

# MODULE OF TTGEN2

## TTGEN2 Specification

|   |                |                       |
|---|----------------|-----------------------|
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| Version | Editor   | Participator | Valid from | Remark |
|---------|----------|--------------|------------|--------|
| V1.2    | Henry Ho |              | 2024-03-21 |        |

## 0 Amendment

### 1 General Description

B828 wireless module is designed base on B828 chipset. This wireless module can support far than 100M communication. It operates at 2412-2462MHz and high wireless data rate.

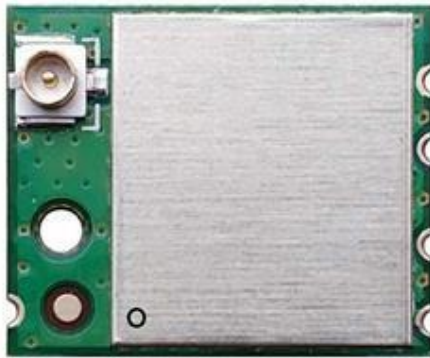


Figure 1-Top View

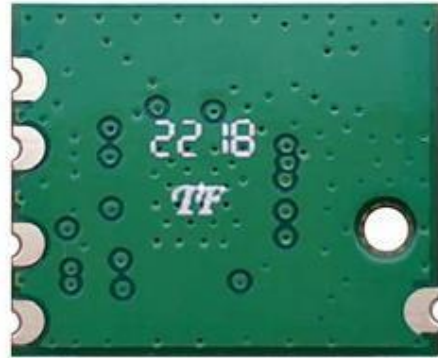


Figure 2-Bottom View

Note: The above pictures are for reference only

### 2 Feature

- Operating Frequencies: 2.412~2.462GHz
- Host Interface is USB, complies with USB2.0
- Connect to the external antenna through the IPEX connector
- Power Supply:3.3V  $\pm$ 0.2V

#### Functional Block Diagram

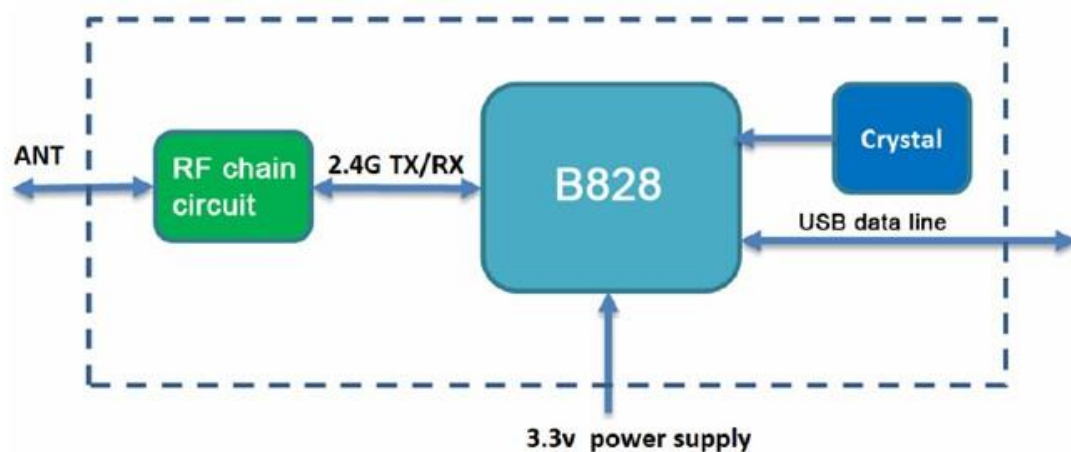


Figure 3-B828 A-I-V1.0 block diagram

## 3 Specification

### 3.1 General Specifications

| Item                  | Description   |
|-----------------------|---|
| Product Name          | B828  |
| Main Chip             | B828  |
| Host Interface        | USB2.0  |
| Operating Frequencies | 2.412GHz~2.462GHz   |
| Modulation            | CCK, DQPSK, DBPSK<br>64-QAM,16-QAM, QPSK, BPSK              |
| Rx Sensitivity        | -94dBm (Min)  |
| Antenna Type          | Connect to the external antenna through the IPEX connector  |
| Dimension(L*W*H)      | 15.7x 13x 2.1mm (L*W*H), Tolerance: $\pm 0.15$ mm           |
| Power Supply          | 3.3V $\pm$ 0.2V   |
| Power Consumption     | monitor mode: 101mA@3.3V (Max)<br>TX mode: 266mA@3.3V (Max) |
| Clock Source          | 40MHz   |
| Working Temperature   | -30° C to +85° C  |
| Storage Temperature   | -40° C to +85° 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 Characteristics

#### Absolute Maximum Ratings

| Symbol | Parameters           | Maximum rating | Unit |
|--------|----------------------|----------------|------|
| VDD33  | 3.3V Supply Voltage  | 3.5            | V    |
| VESD   | ESD protection (HBM) | 2000           | V    |

#### Recommended Operating range

| At room temperature 25°C |      |      |      |      |
|--------------------------|------|------|------|------|
| Symbol                   | Min. | Typ. | Max. | Unit |
| VDD33                    | 3.1  | 3.3  | 3.5  | V    |

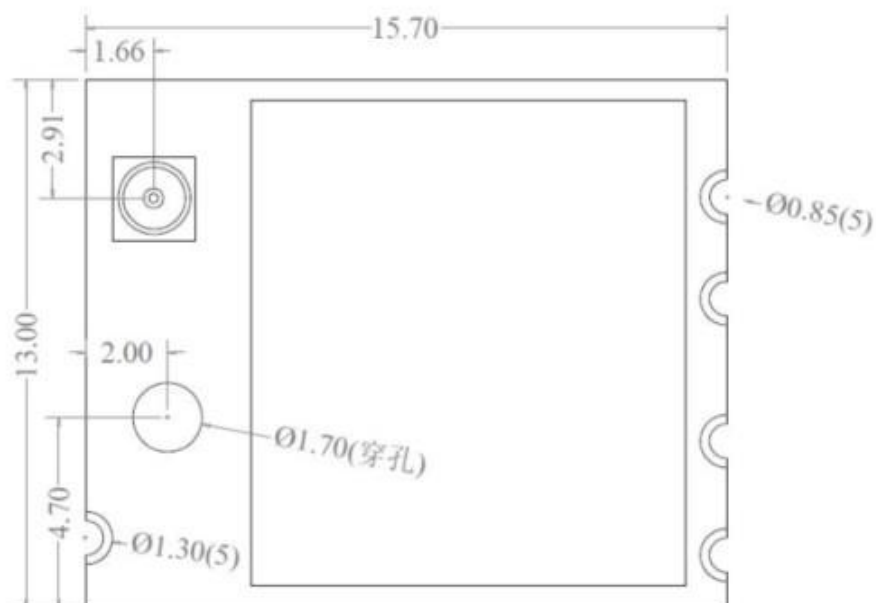
### 3.3 DC Power Consumption

| VDD=3.3V, Ta = 25 °C, unit: mA |       |      |       |      |
|--------------------------------|-------|------|-------|------|
| Supply current                 | Typ.  |      | Max   |      |
| Standby (RF disabled)          | 97    |      | 101   |      |
|                                | DBPSK |      | CCK   |      |
| Supply current                 | Typ.  | Max. | Typ.  | Max. |
| Continuous TX mode             | 255   | 266  | 225   | 238  |
| monitor RX mode                | 98    | 105  | 98    | 105  |
|                                | BPSK  |      | 64QAM |      |
| Supply current                 | Typ.  | Max. | Typ.  | Max. |
| Continuous TX mode             | 255   | 264  | 138   | 144  |
| monitor RX mode                | 98    | 105  | 98    | 105  |
| <b>40MHz mode</b>              | BPSK  |      | 64QAM |      |
| Supply current                 | Typ.  | Max. | Typ.  | Max. |
| Continuous TX mode             | 252   | 262  | 134   | 145  |
| monitor RX mode                | 98    | 105  | 98    | 105  |

## 4 Drawing

### 4.1 Mechanical Specifications

Module dimension: Typical (L\*W\*H): 15.7\*13.0\*2.1mm Tolerance: +/-0.15mm



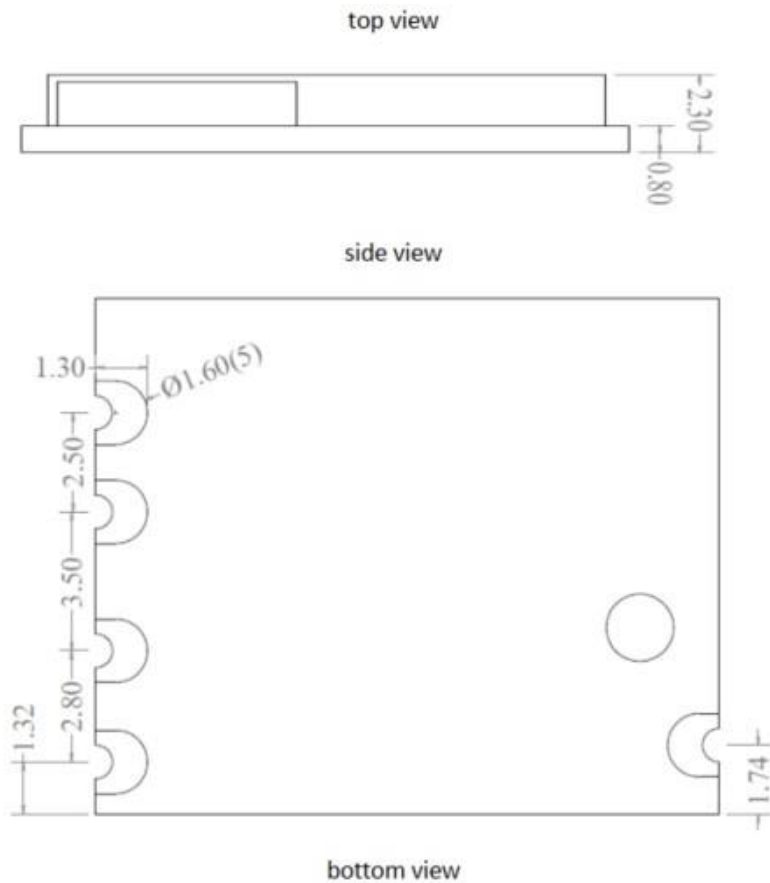


Figure 6-Module dimension

## 5 Remark

### 5.1 Storage Temperature and Humidity

1. Storage Condition: Moisture barrier bag must be stored under 30°C, humidity under 85% RH. The calculated shelf life for the dry packed product shall be a 12-months from the bag seal date. Humidity indicator cards must be blue, 30% .
2. Products require baking before mounting if humidity indicator cards reads > 30% temp < 30°C, humidity < 70% RH, over 96 hours.  
Baking condition: 125°C, 12 hours. Baking times: 1 time.

## 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 Copper tube antenna(IPEX port), model number CH16HL.

The modular must be installed in the host that assign by Company name: Winplus Co., Ltd.

Product/PMN: MODULE OF TTGEN2

Model no./HVIN: TTGEN2 if other host types used would need further evaluation and possible C2PC if they are not significantly similar to the one tested.

### Module procedures:

The module has its own RF shielding, which belong to signal module Standard requires: Clear and specific instructions describing the conditions, limitations and procedures for third-parties to use and/or integrate the module into a host device (see Comprehensive integration instructions below).

Resolve: Supply example as follows:

#### Installation Notes:

- 1) TTGEN2 Module Power supply range is DC 3.1V~3.5V, when you use TTGEN2 Module design product, the power supply cannot exceed this range.
- 2) When connect TTGEN2 Module to the host device, the host device must be power off.
- 3) Make sure the module pins correctly installed.
- 4) Make sure that the module does not allow users to replace or demolition.

Trace antenna designs: Not applicable.

The system integrator must place an exterior label on the outside of the final product housing the TTGEN2 Modules. Below is the content that must be included on this label. The host product Labeling Requirements: NOTICE: The host product must make sure that FCC labeling requirements are met. This includes clearly visible exterior label on the outside of the final product housing that displays the contents shown in below:

Contains FCC ID: WUI-TTGEN2

Information on test modes and additional testing requirements: When testing host product, the host manufacture should follow FCC KDB Publication 996369 D04 Module Integration Guide for testing the host products. The host manufacturer may operate their product during the measurements. In setting up the configurations, if the pairing and call box options for testing does not work, then the host product manufacturer should coordinate with the module manufacturer for access to test mode software.

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.

Information on test modes and additional testing requirements:

When testing host product, the host manufacture should follow FCC KDB Publication 996369 D04 Module Integration Guide for testing the host products. The host manufacturer may operate their product during the measurements.

## 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.

TTGEN2

MODULE OF TTGEN2

Responsible Party:

Horizon Brands

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