

SPECIFICATIONS

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Version : V10

Date : 2017.10.16

MODEL NAME:TY-SM1

PRODUCT NAME :1T1R150Mbps URAT Wi-Fi Module

DESIGN: _____ CHECK: _____ APPROVAL: _____

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		DOCUMENT No :				
REG.DATE :2011.12.2	S P E C I F I C A T I O N M O D E L N A M E : T Y - S M 1	REV.NO : 1.5				
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<h2>1. Features</h2> <p>TY-SM1 is the small size and low power module for IEEE 802.11b/g/n wireless LAN. TY-SM1 is based onRT5350 solution. IEEE 802.11 b/g/n Dual Band WLAN infrastructure Size : 38.62mm x 23.59mm x11mm 2.4GHzinternal PA Two stream spatial multiplexing up to 150Mbps ANT (1T1R) USB,WAN,GPIO</p>						
<h2>2. Ordering Information</h2> <table border="1" style="width: 100%;"> <thead> <tr> <th>Model</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>TY-SM1</td> <td>Wi-Fi Module, 1T1R</td> </tr> </tbody> </table>			Model	Description	TY-SM1	Wi-Fi Module, 1T1R
Model	Description					
TY-SM1	Wi-Fi Module, 1T1R					
<h2>3. Label markin</h2> <div style="text-align: center;">  00-23-fb-aa-2b-cd </div>						
<h2>4. Applications</h2> <p>Router Robot Wifi Speech Asr VOIP</p>						

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4. Absolute Maximum Ratings

Caution : The specifications in Table 1 define levels at which permanent damage to the device can occur. Function operation is not guaranteed under these conditions. Operating at absolute maximum conditions for extend periods can adversely affect the long-term reliability of the device.

Parameter	Min	Max	Unit
Storage Temperature	-10	+80℃	℃
Storage Humidity(40℃)	-	90%	%

< Table 1 Absolute Maximum Ratings > . Other conditions

- 1) Do not use or store modules in the corrosive atmosphere, especially where chloride gas, sulfide gas, acid, alkali, salt or the like are contained. Also, avoid exposure to moisture.
 - 2) Store the modules where the temperature and relative humidity do not exceed 5 to 40℃ and 20 to 60%.
 - 3) Assemble the modules within 6 months.
- Check the soldering ability in case of 6 months over.

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5. Operating Conditions

Parameter	Min	Typ	Max	Unit
Operating Temperature	0	-	100	℃
Operating Humidity	-	-		
Supply Voltage1	2.7	3.3	4.0	Vdc

6. Standard Test Conditions

The Test for electrical specification shall be performed under the following condition unless otherwise specified.

1). Ambient condition

Temperature :25℃ ± 5℃

. Humidity:65% ± 5% R.H.


2). Power supply voltages

3.3V (±5%) input power at the Module

3). Current consumption over recommended range of supply voltage and operating

conditions is like below.

When it's tested, it must be supplied more than 2 times of maximal current.

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7. Electrical Specifications


1) DC Characteristics


Current Consumption	Min.	Typ.	Max.	Unit
TX Mode (MCS7)	-	80	-	mA
Idle and Associated state	-	40	-	
Radio disabled state	-	20	-	


2) RF Characteristics for IEEE802.11b (11Mbps mode unless otherwise specified)

Items	Contents			
Specification	IEEE802.11b			
Mode	DSSS/CCK			
Channel frequency	2400 ~ 2483 MHz			
Data rate	1,2,5.5,11Mbps			
TX Characteristics	Min.	Typ.	Max.	Unit
Power Level	16	17	18	dBm
Spectrum Mask				
1 st side lobes (to fc \pm 11MHz)	-	-43	-30	dBr
2 nd side lobes (to fc \pm 22MHz)	-	-58	-50	dBr
Modulation Accuracy (EVM)	-	30	30	%
Power On/Off ramp	-	0.5	2.0	Usec
Freq. Tolerance	-15	-	15	ppm
Chip Clock Freq. Tolerance	-15	-	15	ppm
RX Characteristics	Min.	Typ.	Max.	Unit
Minimum Input Level Sens (FER \leq 8%)	-	-88	-76	dBm
Maximum Input Level (FER \leq 8%)	-10	-	-	dBm

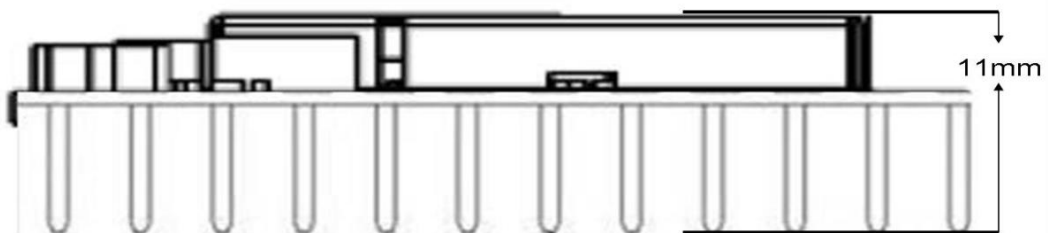
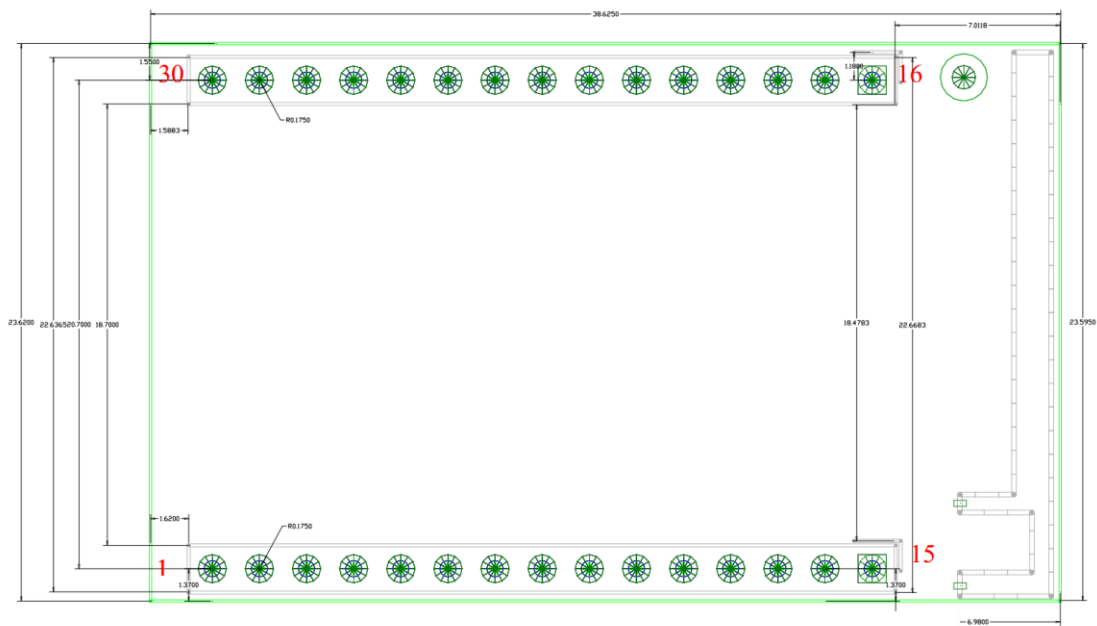
* Normal Condition : 25°C, VDD=3.3/5V.


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3) RF Characteristics for IEEE802.11g (54Mbps mode unless otherwise specified)					
Items		Contents			
Specification		IEEE802.11g			
Mode		OFDM			
Channel frequency		2400 ~ 2483 MHz			
Data rate		6,9,12,18,24,36,48,54Mbps			
TX Characteristics		Min.	Typ.	Max.	Unit
Power Level		14	15	16	dBm
Spectrum Mask					
at fc ±11MHz		-	-32	-20	dBr
at fc ±20MHz		-	-43	-28	dBr
at fc ≥ ± 30MHz		-	-48	-40	dBr
Constellation Error (EVM)		-	-34	-25	dB
Freq. Tolerance		-15	-	15	ppm
Chip Clock Freq. Tolerance		-15	-	15	ppm
RX Characteristics		Min.	Typ.	Max.	Unit
Minimum Input Level Sens. (PER ≤ 10%)		-	-75		ppm
Maximum Input Level (PER ≤ 10%)		-20	-		ppm
*Normal Condition : 25°C, VDD=3.3/5V					

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3) RF Characteristics for IEEE802.11g (54Mbps mode unless otherwise specified)					
Items		Contents			
Specification		IEEE802.11n			
Mode		OFDM			
Channel frequency		2400 ~ 2483 MHz			
Data rate		6,9,12,18,24,36,48,54Mbps			
TX Characteristics		Min.	Typ.	Max.	Unit
Power Level		13	14	15	dBm
Spectrum Mask					
at fc ±11MHz		-	-32	-20	dBr
at fc ±20MHz		-	-43	-28	dBr
at fc ≥ ± 30MHz		-	-48	-40	dBr
Constellation Error (EVM)		-	-34	-25	dB
Freq. Tolerance		-15	-	15	ppm
Chip Clock Freq. Tolerance		-15	-	15	ppm
RX Characteristics		Min.	Typ.	Max.	Unit
Minimum Input Level Sens. (PER ≤ 10%)		-	-75		ppm
Maximum Input Level (PER ≤ 10%)		-20	-		ppm
*Normal Condition : 25°C, VDD=3.3/5V					

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8. Pin Description



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8. Pin Description

Terminal No	Terminal name	Network name	Terminal Voltage	Signal Type
1		I2C_SCLK		
2		I2C_SD		
3		GPIO5	I/O	
4		GPIO3	I/O	
5		GND		
6		GND		
7		GND		
8		GND		
9		GND		
10		GND		
11		GND		
12		GND		
13		GND		
14		GND		
15		GND		
16		WLAN_LED		
17		TXD2		
18		RXD2		
19		USB_DM		
20		USB_DP		
21		REST		
22		TXD		
23		RXD		
24		3_3VD		VCC33
25		GND		GND
26		WPS		
27		WAN_RX+		
28		WAN_RX-		
29		WAN_TX+		
30		WAN_TX-		

