Module Specification

Module Name	TTIT-1021XP5		
Module Description	IEEE 802.11a/n (2T2R) With External PA Module		
	USB Interface		
Reversion	V1.6		
Date			
Nater Approve Field			
Engineer	**QC**	**Sales**	
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Customer Approve Field			
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1. Introduction

TTIT-1021XXP5 is based on Qualcomm Atheros AR1021X which is a highly integrated SOC solution for 5GHz IEEE 802.11a/n 2x2 MIMO WLAN. The modle provides wireless modem functionality for CE applications utilizing direct sequence spread spectrum and OFDM/CCK technology. The modle supports IEEE802.11 a/n protocol, data rate up to 54 Mbps for 11a and 144.4 Mbps for 11n@HT20, 300 Mbps for 11n@HT40.

2. Features

- 5GHz IEEE 802.11a/n 2x2 MIMO WLAN
- Tx Power up to 26dBm@6Mbps
- Transmission distance up to 500m when connected directly to Mobile phone
- Transmission distance up to 1.5km when connected to Repeater
- USB 2.0 interface, High and full speeds supported
- 5V and 3.3 V +/- 10% supply
- Internal OTP memory for calibration data

3. General Specification

3.1 Recommended Operating Rating

Element	Min.	Typ.	Max.	Unit
Operating Temperature	-10	25	70	Deg.c
VCC 5V	4.8	5	5.2	V
VCC 3.3V	3.15	3.3	3.45	V
VDD IO	1.7	1.8 or 3.3	3.45	V

3.2 DC Characteristics

Element	Power	Min.	Typ.	Max.	Unit
Standby	5V	-	3	-	mA
	3.3V	-	5	-	mA
Tx Current (Dual Chain)	5V	-	-	650	mA
	3.3V	-	-	450	mA
Rx Current (Dual Chain)	5V	-	20	-	mA
	3.3V	-	115	-	mA

3.3 Environment Condition

Temperature	Operating Temperature: -10 deg.C ~ 70 deg.C
	Storage Temperature: -10 deg.C ~ 70 deg.C
Humidity	Operating Humidity: 5% ~ 95%
	Storage Humidity: 5% ~ 95%

4. RF Specification

Feature	Description
WLAN Standard	IEEE 802.11a/n, Wi-Fi Compliant
Frequency Range	5.15GHz ~ 5.825GHz (5GHz ISM Band)
Number of Channels	5GHz, Refer to the 5GHz Channel Table
Output Power	802.11a@6Mbps: 25dBm ± 1.5dB@EVM ≤ -25dB
	802.11a@54Mbps: 20dBm ± 1.5dB@EVM ≤ -25dB
	802.11n@HT20-MCS0: 24dBm ± 1.5dB@EVM ≤ -28dB
	802.11n@HT20-MCS7: 20dBm ± 1.5dB@EVM ≤ -28dB
	802.11n@HT40-MCS0: 23dBm ± 1.5dB@EVM ≤ -28dB
	802.11n@HT40-MCS7: 19dBm ± 1.5dB@EVM ≤ -28dB

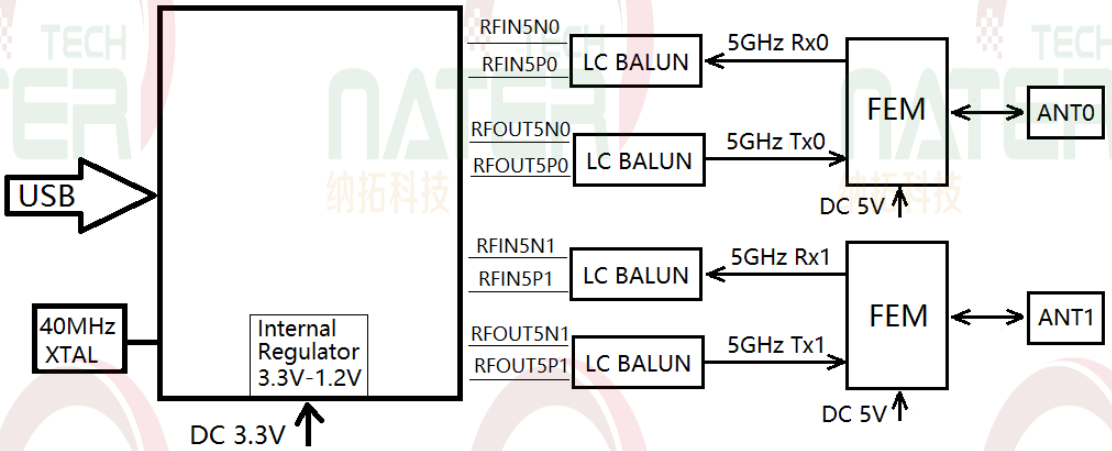
Receive Sensitivity (PER ≤ 10%)	802.11a@6Mbps: PER @ -96dBm, Typical
	802.11a@54Mbps: PER @ -80dBm, Typical
	802.11n@HT20-MCS0: PER @ -97dBm, Typical
	802.11n@HT20-MCS7: PER @ -78dBm, Typical
	802.11n@HT40-MCS0: PER @ -93dBm, Typical
	802.11n@HT40-MCS7: PER @ -73dBm, Typical

5GHz Channel Table

Band (GHz)	Operating Channel	Channel Center
5.15GHz~5.25GHz	36	5180
	40	5200
	44	5220
	48	5240
5.25GHz~5.35GHz	52	5260
	56	5280
	60	5300
	64	5320
5.5GHz~5.7GHz	100	5500
	104	5520
	108	5540
	112	5560
	116	5580
	120	5600
	124	5620
	128	5640
	132	5660
	136	5680
	140	5700
5.725GHz~5.825GHz	149	5745
	153	5765
	157	5785
	161	5805
	165	5825

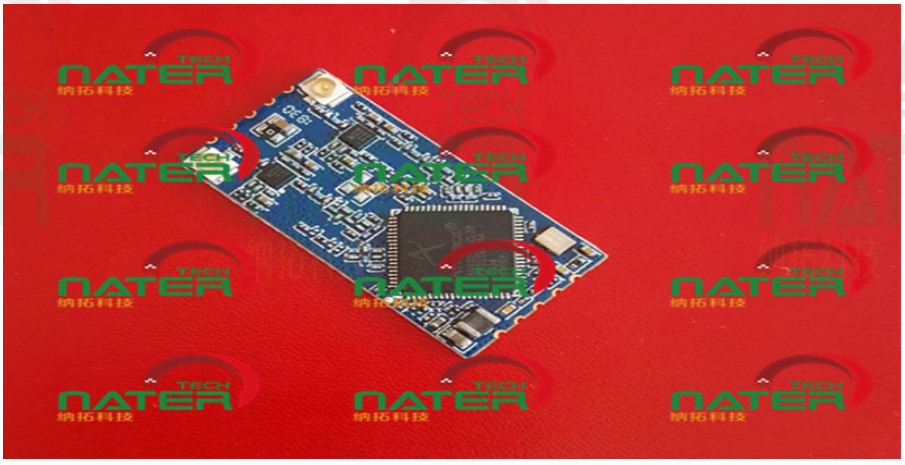
5. Hardware Overview

5.1 Block Diagram



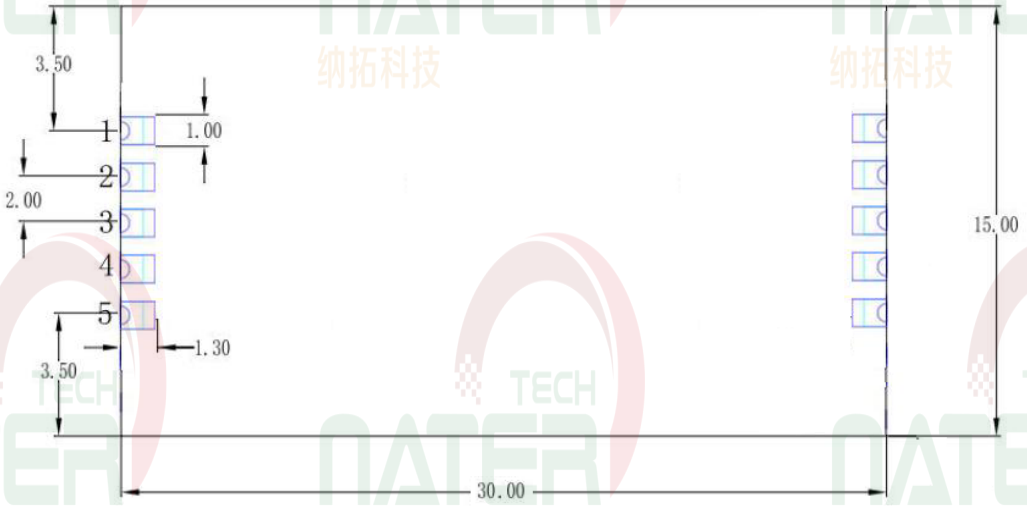
5.2 Pin Assignments

Pin	Symbol Name	Status	Pin Description
1	GND	P	Ground pad
2	USB_DP	I/O	USB D+ signal
3	USB_DN	I/O	USB D- signal
4	PWD_L	I	Reset. Low active
5	DC 3.3V	P	Analog 3.3V power supply
6,7,9,10	GND	P	Ground pad
8	DC 5V	P	Analog 5V power supply

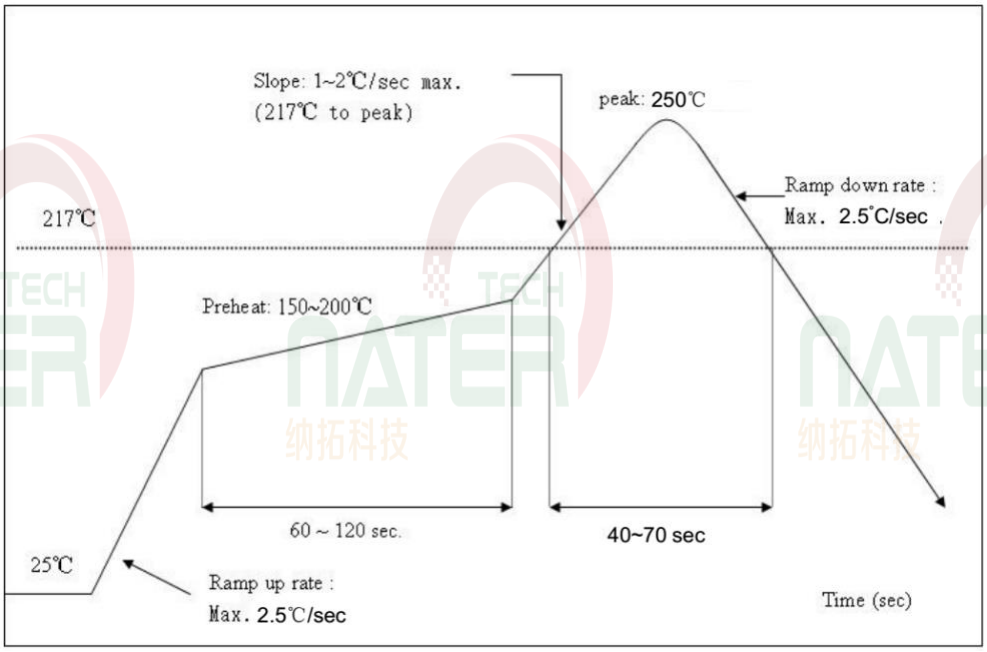


6. Dimensions

6.1 Physical Dimensions



7. Recommended Re-flow Profile



8. Package Information

TBD