



PRODUCT SPECIFICATION

Version 1.1

IEEE 802.11 b/g/n 1T/1R USB Module

Model Number: W79M1510S

客户认可 Custom Approval Section		
Custom Name		
Department		
Approval		Date:

拟制 DESIGN	审核 CHECK	批准 APPROVAL
王仕友		
2015-08-10		

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Document revision history

Revision	Date	Approved by	Remarks
Version 1.0	2015-07-20		Draft
Version 1.1	2015-08-10	王仕友	Update Page4:Add Schematic diagram Page5:Add Part List Page10:Add label list &Package Page12:Add Antenna Specifications

1. General Description

This document is to specify the product requirements for 802.11 b/g/n USB Module. This Module is based on Media Tek MT7601U chipset that complied with IEEE 802.11g, IEEE 802.11b, IEEE 802.11n standard from 2.4G-2.5GHz, and it can be used to provide up to 54Mbps for 802.11g, 11Mbps for 802.11b and 150Mbps for 802.11n to connect your wireless LAN.

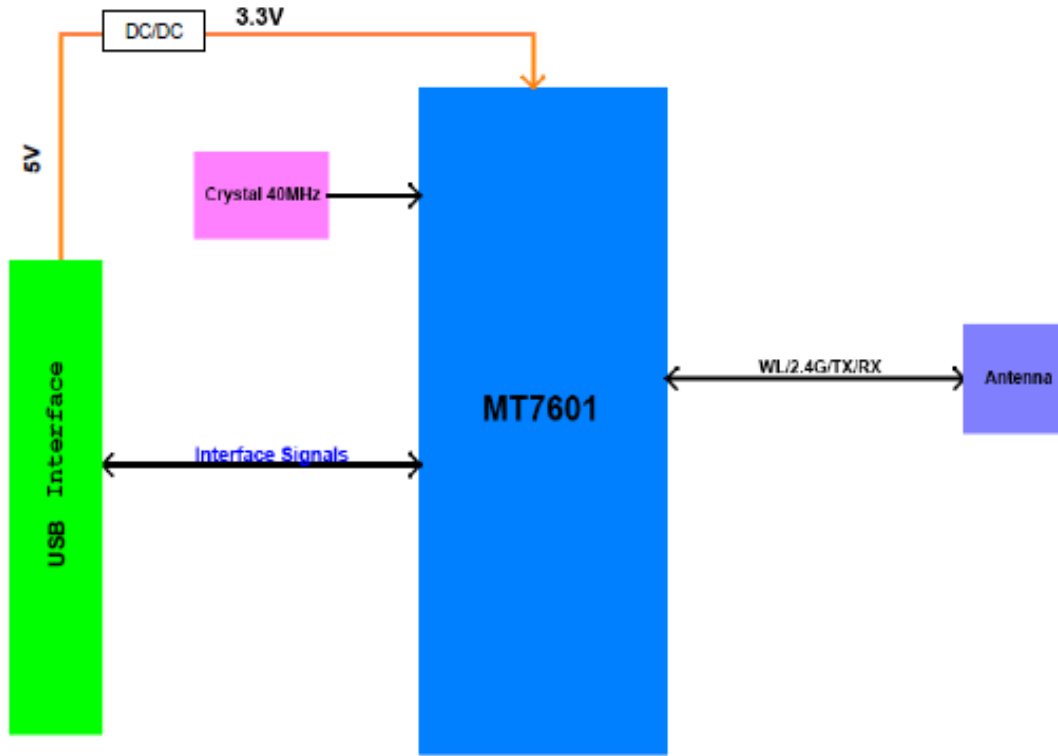
With seamless roaming, fully interoperability and advanced security with WEP standard, 802.11b/g/n USB Module offers absolute interoperability with different vendors 802.11 b, 802.11 g, 802.11n Access Points through the wireless LAN.

2. Features

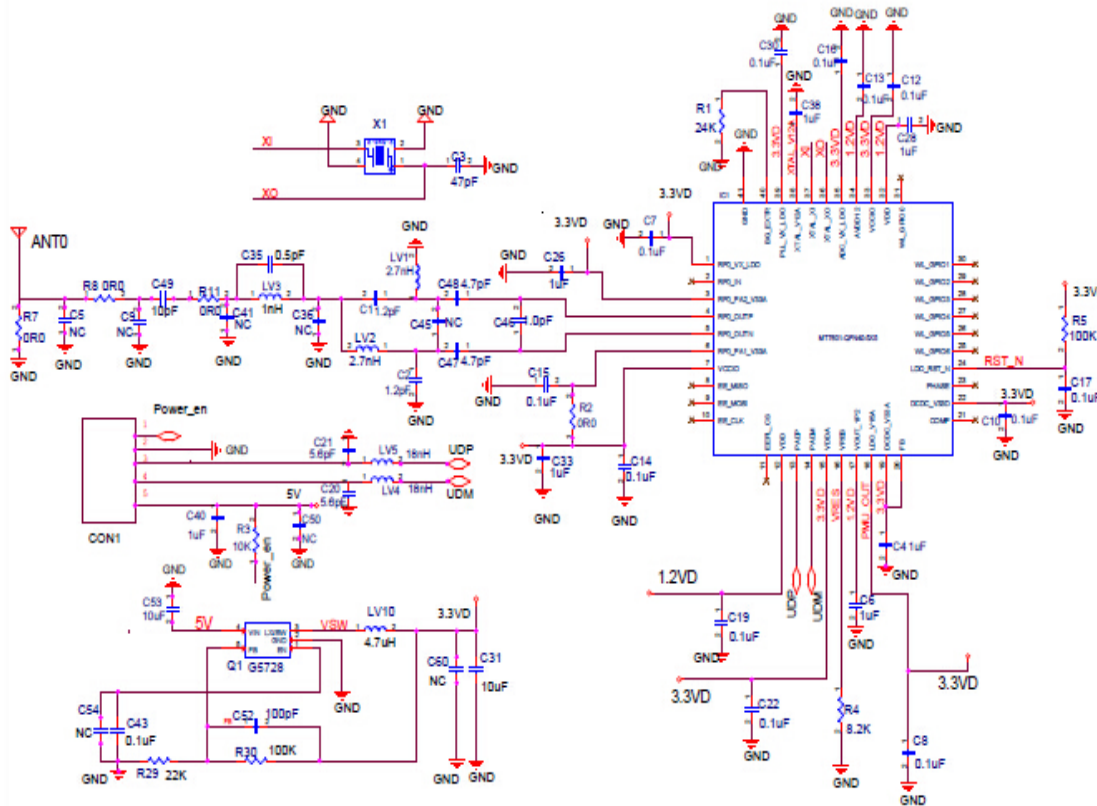
- Compatible with IEEE 802.11b standard to provide wireless 11Mbps data rate.
- Compatible with IEEE 802.11g standard to provide wireless 54Mbps data rate.
- Compatible with IEEE 802.11n standard to provide wireless 150Mbps data rate.
- Operation at 2.4G-2.5GHz frequency band to meet worldwide regulations
- Supports WEP, WPA, WPA2, TKIP, AES enhanced security
- Drivers support Windows XP 32/64, 2000, 7, Vista 32/64, Linux OS
- High speed USB 2.0 interface
- RoHS compliant

3. Application Diagrams

3.1 Functional Block Diagram



3.2 Schematic diagram



4. Part List

4.1 Part List

Type	Specification model	Number	Manufacturer
IC	MT7601U	1	MTK
	G5728	1	GUOCHAN
Capacitance	0201/50V/1pF/±0.1pF/COG	1	Murata
	0201/16V/100nF/±10%/X5R	2	
	0402/50V/0.5pF/±0.1pF/C0G	1	
	0402/50V/1.2pF/±0.1pF/C0G	2	
	0402/50V/4.7pF/±0.25pF/C0G	2	
	0402/50V/5.6pF/±0.25pF/C0G	2	
	0402/50V/10pF/±0.5pF/C0G	1	
	0402/50V/47pF/±5%/C0G	1	
	0402/50V/100pF/±5%/C0G	1	
	0402/16V/100nF/±10%/X7R	11	
	0402/10V/1uF/±10%/X5R	7	
	0603/6.3V/10uF/±20%/X5R	2	
	Resistance	0201 1/20W 100KΩ ±5%	
0402 1/16W 0Ω ±5%		4	
0402 1/16W 8.2KΩ ±1%		1	
0402 1/16W 10KΩ ±5%		1	
0402 1/16W 22KΩ ±5%		1	
0402 1/16W 24KΩ ±1%		1	
0402 1/16W 100KΩ ±5%		1	
Inductance	0402/1.0nH/±0.3nH	1	Muralist
	0402/2.7nH/±5%	2	
	0402/18nH/±5%	2	
	0805/4.7uH/±20%/700mA	1	
Crystal oscillator	40MHz,CL=15pF, 10ppm, LF SMD/3.2X2.5	1	GUOCHAN
Connector	1.25mm/WS/5/ 镀锡黑色 /A1253WRA-S5PN6BT1T00R	1	燦達
Shield	WF7E(不锈钢)	1	GUOCHAN

5. General Requirements

5.1 IEEE 802.11b Section

#	Feature	Detailed Description
5.1.1	Standard	<ul style="list-style-type: none"> IEEE 802.11b
5.1.2	Radio and Modulation Schemes	<ul style="list-style-type: none"> DQPSK , DBPSK , DSSS , and CCK
5.1.3	Operating Frequency	<ul style="list-style-type: none"> 2400 ~ 2497MHz ISM band
5.1.4	Channel Numbers	<ul style="list-style-type: none"> 11 channels for United States 13 channels for Europe Countries(Default) 14 channels for Japan
5.1.5	Data Rate	<ul style="list-style-type: none"> 11,5.5,2,and 1Mbps
5.1.6	Media Access Protocol	<ul style="list-style-type: none"> CSMA/CA with ACK
5.1.7	Transmitter Output Power at Antenna Connector	<ul style="list-style-type: none"> Typical RF Output Power at each RF chain,Data Rate and at room Temp. 25degree C 17dBm(± 2dB) at 1,2,5.5,11Mbps
5.1.8	Receiver Sensitivity at Antenna Connector	<ul style="list-style-type: none"> Typical Sensitivity at Which Frame(1000-byte PDUs)Error Rate=8% at room Temp 25 degree C -90 dBm at 2Mbps -81 dBm for 11Mbps

5.2 IEEE 802.11g Section

#	Feature	Detailed Description
5.2.1	Standard	<ul style="list-style-type: none"> IEEE 802.11g
5.2.2	Radio and Modulation Type	<ul style="list-style-type: none"> QPSK , BPSK , 16QAM ,64QAM with OFDM
5.2.3	Operating Frequency	<ul style="list-style-type: none"> 2400 ~ 2483.5MHz ISM band
5.2.4	Channel Numbers	<ul style="list-style-type: none"> 11 channels for United States 13 channels for Europe Countries(Default) 13 channels for Japan
5.2.5	Data Rate	<ul style="list-style-type: none"> 6,9,12,18,24,36,48,54Mbps
5.2.6	Media Access Protocol	<ul style="list-style-type: none"> CSMA/CA with ACK
5.2.7	Transmitter Output Power at Antenna Connector	<ul style="list-style-type: none"> Typical RF Output Power(tolerance± 2dB) at each RF chain, Data Rate and at roomTemp. 25 degree C 17± 2dB dBm at 6,9Mbps 17± 2dB dBm at 12,18Mbps 17± 2dB dBm at 24,36Mbps 16± 2dB dBm at 48,54Mbps
5.2.8	Receiver Sensitivity at Antenna Connector	<ul style="list-style-type: none"> Typical Sensitivity at each RF chain. Frame(1000-byte PDUs)Error Rate=10% at room Temp 25 degree C -87 dBm at 6Mbps -86 dBm at 9Mbps -84 dBm at 12Mbps -82 dBm at 18Mbps -80 dBm at 24Mbps -76 dBm at 36Mbps -72 dBm at 48Mbps



PRODUCTS SPECIFICATION

W79M1510S

		. -71 dBm at 54Mbps
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5.3 IEEE 802.11n Section

#	Feature	Detailed Description																																																	
5.3.1	Standard	. IEEE 802.11n																																																	
5.3.2	Radio and Modulation Type	. BPSK , QPSK , 16QAM ,64QAM with OFDM																																																	
5.3.3	Operating Frequency	. 2400 ~ 2483.5MHz																																																	
5.3.4	Data Rate(Mbps)	<table border="1"> <thead> <tr> <th rowspan="2">MCS</th> <th colspan="2">GI=800ns</th> <th colspan="2">GI=400ns</th> </tr> <tr> <th>20MHz</th> <th>40MH</th> <th>20MHz</th> <th>40MHz</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>6.5</td> <td>13.5</td> <td>7.2</td> <td>15</td> </tr> <tr> <td>1</td> <td>13</td> <td>27</td> <td>14.4</td> <td>30</td> </tr> <tr> <td>2</td> <td>19.5</td> <td>40.5</td> <td>21.7</td> <td>45</td> </tr> <tr> <td>3</td> <td>26</td> <td>54</td> <td>28.9</td> <td>60</td> </tr> <tr> <td>4</td> <td>39</td> <td>81</td> <td>43.3</td> <td>90</td> </tr> <tr> <td>5</td> <td>52</td> <td>108</td> <td>57.8</td> <td>120</td> </tr> <tr> <td>6</td> <td>58.5</td> <td>121.5</td> <td>65.0</td> <td>135</td> </tr> <tr> <td>7</td> <td>65</td> <td>135</td> <td>72.2</td> <td>150</td> </tr> </tbody> </table>	MCS	GI=800ns		GI=400ns		20MHz	40MH	20MHz	40MHz	0	6.5	13.5	7.2	15	1	13	27	14.4	30	2	19.5	40.5	21.7	45	3	26	54	28.9	60	4	39	81	43.3	90	5	52	108	57.8	120	6	58.5	121.5	65.0	135	7	65	135	72.2	150
		MCS		GI=800ns		GI=400ns																																													
			20MHz	40MH	20MHz	40MHz																																													
		0	6.5	13.5	7.2	15																																													
		1	13	27	14.4	30																																													
		2	19.5	40.5	21.7	45																																													
		3	26	54	28.9	60																																													
		4	39	81	43.3	90																																													
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6	58.5	121.5	65.0	135																																															
7	65	135	72.2	150																																															
5.3.5	Media Access Protocol	<ul style="list-style-type: none"> CSMA/CA with ACK 																																																	
5.3.6	Transmitter Output Power at Antenna Connector	<ul style="list-style-type: none"> Typical RF Output Power(tolerance±2dB) at each RF chain,Data Rate and at roomTemp. 25degree C HT-20 <ul style="list-style-type: none"> 16±2dBm at MCS0~7 HT-40 <ul style="list-style-type: none"> 16±2dBm at MCS0~7 																																																	
5.3.7	Receiver Sensitivity at Antenna Connector	<ul style="list-style-type: none"> Typical Sensitivity at Which Frame(1000-byte PDUs)Error Rate=10% at roomTemp. 25degree C HT-20 <ul style="list-style-type: none"> -87dBm at MCS0/8 -84dBm at MCS1/9 -82dBm at MCS2/10 -79dBm at MCS3/11 -76dBm at MCS4/12 -72dBm at MCS5/13 -70dBm at MCS6/14 -69dBm at MCS7/15 HT-40 <ul style="list-style-type: none"> -84dBm at MCS0/8 -81dBm at MCS1/9 -80dBm at MCS2/10 -76dBm at MCS3/11 -73dBm at MCS4/12 -69dBm at MCS5/13 -68dBm at MCS6/14 -66dBm at MCS7/15 																																																	

6. Electrical and Thermal Characteristics

6.1 Temperature Limit Ratings

Parameter	Minimum	Maximum	Units
Storage Temperature	-40	+80	°C
Ambient Operating Temperature	0	+60	°C
Junction Temperature	0	+125	°C

6.2 General Section

#	Feature	Detailed Description
6.2.1	Antenna Type	<ul style="list-style-type: none"> PIFA antenna
6.2.2	Operating Voltage	<ul style="list-style-type: none"> 5.0V±10%
6.2.3	Current Consumption	<ul style="list-style-type: none"> 350mA at continuous transmit mode 220mA at receive mode w/o receiving packet
6.2.4	Form Factor and Interface	<ul style="list-style-type: none"> High Speed USB2.0 Interface
6.2.5	Connector	<ul style="list-style-type: none"> 1.25-5 pin connector (see appendix)

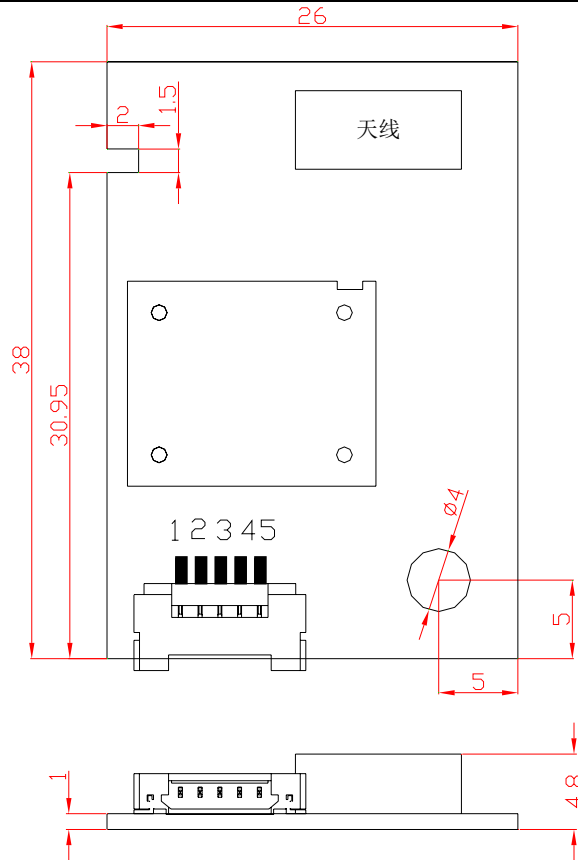
6.3 Software

Driver	Windows XP 32/64, 2000, 7,Vista 32/64, Linux OS
Security	WEP ,WPA ,WPA2,TKIP,AES

6.4 Mechanical Requirements

#	Feature	Detailed Description
6.4.1	Length	<ul style="list-style-type: none"> 38mm(PCB) MAX: 38.9mm
6.4.2	Width	<ul style="list-style-type: none"> 26mm
6.4.3	Height	<ul style="list-style-type: none"> 1.0mm(PCB) MAX: 5.2mm

6.5 Mechanical Dimensions



·注1*: 未标注公差±0.3mm.

6.6 Pin Description

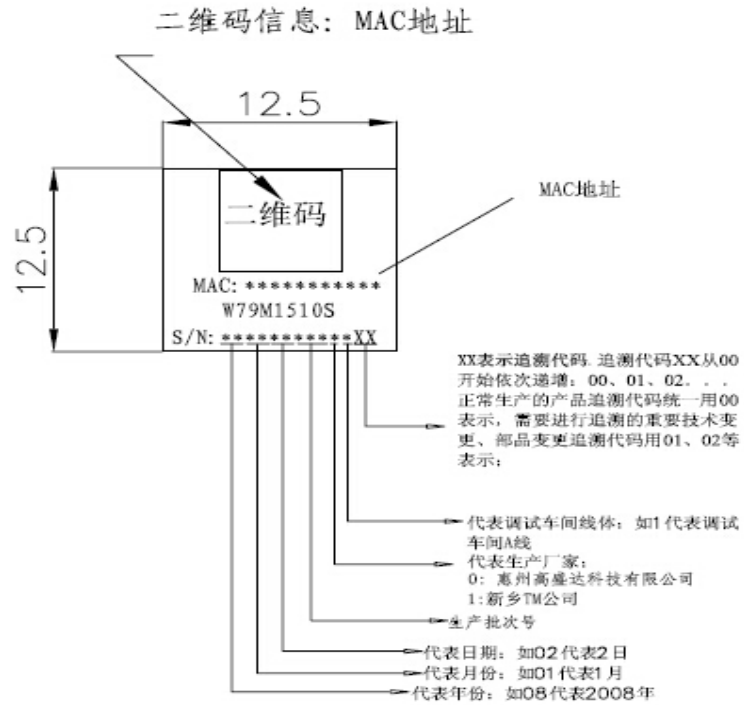
1.25-5 Pin connector

Pin	1	2	3	4	5
Definition	Power_EN	GND	D+	D-	VCC(5V)

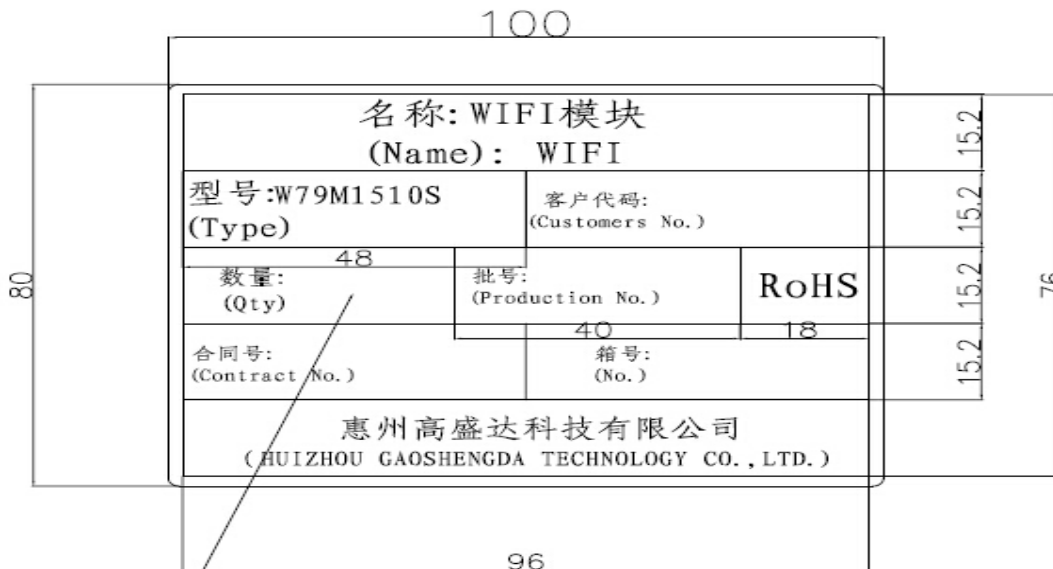
7. label list & Package

7.1 Module label

RoHS

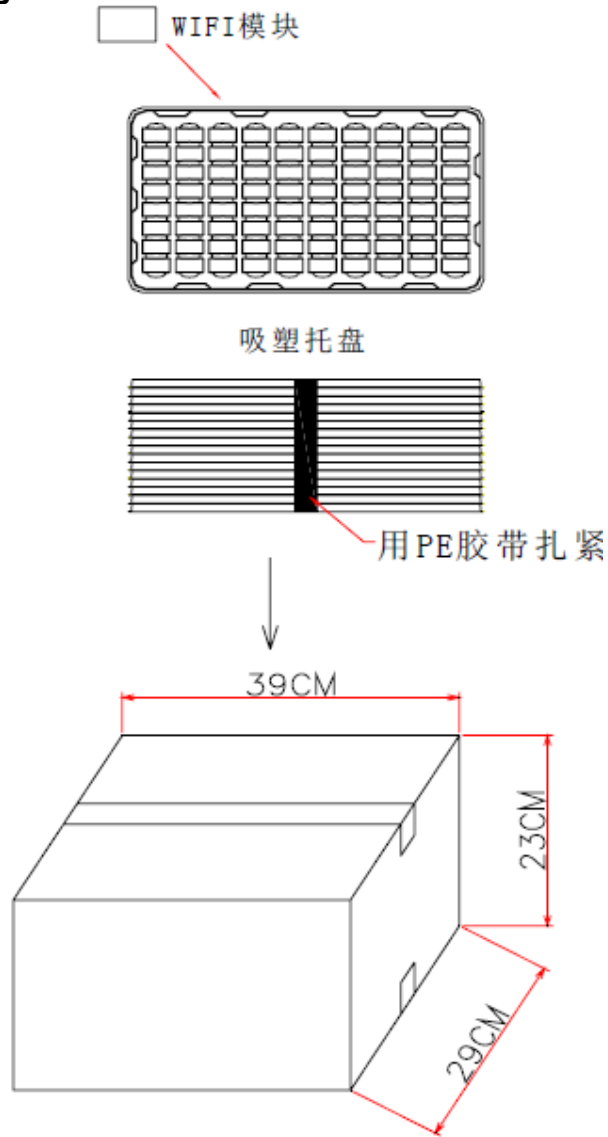


7.2 box label



一箱内的包装数量

7.3 Package



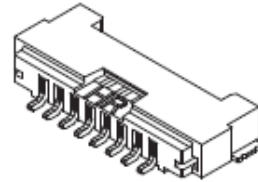
注：每个吸塑托盘装50PCS模组；每只箱装2000PCS模组。

appendix 1: 1.25mm*5PIN SMT connector

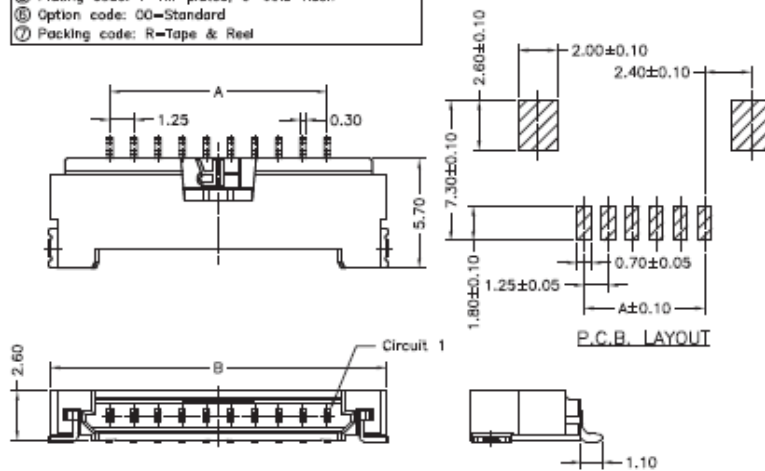
A1253WRA-S —1.25mm pitch 90° Wafer - SMT TYPE, A TYPE—

Reference Informations:

- *Material: Pin: Brass/Tin-plated
Solder Tabs: Brass/Tin-plated
Wafer: Nylon 6T,UL94V-0
- *Mates with H.R A1253HA series Housing



	A1253WRA-S-05P	N	6	B	T1	T	00	R
①	N=Halogen Free	①	②	③	④	⑤	⑥	⑦
②	Material: 6=Nylon 6T							
③	Color: B=Black							
④	Plating code: T1=Tin-plated, G1=Gold-flash							
⑤	Plating code: T=Tin-plated, G=Gold-flash							
⑥	Option code: 00=Standard							
⑦	Packing code: R=Tape & Reel							



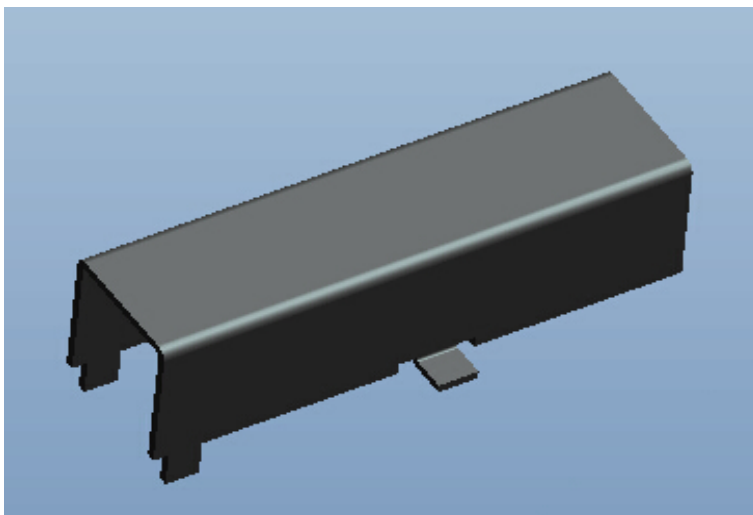
Ordering Information & Dimensions:

PART NO.	Dimensions	
	A	B
A1253WRA-S-02P	1.25	7.45
A1253WRA-S-03P	2.50	8.70
A1253WRA-S-04P	3.75	9.95
A1253WRA-S-05P	5.00	11.20
A1253WRA-S-06P	6.25	12.45
A1253WRA-S-07P	7.50	13.70
A1253WRA-S-08P	8.75	14.95
A1253WRA-S-09P	10.00	16.20
A1253WRA-S-10P	11.25	17.45
A1253WRA-S-11P	12.50	18.70
A1253WRA-S-12P	13.75	19.95
A1253WRA-S-13P	15.00	21.20
A1253WRA-S-14P	16.25	22.45
A1253WRA-S-15P	17.50	23.70
A1253WRA-S-20P	23.75	29.95
A1253WRA-S-25P	30.00	36.20
A1253WRA-S-30P	36.25	42.45

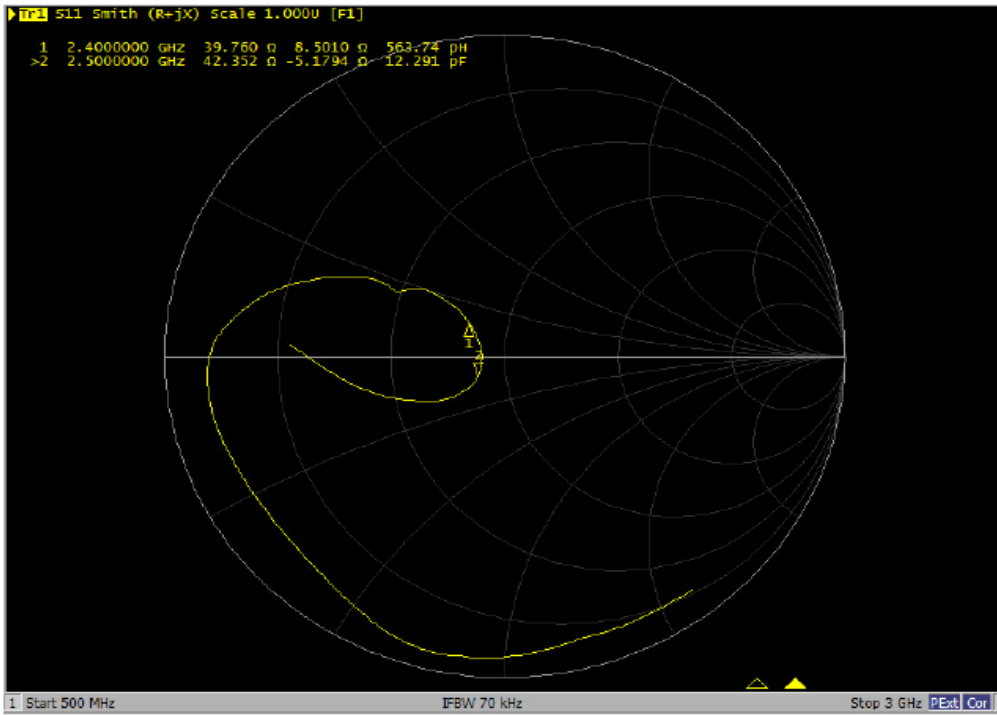
Unit:mm

appendix 2: Antenna Specifications

2.1 Antenna shape chart



2.2 Smith chart



2.3 Direction chart

方向图

