				
	MCS=2, PER<10%		-99		dBm
	MCS=7, PER<10%		-87		dBm
802.11ah Receive (1M)	MCS=10, PER<10%		-107		dBm
	MCS=0, PER<10%		-104		dBm
	MCS=2, PER<10%		-102		dBm
	MCS=7, PER<10%		-90		dBm

3.3 Module Pins Definition



Note：

Pins in black color are that shared of TX-AH-R900A xx and TX-AH-R900Pxx;

Pins in red color are that of TX-AH-R900Pxx;

Pins in green color are that of TX-AH-R900Axx;

4 Antenna Information

The TX-AH-R900xxx has one specification external antenna.

The following is a monopole antenna commonly used by TX-AH-R900xxx:

Frequency range: 900-930
Input impedance: 50 OHM
Standing wave ratio: < 2.0
Gain: 0 dbi
Polarization: vertical
Directionality: Omni-directional

FCC Radiation Exposure Statement:

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. End users must follow the specific operating instructions for satisfying RF exposure compliance.

Note 1: This module certified that complies with RF exposure requirement under mobile or fixed condition, this module is to be installed only in mobile or fixed applications.

A mobile device is defined as a transmitting device designed to be used in other than fixed locations and to generally be used in such a way that a separation distance of at least 20 centimeters is normally maintained between the transmitter's radiating structure(s) and the body of the user or nearby persons. Transmitting devices designed to be used by consumers or workers that can be easily re-located, such as wireless devices associated with a personal computer, are considered to be mobile devices if they meet the 20 centimeter separation requirement.

A fixed device is defined as a device is physically secured at one location and is not able to be easily moved to another location.

Note 2: Any modifications made to the module will void the Grant of Certification, this module is limited to OEM installation only and must not be sold to end-users, end-user has no manual instructions to remove or install the device, only software or operating procedure shall be placed in the end-user operating manual of final products.

Note 3: Additional testing and certification may be necessary when multiple modules are used.

Note 4: To ensure compliance with all non-transmitter functions the host manufacturer is responsible for ensuring compliance with the module(s) installed and fully operational. For example, if a host was previously authorized as an unintentional radiator under the Declaration of Conformity procedure without a transmitter certified module and a module is added, the host manufacturer is responsible for ensuring that the after the module is installed and operational the host continues to be compliant with the Part 15B unintentional radiator requirements. Since this may depend on the details of how the module is integrated with the host, Zhuhai Huge-ic co., Ltd. shall provide guidance to the host manufacturer for compliance with the Part 15B requirements.

Note 5: FCC ID label on the final system must be labeled with “Contains FCC ID: 2AXPI-R900” or “Contains transmitter module FCC ID: 2AXPI-R900”.

FCC Warning

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.

NOTE: Any 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.

The OEM integrator is still responsible for the FCC compliance requirement of the end product, which integrates this module.