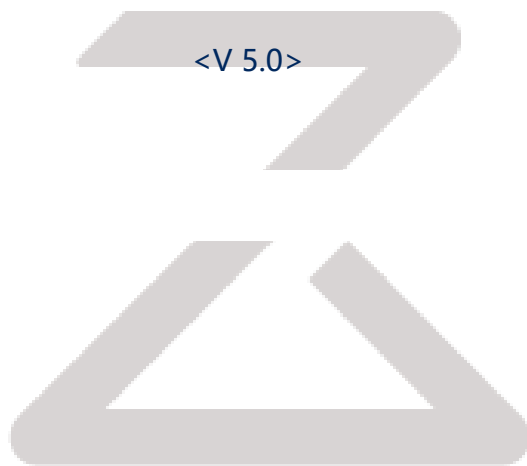


## BL-M3881NT1 SPEC

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## 1. General Description

The BL-M3881NT1 is a highly integrated WLAN module designed base on HiSilicon Hi3881. It support the IEEE 802.11b/g/n with 20MHz standard bandwidth and 5MHz/10MHz narrow bandwidth, provides the highest PHY rate up to 72.2Mbps@1T1R. This module integrates a high-performance 32-bit microprocessor and 2.4 GHz WLAN subsystem, support SDIO2.0 with clock frequency up to 50 MHz.

BL-M3881NT1 is applicable to smart home appliances, intelligent lock, cameras, switch buttons and other smart wireless devices. It is also better to the IP camera, over the top (OTT), set-top box (STB), and TV appliances.

## 2. Product Model Information

<b>Model Number</b>	BL-M3881NT1
<b>FCC ID</b>	2AN2O-RSW05
<b>IC</b>	23317-RSW05

## 3. WIFI Specification

### 3.1 WIFI features

- a) Operate at ISM frequency Band (2.4GHz);
- b) IEEE standards support, 802.11 b/g/n,;
- c) Enterprise level security supporting: WEP 64bit&128bit, WPA, WPA2, WPA2-PSK and IEEE802.11i;
- d) IEEE 802.11e QoS Enhancement(WMM);
- e) Support 1 transmission and 1 receiving, transmission rate can up to 150Mbps (Physical Rate) in downstream and upstream.

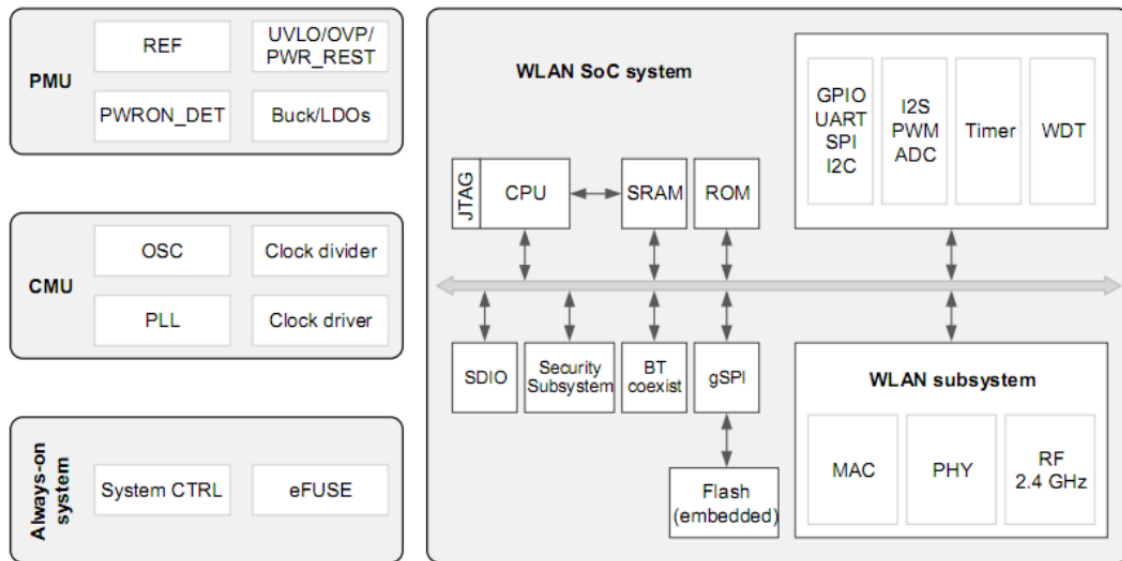
When it operating in the 2.4GHz ISM band (2.4~2.4835GHz,11 Channels).it support wireless WLAN standards include 802.11b/g/n, communication has 11 channels, whose center frequencies are

CH1: 2412MHz, CH2: 2417MHz, CH3: 2422MHz, CH4: 2427MHz, CH5: 2432MHz, CH6: 2437MHz, CH7: 2442MHz, CH8: 2447MHz, CH9: 2452MHz, CH10: 2457MHz, CH11:2462MHz respectively.

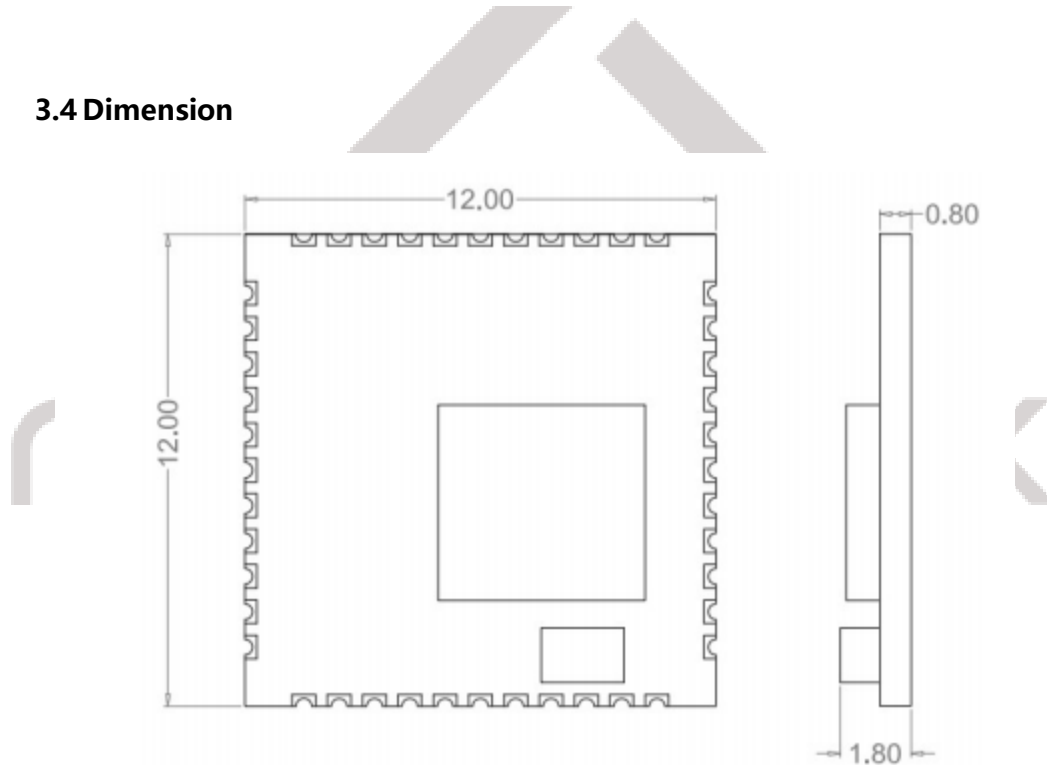
### 3.2 WIFI RF Performance

Feature	Description
Standard	IEEE 802.11 b/g/n
Data Rate	802.11 b: 11, 5.5, 2, 1 Mbps 802.11 /g: 54, 48, 36, 24, 18, 12, 9, 6 Mbps 802.11 n: MCS 0 to 7 for HT20MHz: 65 Mbps
Modulation mode	IEEE 802.11b mode: CCK, DQPSK, DBPSK IEEE 802.11g mode: 64QAM, 16QAM, QPSK, BPSK IEEE 802.11n mode : 64QAM, 16QAM, QPSK, BPSK
Network Architecture	Ad-hoc Mode(Peer-to-Peer) Infrastructure mode Scatter Net
Frequency Band	2.4GHz band: 2.4~2.4835GHz
Transmit Output Power (Tolerance: +/-2.5dBm)	802.11 b: 19dBm;(Peak) 802.11 g: 21dBm; (Peak) 802.11 n (2.4GHz):20.5dBm(Peak): 20MHz;
Antenna Type	1x1 Diversity

### 3.3 Block Diagram

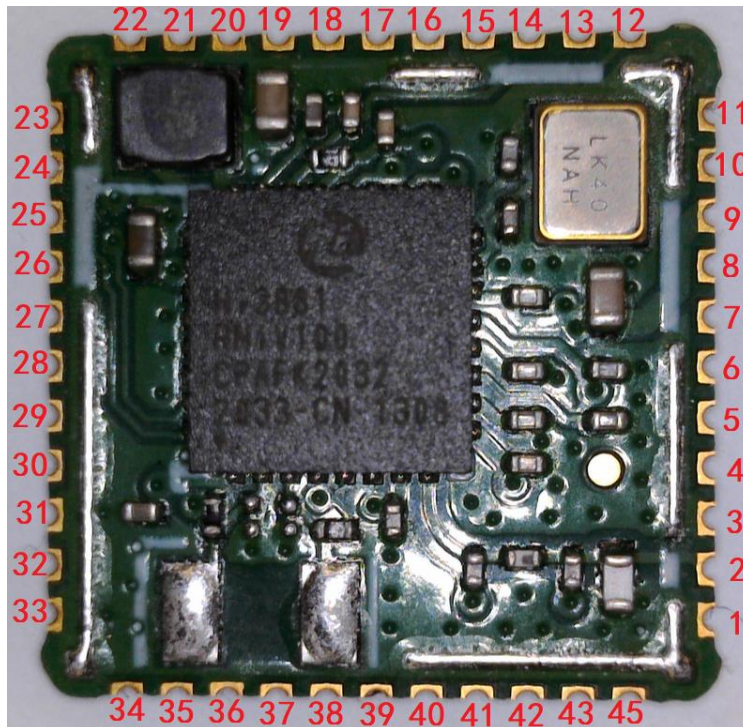


### 3.4 Dimension



Module dimension: 12.0\*12.0\*1.80mm(L\*W\*H; Tolerance: ±0.15mm)

### 3.5 PIN Assignment



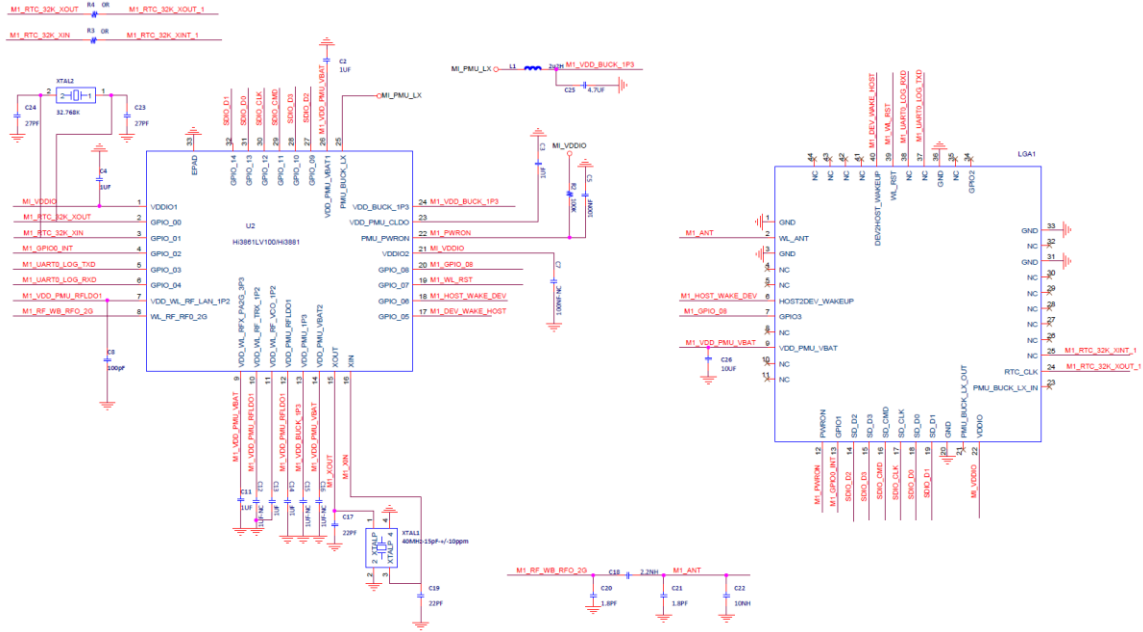
Pin #	Name	Type	Description
1	GND	P	Ground
2	ANT	RF	RF I/O port for WLAN ANT
3	GND	P	Ground
4~5	NC	/	--No Connection,keep Floating
6	GPIO6	I	HOST to wake-up Device, rising edge trigger(GPIO6)
7-8	NC	/	--No Connection,keep Floating
9	VDD	P	Main power voltage input 2.3V-3.6V
10-11	NC	/	--No Connection,keep Floating
12	PWR_ON	I	Module chip Power enable, pull high when module work,pull low disable power
13	NC	/	--No Connection,keep Floating
14	SDIO_DATA_2	I/O	SDIO data line 2
15	SDIO_DATA_3	I/O	SDIO data line 3t
16	SD_CMD	I/O	SDIO command line
17	SD_CLK	I/O	SDIO CLK line

18	SDIO_DATA_0	I/O	SDIO data line 0
19	SDIO_DATA_1	I/O	SDIO data line 1
20	GND	P	Ground
21	NC	/	--No Connection,keep Floating
22	VDIO	P	Supply voltage for IO 3.3V or 1.8V,i/o supply by host
23	NC	/	--No Connection,keep Floating
24~30	NC	/	--No Connection,keep Floating
31	GND	P	Ground
32	NC	/	--No Connection,keep Floating
33	GND	P	Ground
34~35	NC	/	--No Connection,keep Floating
36	GND	P	Ground
37~38	NC	/	--No Connection,keep Floating
39	WL_RST	I/O	WI-FI reset signal PIN, setting to low asserts a global reset, setting to high desserts a global reset (GPIO7)
40	GPIO5	O	Device to wake-up host, rising edge trigger (GPIO5)
41~44	NC	/	--No Connection,keep Floating

I: input O: output P: power

### 3.6 Schematic

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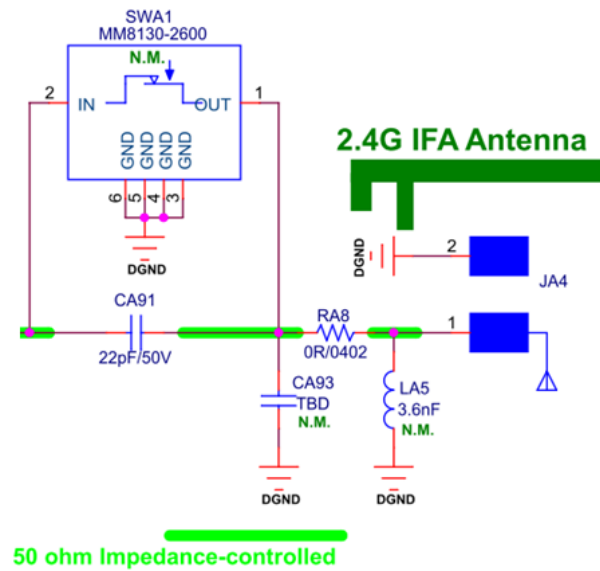
## 4. Antenna Specification

### 4.1 Antenna lists

No.	Type	Band(s)	Max Peak Gain(dBi)	Host Model
1	PCB antenna	2.4GHz - 2.5GHz	3.7	S501-01, S511-01, S551-01
2	PCB antenna	2.4GHz - 2.5GHz	3.3	roborock S6
3	PCB antenna	2.4GHz - 2.5GHz	4.2	roborock S4
4	PCB antenna	2.4GHz - 2.5GHz	3.7	roborock S5 Max
5	PCB antenna	2.4GHz - 2.5GHz	3.7	S5 Max

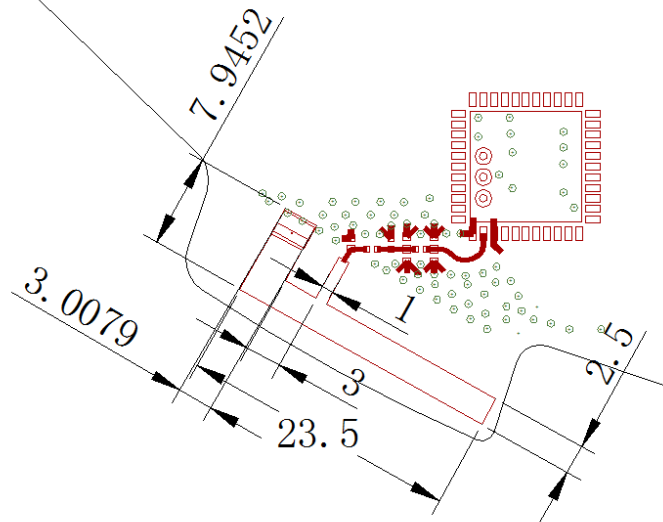


## 4.2 Wireless LAN antenna matching circuit

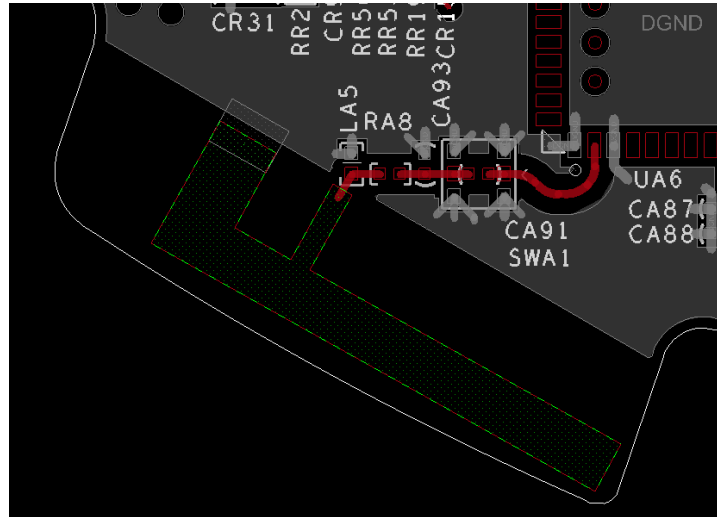


## 4.3 Antenna design requirements

- RF-line need 50Ω single line impedance;
- Antenna is 2.4G WiFi Frequency band MIFA type Board antenna
- Antenna length, width, shape(s) as follows, Company: mm;



- d) PCB thickness is 1.5mm, Copper-Layer 6, Antenna is Layer1;
- e) Antenna put on the edge of the pcb, Clearance around and below;



## 5. FCC and IC Warning

This device complies with Part 15 of the FCC Rules / Industry Canada licence-exempt RSS standard(s). 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.

*Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.*

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful

interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

To satisfy FCC / IC RF exposure requirements, a separation distance of 20 cm or more should be maintained between the antenna of this device and persons during device operation. To ensure compliance, operations at closer than this distance is not recommended.

*Les antennes installées doivent être situées de façon à ce que la population ne puisse y être exposée à une distance de moins de 20 cm. Installer les antennes de façon à ce que le personnel ne puisse approcher à 20 cm ou moins de la position centrale de l'antenne. La FCC des états-unis stipule que cet appareil doit être en tout temps éloigné d'au moins 20 cm des personnes pendant son fonctionnement.*

Limited by local law regulations, version for North America does not have region selection option.

This device is intended for OEM integrators only. Please see the full grant of equipment document for restrictions.

If the FCC ID of this module is not visible when it is installed inside another device, then the outside of the device into which the module is installed must be label with

*"Contains FCC ID: 2AN20-RSW05 and IC: 23317-RSW05".*