

## Product Specification

Mode: AR-S6256PU

Port type: USB

Version: V1.0

Date: 2022-03-25

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### Release Record

Version	Release Date	Comments
V1.0	2022-03-25	Init

## LIST OF CONTENTS

<b>1 INTRODUCTION.....</b>	<b>4</b>
1.1 GENERAL DESCRIPTION.....	4
1.2 FEATURES.....	4
1.3 APPLICATIONS.....	4
<b>2 FUNCTIONAL BLOCK DIAGRAM.....</b>	<b>5</b>
<b>3 PRODUCT TECHNICAL SPECIFICATIONS.....</b>	<b>6</b>
3.1 GENERAL SPECIFICATIONS.....	6
3.2 DC POWER CONSUMPTION.....	7
3.3 RF SPECIFICATIONS.....	8
<b>4 PIN ASSIGNMENTS.....</b>	<b>9</b>
<b>5 APPLICATION INFORMATION.....</b>	<b>10</b>
5.1 TYPICAL APPLICATION CIRCUIT.....	10
<b>6 MECHANICAL SPECIFICATIONS.....</b>	<b>11</b>
<b>7 OTHERS.....</b>	<b>12</b>
7.1 PACKAGE INFORMATION.....	12
7.2 STORAGE TEMPERATURE AND HUMIDITY.....	12
7.3 RECOMMENDED REFLOW PROFILE.....	12

## 1 Introduction

### 1.1 General Description

AR-SV6256PU wireless USB module is designed base on SV6256P. It operates at 2.4~2.4835GHz and 5.15~5.85GHz supports IEEE802.11a/b/g/n 1T1R , wireless data rate can reach up to 150Mbps. The USB interface complies with USB 2.0. It supports external antenna, which adapts different kinds of work environment. It's easy and convenient to connect wireless network.

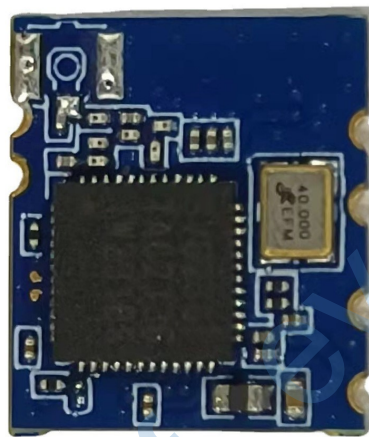


Figure 1 Top View

**Note:** The above pictures are for reference only the AR-SV6256PU (The same PCB board).

### 1.2 Features

- Operating Frequencies : 2.4~2.4835GHz and 5.15~5.85GHz
- Host Interface is USB, complies with USB 2.0
- IEEE Standards : IEEE 802.11a/b/g/n
- Wireless data rate can reach up to 150Mbps
- Connect with external antenna through the half hole
- Power Supply: 3.3V±0.2V

### 1.3 Applications

- MID
- IP Camera
- STB
- Smart TV
- E-book
- Other devices which need to be supported by wireless network

## 2 Functional Block Diagram

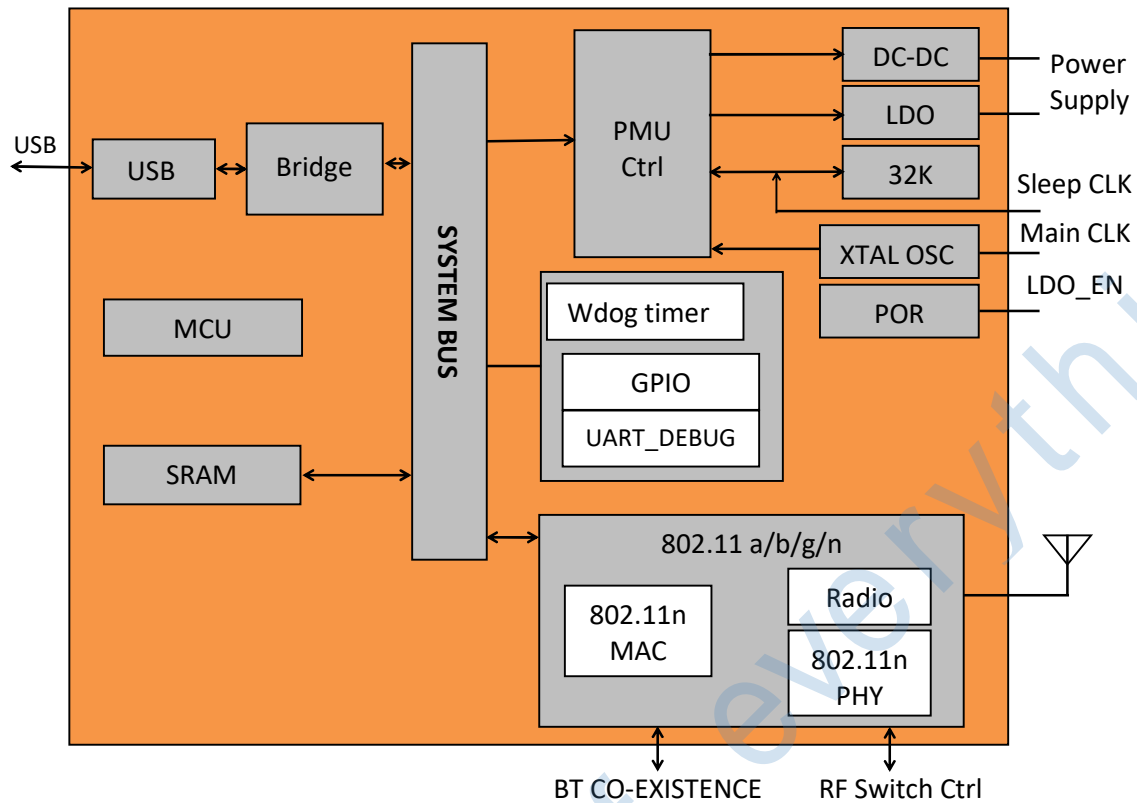


Figure 2 SV6256P block diagram

## 3 Product Technical Specifications

### 3.1 General Specifications

Item	Description
Product Name	AR-SV6256PU
Main Chip	SV6256P
Host Interface	USB2.0
IEEE Standards	IEEE 802.11a/b/g/n
Operating Frequencies	2.4GHz~2.4835GHz /5.15~5.85Hz
Modulation	802.11b: CCK, DQPSK, DBPSK 802.11a/g: 64-QAM, 16-QAM, QPSK, BPSK 802.11n: 64-QAM, 16-QAM, QPSK, BPSK
Working Mode	Infrastructure, Ad-Hoc
Wireless Data Rate	802.11b: 1, 2, 5.5, 11Mbps 802.11g: 6, 9, 12, 18, 24, 36, 48, 54Mbps 802.11a: 6, 9, 12, 18, 24, 36, 48, 54Mbps 802.11n: MCS0~7, HT20 reach up to 72.2Mbps; 802.11n: MCS0~7, HT40 reach up to 150 Mbps
Rx Sensitivity	-95dBm (Min)
TX Power	18.5dBm (Max)
Antenna Type	Connect with external antenna optional through the half hole
Dimension(L*W*H)	13.0*12.3*1.67mm (L*W*H) , Tolerance: ±0.15mm
Power Supply	3.3V±0.2V
Clock Source	24MHz
Power Consumption	monitor mode 70 mA@3.3V (Max) TX mode 390mA@3.3V (Max)
Working Temperature	-10°C to +50°C
Storage Temperature	-40°C to +70°C

#### ESD CAUTION:

Although this module is designed to be as robust as possible, Electrostatic Discharge (ESD) can damage this module. It must be protected from ESD at all times and handled under the protection of ESD.

### 3.2 DC Power Consumption

Vcc=3.3V, Ta = 25 °C, unit: mA				
Supply current	Typ.		Max	
Standby (RF disabled)	40		70	
<b>802.11b</b>	<b>1Mbps</b>		<b>11Mbps</b>	
Supply current	Typ.	Max.	Typ.	Max.
Continuous TX mode	288	312	290	324
monitor RX mode	60	85	61	85
<b>802.11g</b>	<b>6Mbps</b>		<b>54Mbps</b>	
Supply current	Typ.	Max.	Typ.	Max.
Continuous TX mode	286	334	253	296
monitor RX mode	61	85	60	69
<b>802.11n HT20</b>	<b>MCS0</b>		<b>MCS7</b>	
Supply current	Typ.	Max.	Typ.	Max.
Continuous TX mode	288	336	254	292
monitor RX mode	60	84	59	69
<b>802.11n HT40</b>	<b>MCS0</b>		<b>MCS7</b>	
Supply current	Typ.	Max.	Typ.	Max.
Continuous TX mode	299	340	259	296
monitor RX mode	66	92	85	108
<b>802.11a</b>	<b>6Mbps</b>		<b>54Mbps</b>	
Supply current	Typ.	Max.	Typ.	Max.
Continuous TX mode	341	380	316	356
RX mode	84.7	108	82.3	90
<b>802.11n HT20(5G)</b>	<b>MCS0</b>		<b>MCS7</b>	
Supply current	Typ.	Max.	Typ.	Max.
Continuous TX mode	340	384	319	352
RX mode	84	108	83	92
<b>802.11n HT40(5G)</b>	<b>MCS0</b>		<b>MCS7</b>	
Supply current	Typ.	Max.	Typ.	Max.
Continuous TX mode	347	380	321	356
RX mode	90	116	88	95

### 3.3 RF Specifications

TX Power&EVM					WiFi-2.4G:802.11b:17±1.5dBm 802.11g:14±1.5dBm 802.11n HT20/HT40:14±1.5dBm WiFi-5G: 802.11a: 13±1.5dBm 802.11n HT20/HT40:13±1.5dBm								
TX Power&EVM					802.11b: <-20dB@11Mbps 802.11g: <-27dB@54Mbps 802.11nHT20:< -28dB@65Mbps 802.11nHT40:< -28dB@135Mbps								
Receiver Minimum Input Sensitivity@PER					1Mbps: -92dBm@PER<8%; 11Mbps:-86dBm@PER<8%; 54Mbps:-70dBm@PER<10%; 72.2Mbps:-68dBm@PER<10%; 135Mbps:-65dBm@PER<10%;								
RF Test Report													
Mode	Rate(Mbps)	Power(dBm)			EVM(dB)			Sensitivity(dBm)					
		CH1	CH7	CH13	CH1	CH7	CH13	CH1	CH7	CH13			
11b	1	17.52	17.65	17.85	-31.88	-31.89	-31.22	-95	-95	-95			
	11	17.54	17.72	17.82	-31.10	-31.51	-31.10	-87	-87	-86			
11g	6	17.33	17.23	17.33	-24.51	-23.52	-23.31	-90	-90	-90			
	54	14.28	14.24	14.32	-30.82	-30.48	-30.45	-73	-73	-72			
11n	MCS0	17.44	17.24	17.32	-23.55	-23.56	-23.57	-89	-89	-89			
HT20	MCS7	14.33	14.43	14.35	-30.24	-30.55	-30.44	-70	-70	-69			
Mode	Rate(Mbps)	Power(dBm)			EVM(dB)			Sensitivity(dBm)					
		CH3	CH7	CH11	CH3	CH7	CH11	CH3	CH7	CH11			
11n	MCS0	17.66	17.66	17.67	-23.26	-23.68	-23.46	-86	-86	-86			
HT40	MCS7	14.60	14.71	14.76	-30.60	-30.30	-30.10	-67	-67	-67			
5G													
Mode	Rate (Mbps)	Power(dBm)				EVM(dB)				Sensitivity(dBm)			
		CH 36	CH1 00	CH 140	CH 161	CH 36	CH100	CH140	CH161	CH 36	CH 100	CH 140	CH 161
11a	6	16.54	16.27	16.45	16.65	-24.53	-23.68	-23.02	-23.09	-89	-89	-89	-89
	54	13.50	13.70	13.18	13.78	-30.11	-30.61	-30.30	-30.10	-72	-72	-72	-71
Mode	Rate (Mbps)	Power(dBm)				EVM(dB)				Sensitivity(dBm)			
		CH 38	CH 102	CH 142	CH 159	CH 38	CH102	CH142	CH159	CH 38	CH 102	CH 142	CH 159
11n 40	MCS0	16.54	16.27	16.45	15.65	-29.53	-29.68	-29.02	-28.39	-86	-86	-86	-86
	MCS7	13.52	13.72	13.41	13.63	-30.03	-30.03	-30.10	-30.10	-65	-65	-65	-65



## 4 Pin Assignments

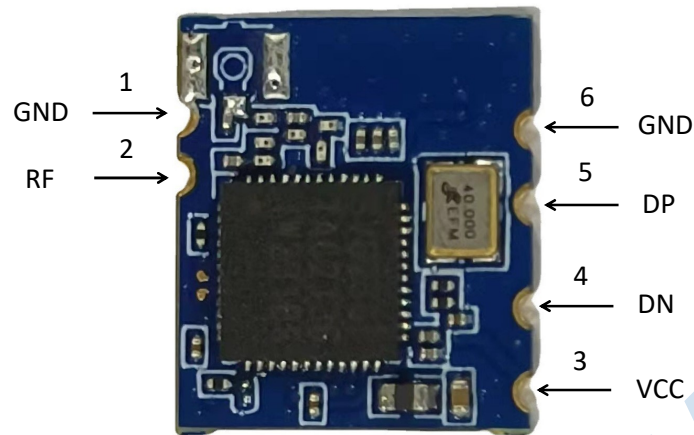


Figure 3 Pin Assignments (Top view)

The following signal type codes are used in the tables:

I:Input

O:Output

O/D: Open Drain

P:Power Pin

Pin No:	Pin Name	Type	Description
1	GND	P	Ground
2	RF	I/O	WLAN RF pad
3	VCC	P	VDD3.3V power supply
4	DN	I/O	USB DN
5	DP	I/O	USB DP
6	GND	P	Ground

## 5 Application Information

### 5.1 Typical Application Circuit

RF reference circuit

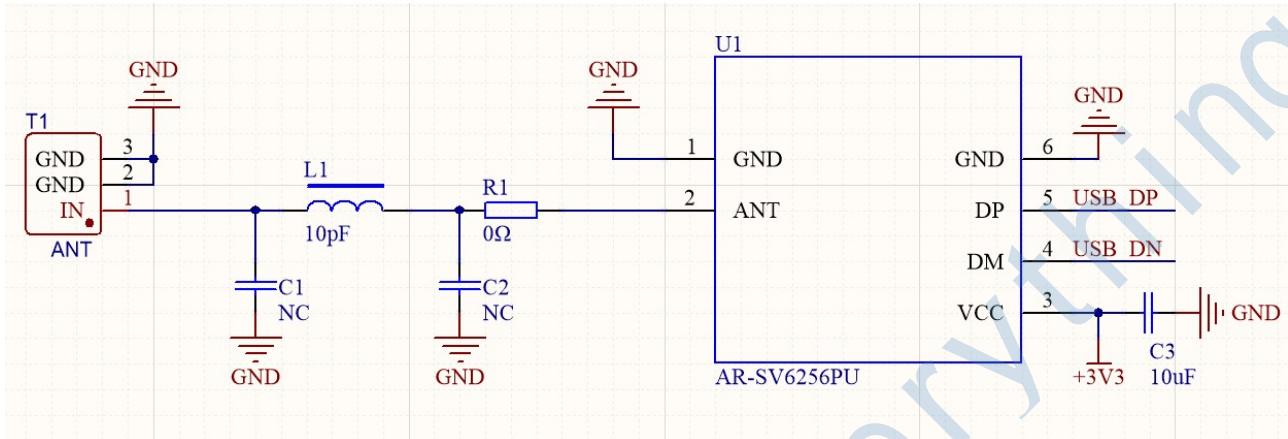
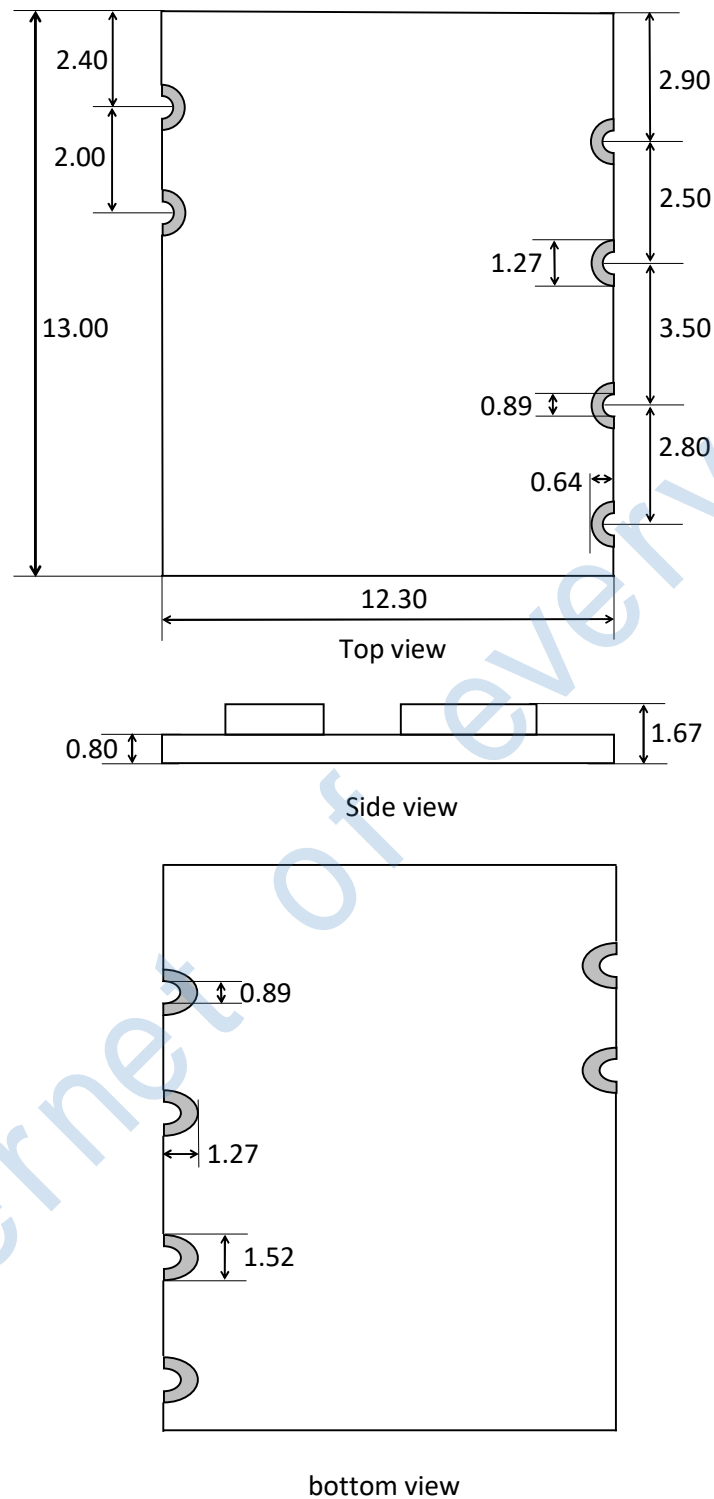


Figure 4 Typical application circuit

**NOTE:** RF trace need to keep 50 ohm impedance.

## 6 Mechanical Specifications



Module dimension: Typical ( L\*W \* H): 13.0mm\*12.3mm\*1.5mm    Tolerance : +/-0.15mm

Figure 5 Module dimension

## 7 Others

### 7.1 Package Information



### 7.2 Storage Temperature and Humidity

1. Storage Condition: Moisture barrier bag must be stored under 30℃, humidity under 85% RH. Humidity indicator cards must be blue, <30%.

2. Products require baking before mounting if humidity indicator cards reads > 30% temp < 30℃, humidity < 70% RH, over 96 hours. Baking condition: 125℃, 12 hours. Baking times: 1 time.

### 7.3 Recommended Reflow Profile

Reflow soldering shall be done according to the solder reflow profile, Typical Solder Reflow Profile is illustrated in Figures 8. The peak temperature is 245℃.

