

## 8822CS user manual

產品中文名稱:	無線藍牙模組
產品英文名稱:	<b>WIFI+BT Combo Module</b>
產品商標:	ASKEY
產品型號:	8822CS
額定電壓、電流:	DC 3.3V
頻率范围:	2.4~2.483GHz , 5.15 GHz ~ 5.850 GHz
信道:	Ch1- Ch11,Ch36-48,CH52-64,Ch100-140,Ch149-165
天线类型:	PIFA ANTENNA
產品硬件版本:	V2.0
產品軟件版本:	V5.9

Dimension	L x W x H: 15 x 13 x 2.15 mm (typical)
Wi-Fi Interface	Support SDIO V3.0
BT Interface	UART / PCM
Operating temperature	0°C to 70°C
Storage temperature	-40°C to 85°C

### Features

Highly integrated wireless local area network(WLAN) system-on-chip (SOC) for 5 GHZ 802.11ac, or 2.4G/5G 802.11n WLAN applications.

Dual-stream spatial multiplexing up to 867 Mbps data rate.

Supports 20/40MHz at 2.4GHz and supports 20/40/80MHz at 5GHz

Supports low power SDIO3.0 interface for WLAN and UART/PCM interface for Bluetooth.

Supports Bluetooth V5.0 system.

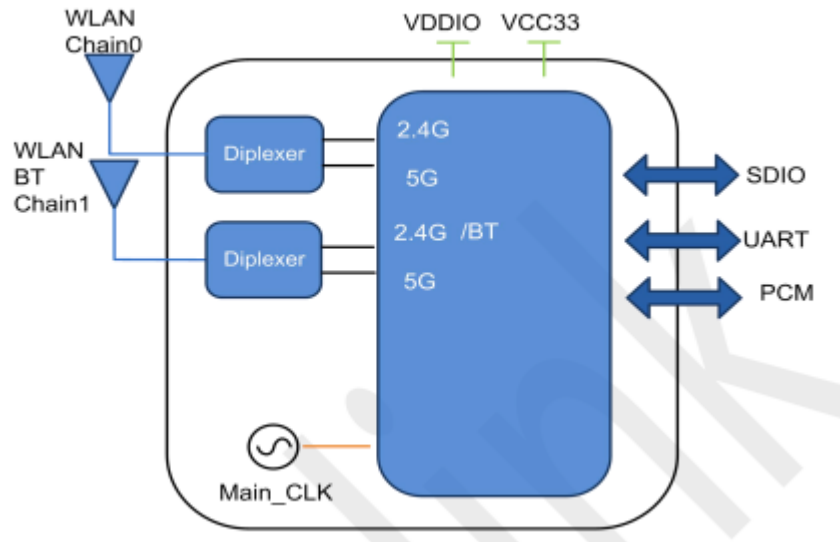
Supports WLAN-Bluetooth coexistence.

BT host digital interface:

- HCI UART (up to 4 Mbps)
- PCM for audio data

Module have 2 antenna port, BT port combine with WLAN1.

#### Block Diagram:



## Wi-Fi RF Specification

### 2.4GHz RF Specification

Frequency Range:	802.11b/g/n-HT20: 2412 ~ 2462MHz 802.11n-HT40: 2422 ~ 2452MHz
Channel Number:	802.11b/g/n-HT20: 11 802.11n-HT40: 7
Type of Modulation:	802.11b: DSSS 802.11g/n: OFDM
Data Rate:	802.11b: 1/2/5.5/11Mbps 802.11g: 6/9/12/18/24/36/48/54Mbps 802.11n: up to 300Mbps

## 5GHz RF Specification

Frequency Range:	For 802.11a/n-HT20/ac-VHT20: 5180~5240MHz, 5260~5320MHz, 5500~5720MHz, 5745~5825MHz For 802.11n-HT40/ac-VHT40: 5190~5230MHz, 5270~5310MHz, 5510~5710MHz, 5755~5795MHz For 802.11ac-VHT80: 5210MHz, 5290MHz, 5530MHz, 5610MHz, 5690MHz, 5775MHz
Type of Modulation:	802.11a/n/ac: OFDM
Data Rate	802.11a: 6/9/12/18/24/36/48/54Mbps 802.11n: up to 300Mbps 802.11ac: up to 866.6Mbps

Note: The frequencies that fall in the 5600MHz to 5650MHz band will not be used in Canada.


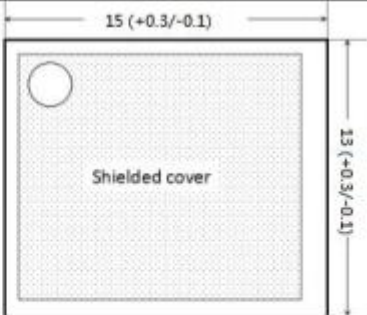
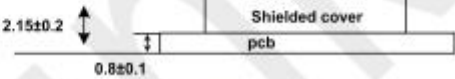
## Bluetooth Specification

Operating Frequency:	2402~2480MHz
Channel Number:	BR/EDR: 79 BLE: 40
Type of modulation:	GFSK, Pi/4 DQPSK, 8DPSK
Data Rate:	1Mbps, 2Mbps, 3Mbps

## Antenna Specification

Antenna Type	Frequency Band (GHz)	Tx Paths	Per Chain Max Antenna Gain (dBi)		Directional Gain (dBi)	
			Ant 0	Ant 1	For Power	For PSD
Wi-Fi Internal Antenna						
PIFA	2412 ~ 2462	2	2.1	1.9	2.1	5.11
	5180 ~ 5240	2	4.2	1.9	4.2	7.21
	5260 ~ 5320	2	3.8	3.0	3.8	6.81
	5500 ~ 5720	2	3.8	2.9	3.8	6.81
	5745 ~ 5825	2	3.4	2.3	3.4	6.41
Bluetooth Internal Antenna						
PIFA	2402 ~ 2480	1	1.9		--	

# Dimensions

<p>L x W : 15 x 13 (+0.3/-0.1) mm</p> 	
<p>H: 2.15 (±0.2) mm</p>	
<p>Weight</p>	<p>0.84g</p>

# Marking Description

Fn-Link	-----	Brand name
6222B-SRC	-----	Model name
XXXXXX	-----	Lot code
XXXXD5	-----	Date code

# Label

Model: 8822CS
FCC ID: H8N-8822CS
IC: 1353A-8822CS

# The Key Material List

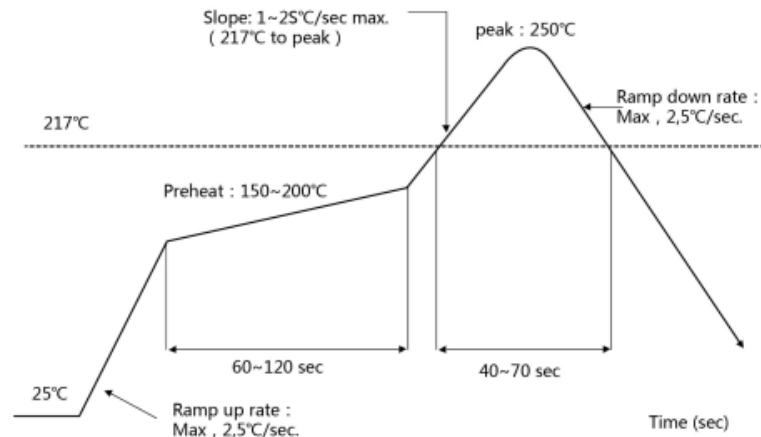
Main	Inductor	2012 1uH, ±20%, 0.8A, LQM21PN1R0MC0 (MURATA)
Alt	Inductor	2012 1.5uH, ±20%, 1A 以上 MGFL2012F1R5MT-LF (麦捷微)
Alt	Inductor	2016 1.5uH, ±20%, 800mA 以上 MPIE201610-1R5M-LF (麦捷微)
Main	Diplexer	RFDIP160806BLM6T25
Alt	Diplexer	DPX166000DT-8093A1, 1.6*0.8mm, 6PIN (TDK)
Alt	Diplexer	LD18D2450LAN-D40/M (GLEAD)
Main	Shielding cover	RTL8822CS Copper, without positioning foot
Main	Crystal	2520 40MHz 10ppm 12pF E2SB40.0000F12G11RE (HOSONIC)
Alt	Crystal	2520 40MHz 10ppm 12PF -20-85° C Q40000E087(东晶)
Main	Chipset	RTL8822CS-VS-CG 9X9mm

## Recommended Reflow Profile

Referred to IPC/JEDEC standard.

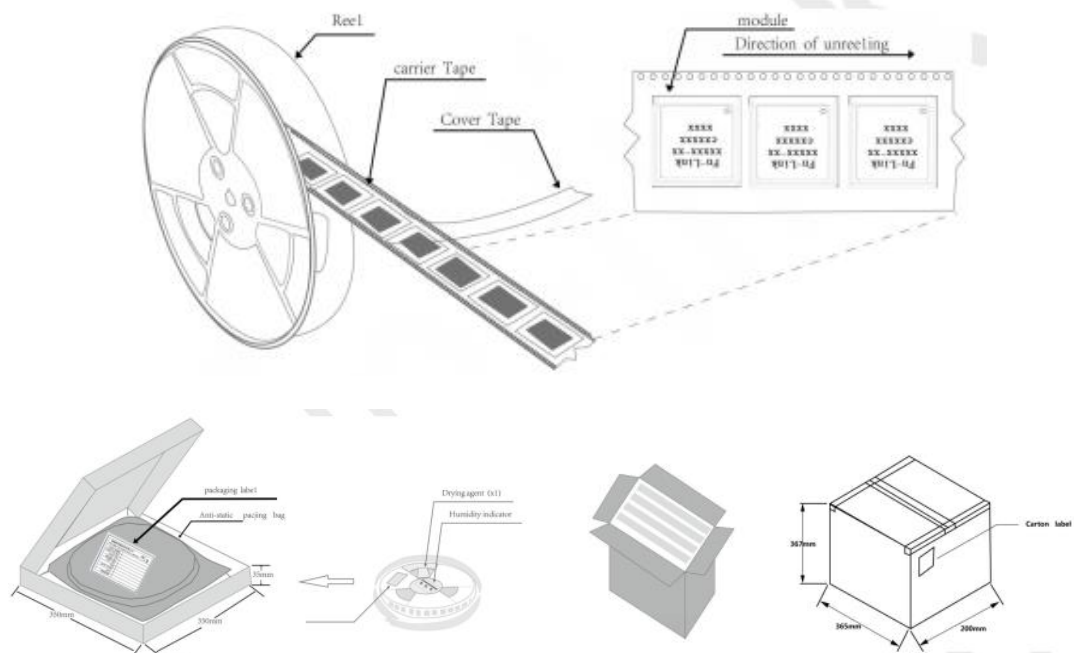
Peak Temperature : <250°C

Number of Times : ≤2 times



## Package Information

A roll of 1500pcs



## **Moisture sensitivity**

The Modules is a Moisture Sensitive Device level 3, in according with standard IPC/JEDEC J-STD-020, take care

all the relatives requirements for using this kind of components.

Moreover, the customer has to take care of the following conditions:

- a) Calculated shelf life in sealed bag: 12 months at <40°C and <90% relative humidity (RH).
- b) Environmental condition during the production: 30°C / 60% RH according to IPC/JEDEC J-STD-033A paragraph 5.
- c) The maximum time between the opening of the sealed bag and the reflow process must be 168 hours if condition
- b) "IPC/JEDEC J-STD-033A paragraph 5.2" is respected
- d) Baking is required if conditions b) or c) are not respected
- e) Baking is required if the humidity indicator inside the bag indicates 10% RH or more

## **U.S. FCC Statement**

FCC ID: H8N-8822CS

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. This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part15 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 of the following measures:

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

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

This equipment complies with FCC RF radiation exposure limits set forth for an uncontrolled environment. This device and its antenna must not be co-located or operating in conjunction with any other antenna or transmitter.

The antennas used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter.

## **Canada (IC) Notices**

IC: 1353A-8822CS

CAN ICES-3 (B)/NMB-3(B)

This device complies with Industry Canada license-exempt RSSs. Operation is subject to the following two conditions:

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

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
2. l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

Caution:

The device for operation in the band 5150–5250 MHz is only for indoor use to reduce the potential for harmful interference to co-channel mobile satellite systems.

Avertissement:

Le dispositif fonctionnant dans la bande 5150-5250 MHz est réservé uniquement pour une utilisation à l'intérieur afin de réduire les risques de brouillage préjudiciable aux systèmes de satellites mobiles utilisant les mêmes canaux.

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

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.

## OEM Integration Instructions :

This device is intended only for OEM integrators under the following conditions :

The module can be used to installation in another host. The antenna must be installed such that 20 cm is maintained between the antenna and users, and the transmitter module may not be co-located with any other transmit or antenna. The module shall be only used with the integral antenna(s) that has been originally tested and certified with this module. As long as 3 conditions above are met, further transmitter test will not be required. However, the OEM integrator is still responsible for testing their end-product for any additional compliance requirement with this module installed (for example, digital device emission, PC peripheral requirements, etc.)

## IMPORTANT NOTE :

In the event that these conditions cannot be met (for example certain laptop configuration or co-location with another transmitter), then the FCC authorization for this module in combination with the host equipment is no longer considered valid and the FCC ID of the module cannot be used on the final product. In these and circumstance, the OEM integrator will be responsible for re-evaluating. The end product (including the transmitter) and obtaining a separate FCC authorization. The final end product must be labeled in a visible area with the following: **“Contains Transmitter Module FCC ID: H8N-8822CS or Contains FCC ID: H8N-8822CS”**.

Antenna Specification:

Antenna Type	Frequency Band (GHz)	Tx Paths	Per Chain Max Antenna Gain (dBi)		CDD Directional Gain (dBi)	
			Ant 0	Ant 1	For Power	For PSD
Wi-Fi Internal Antenna						
PIFA	2412 ~ 2462	2	2.1	1.9	2.1	5.11
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	5745 ~ 5825	2	3.4	2.3	3.4	6.41
Bluetooth Internal Antenna						
PIFA	2402 ~ 2480	1	1.9		--	



**IMPORTANT NOTE :**

This Wireless Module (IC: 1353A-8822CS) has been approved by Industry Canada to operate with the antenna types listed below with the maximum permissible gain indicated. Antenna types not included in this list, having a gain greater than the maximum gain indicated for that type, are strictly prohibited for use with this device.

The Host Marketing Name (HMN) must be displayed (according to e-labelling requirements) or indicated at any location on the exterior of the host product or product packaging or product literature, which shall be available with the host product or online.

The host product shall be properly labelled to identify the modules within the host product. The Innovation, Science and Economic Development Canada certification label of a module shall be clearly visible at all times when installed in the host product; otherwise, the host product must be labelled to display the Innovation, Science and Economic Development Canada certification number for the module, preceded by the word "Contains" or similar wording expressing the same meaning, as follows:

**Contains IC: 1353A-8822CS.**

Antenna Specification:

Antenna Type	Frequency Band Band (GHz)	T <sub>x</sub> Paths	Per Chain Max Antenna Gain (dBi)		CDD Directional Gain (dBi)	
			Ant 0	Ant 1	For Power	For PSD
Wi-Fi Internal Antenna						
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