

A28 PRO WIFI MODULE

A28PROWIFI WIFI Module

Specification

File status: <input type="checkbox"/> Draft <input checked="" type="checkbox"/> Published <input type="checkbox"/> Pending	File name:	Product specification
	Version:	V1.3
	Editor:	Henry Ho
	Finished date:	2023-10-12

Version	Editor	Participator	Valid from	Remark
V1.3	Henry Ho		2023-10-12	

0 Amendment

1 General Description

The iotTech iTM1058 is a low-cost and a highly integrated WLAN module which has all of the Wi-Fi functionalities. The highly integrated module makes the possibilities of web browsing, VoIP, headsets and other applications. With seamless roaming capabilities and advanced security, also could interact with all WIFI Access Points in the market.

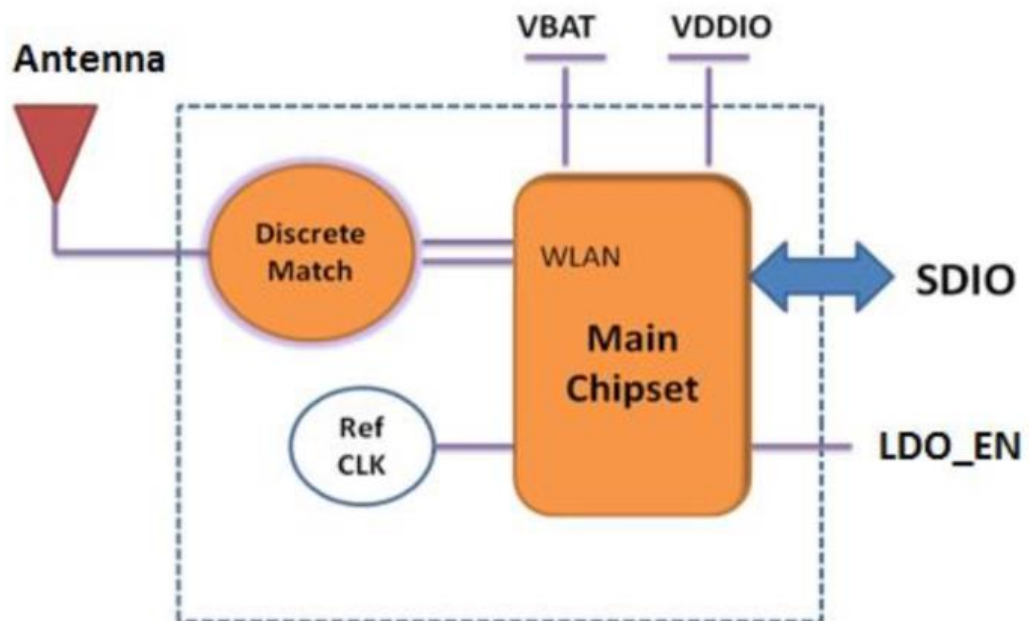
iTM1058 is designed to support IEEE 802.11 b/g/n single stream with the state-of-the-art design techniques and process technology to achieve low power consumption and high throughput performance to address the requirement of mobile and handheld devices. iTM1058 low power function uses the innovative design techniques and the optimized architecture which best utilizes the advanced process technology to reduce active and idle power, and achieve extreme low power consumption at sleep state to extend the battery life.

This compact module iTM1058 is a total solution for Wi-Fi technologies. It is specifically developed for portable devices, and can minimize the resource consumption of CPU and memory for enabling Wi-Fi communication. iTM1058 provides SDIO host interface for external CPU.

2 Feature

- Wi-Fi Chipset : iComm SV6158
- IEEE 802.11 b/g/n 1T1R
- Integrated 2.4GHz WLAN CMOS efficient power amplifier with internal power detector and closed loop power calibration
- Single stream 802.11n provides highest throughput and superior RF performance forembedded system.
- Security subsystem
 - AES/SHA/ECC HW crypto engine
 - 2304b e-fuse, TRNG
 - Wi-Fi Alliance WPA3 support
- Supports popular interfaces: SDIO 2.0 (50MHz, 4-bit and 1-bit) / SPI
- Low power feature
 - DTIM3: 210uA

The block diagram of iTM1058 module is depicted in the figure below.



3 Specification

3.1 Voltages

3.1.1 Absolute Maximum Ratings

Symbol	Description	Min.	Max.	Unit
VBAT	Input supply Voltage	-0.3	3.6	V
VDDIO	Digital IO/ SDIO Voltage	-0.3	3.6	V

3.1.2 Recommended Operating Ratings

Test conditions: At room temperature				
Symbol	Min.	Typ.	Max.	Unit
VBAT	3.0	3.3	3.6	V
VDDIO	1.75	3.3	3.6	V

Note: The voltage of VDDIO is depended on system I/O voltage.

Test conditions: At operating temperature -20°C ~70°C				
Symbol	Min.	Typ.	Max.	Unit
VBAT	3.0	3.3	3.6	V
VDDIO	1.75	3.3	3.6	V

3.2 Wi-Fi RF Specification (RX)

2.4G WLAN

Parameters	Conditions	Min.	Typ.	Max.	Unit
Frequency Range		2412		2484	MHz
RX Sensitivity 11b @ 8% PER	- 1Mbps		-95		dBm
	- 2Mbps		-93		dBm
	- 5.5Mbps		-91		dBm
	- 11Mbps		-88		dBm
RX Sensitivity 11g @ 10% PER	- 6Mbps		-91		dBm
	- 9Mbps		-90		dBm
	- 12Mbps		-88		dBm
	- 18Mbps		-86		dBm
	- 24Mbps		-82		dBm
	- 36Mbps		-79		dBm
	- 48Mbps		-74		dBm
	- 54Mbps		-73		dBm

Receive Sensitivity (11n,20MHz) @10% PER	- MCS0		-91		dBm
	- MCS=1		-88		dBm
	- MCS=2		-86		dBm
	- MCS=3		-81		dBm
	- MCS=4		-79		dBm
	- MCS=5		-74		dBm
	- MCS=6		-73		dBm
	- MCS=7		-72		dBm
Maximum Receive Level	802.11b		-10		dBm
	802.11g		-8		dBm
	802.11n		-8		dBm
Operating temperature	-20°C to 70°C				
Storage temperature	-40°C to 85°C				

3.3 Wi-Fi RF Specification (TX)

2.4G WLAN

Parameters	Conditions	Min.	Typ.	Max.	Unit
Frequency Range		2412		2484	MHz
Output Power	802.11b	16.0	18.0		dBm
	802.11g	12.0	14.0		dBm
	802.11n	12.0	14.0		dBm
@EVM	802.11b		-30	-10	dB
	802.11g		-30	-25	dB
	802.11n		-30	-28	dB

3.4 Power Consumption

Table 14: Power Consumption at DCDC mode (DCDC buck convertor is enable)

WLAN Operational Modes	Typ. ^a	Unit
OFF ^a	<1	uA
Rx, CCK, 1 Mbps ^a	33	mA
Rx, OFDM, 54 Mbps ^a	33	mA
Rx, HT20, MCS7 ^a	33	mA
Rx, HT40, MCS7 ^a	33	mA
Tx, CCK, 1 Mbps@19dBm ^d	212	mA
Tx, OFDM, 54 Mbps@15dBm ^d	182	mA
Tx, HT20, MCS7@15dBm ^d	183	mA
Tx, HT40, MCS7@15dBm ^d	183	mA
Power-saving(MCU_off) ^b , DTIM1	0.43	mA
Power-saving(MCU_off) ^b , DTIM3	0.21	mA

Table 15: Power Consumption at LDO mode (DCDC buck convertor is disable)

WLAN Operational Modes	Typ. ^a	Unit
OFF ^a	<1	uA
Rx, CCK, 1 Mbps ^a	80	mA
Rx, OFDM, 54 Mbps ^a	80	mA
Rx, HT20, MCS7 ^a	80	mA
Rx, HT40, MCS7 ^a	80	mA
Tx, CCK, 1 Mbps@19dBm ^d	243	mA
Tx, OFDM, 54 Mbps@15dBm ^d	214	mA
Tx, HT20, MCS7@15dBm ^d	215	mA
Tx, HT40, MCS7@15dBm ^d	215	mA
Power-saving(MCU_off) ^b , DTIM1	1.20	mA
Power-saving(MCU_off) ^b , DTIM3	0.45	mA

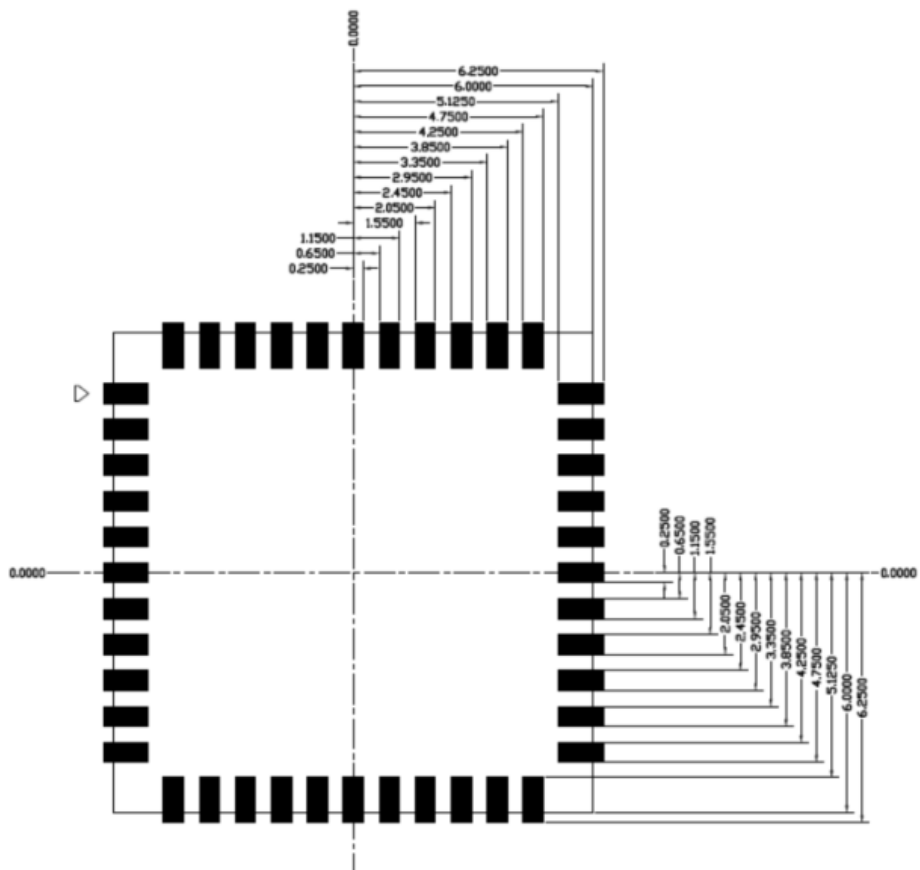
- a. OFF mode test condition: VBAT=GND, RVDD33=GND, VDD=3.3V, LDO_EN=0V
- b. Intra-beacon Sleep when MCU is turn off
- c. Conditions: VBAT=GND, RVDD33=GND, VDD=3.3V

4 Drawing

4.1 Layout Recommendation

(Unit: mm)

< TOP VIEW >



5 Remark

Storage Temperature and Humidity

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

FCC Information

This device complies with Part 15 of the FCC rules. 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.

Warning: Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment. The manufacturer is not responsible for any radio or TV interference caused by unauthorized modifications or change to this equipment. Such modifications or change could void the user's authority to operate the equipment.

Note: 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.

RF Exposure Information:

This equipment complies with FCC RF radiation exposure limits set forth for an uncontrolled environment. In order to avoid the possibility of exceeding the FCC radio frequency exposure limits, human proximity to the antenna shall not be less than 20cm during normal operation.

This module is for internal use only and not sold outside.

Antenna Information

It is 2.4GHz Wifi antenna, model number SF1006A-1B2-A.

Additional testing, Part 15 Subpart B disclaimer: The modular transmitter is only FCC authorized for the specific rule parts (FCC Part 15.247) list on the grant, and that the host product manufacturer is responsible for compliance to any other FCC rules that apply to the host not covered by the modular transmitter grant of certification. The final host product still requires Part 15 Subpart B compliance testing with the modular transmitter installed when contains digital circuitry.

The modular must be installed in the host that assign by

Company name: Winplus Co., Ltd.

Product/PMN: A28PROWIFI

Model no./HVIN: BT532967

if other host types used would need further evaluation and possible C2PC if they are not significantly similar to the one tested.

IC Information

-English:

This device contains license-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's license-exempt RSS(s).

Operation is subject to the following two conditions:

- This device may not cause interference.
- This device must accept any interference, including interference that may cause undesired operation of the device.

This equipment complies with IC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

-French:

Cet appareil contient un ou des émetteurs/récepteurs exempts de licence conformes aux RSS exempts de licence d'Innovation, Sciences et Développement économique Canada.

Le fonctionnement est soumis aux deux conditions suivantes :

- Cet appareil ne doit pas provoquer d'interférences.
- Cet appareil doit accepter toutes les interférences, y compris les interférences susceptibles de provoquer un fonctionnement indésirable de l'appareil.

Cet équipement est conforme aux limites d'exposition aux rayonnements IC établies pour un environnement non contrôlé. Cet équipement doit être installé et utilisé avec un minimum de 20 cm de distance entre la source de rayonnement et votre corps.

WIFI Module

A28 PRO WIFI MODULE

Responsible Party:

Horizon Brands

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