

**Caution:**

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.

Under Industry Canada regulations, this radio transmitter may only operate using an antenna of a type and maximum (or lesser) gain approved for the transmitter by Industry Canada. To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the equivalent isotropically radiated power (e.i.r.p.) is not more than that necessary for successful communication.

*Conformément à la réglementation d'Industrie Canada, le présent émetteur radio peut fonctionner avec une antenne d'un type et d'un gain maximal (ou inférieur) approuvé pour l'émetteur par Industrie Canada. Dans le but de réduire les risques de brouillage radioélectrique à l'intention des autres utilisateurs, il faut choisir le type*



*d'antenne et son gain de sorte que la puissance isotrope rayonnée équivalente (p.i.r.e.) ne dépasse pas l'intensité nécessaire à l'établissement d'une communication satisfaisante.*

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.

#### **Information for the OEM Integrators**

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

#### **Label Information to the End User by the OEM or Integrators**

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: 2AKEQ-T8267TM and IC: 22176-T8267TM"

# Homekit DB-NO-T8267TM

## Contents

1.Introduction .....	4
2.Features .....	4
3. Applications .....	4
4. Module Diagram .....	5
5.Module Schematic.....	<b>Error! Bookmark not defined.</b>
.....	<b>Error! Bookmark not defined.</b>
6.Pins Description .....	7
7.Electronic Specification .....	7
8.Power Consumption .....	7
9. Antenna Specification .....	<b>Error! Bookmark not defined.</b>
10.Ordering Information.....	<b>Error! Bookmark not defined.</b>
11.Package .....	<b>Error! Bookmark not defined.</b>
12. Reflow Profile .....	8
.....	8
13. Application Design Note .....	8
14.Antenna Design.....	8

## 1.Introduction

The Homekit 8267 module with internal PCB printing antenna and IPEX RF connector is MESH Bluetooth Low Energy (BLE) solution which is fully Bluetooth 4.2 standard compliant and allows easy connectivity with Bluetooth Smart Ready devices. Homekit 8267 module supports BLE slave and master mode operation, including broadcast, encryption, connection updates, and channel map updates. It is RoHS-compliant and 100% lead (Pb)-free. With internal 512KBytes Flash and 16KB SDRAM are programmable for more applications, 14bits ADC with PGA, 6 channels PWM, three quadrature decoders, GPIOs.8 pins are easy installation with removable to be an SMT module (PCB stamp holes linking) in the mean time.。

## 2.Features

- Bluetooth standard : Bluetooth V4.2
- Frequency range: 2402~2480MHz
- RX : - 92dBm BT4.0 Sensitivity
- TX RF Power:+7dBm
- Network:Mesh
- power supply: 1.9V-3.6V
- transmit power consumption current: 20mA@-2dBm, 28mA@+7dBm
- RSSI Monitoring
- Embedded LDO
- Battery monitoring
- Low power consumption
- With a plate antenna,support external IPEX antenna
- Support Bluetooth bulb lamp.flat lamp,tube lamp ,vacuum lamp,cabinet lamp
- support door magnetic,light sensor,microwave,pyroelectric,infrared sensor
- support Bluetooth smart socket and switch.
- support Apple Homekit with external DSP
- Embedded Hardware AES
- Operating Temperature range: ET Version: -40℃ ~ +85℃,  
AT version: - 40℃~+125℃

## 3. Applications

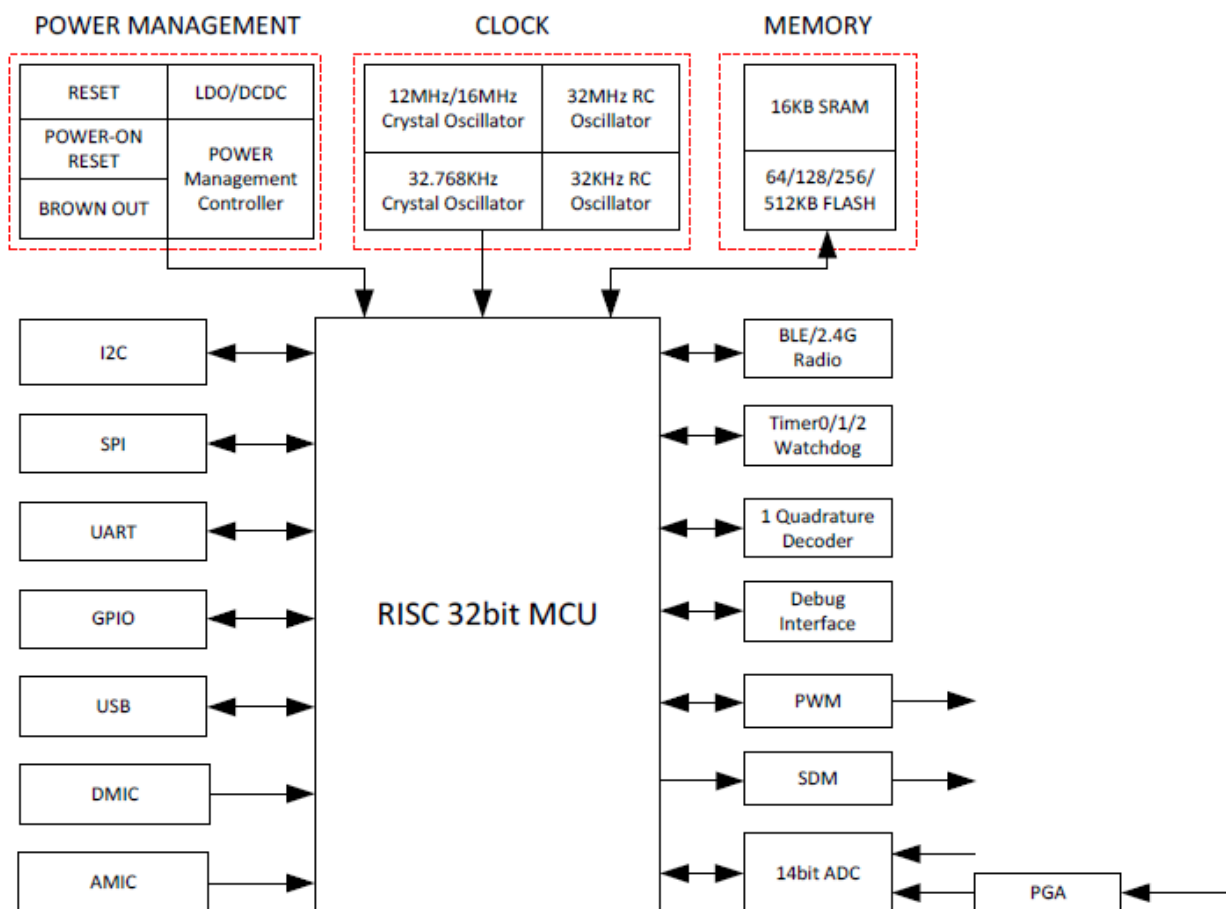
- Mesh intelligent dimming, Smart Devices Switch, Remote Control and 3D glasses LED Lighting control。
- This module can adjust light, color and switch control by 5PWM signal. Can achieve monotonic light, dimmer, RGB
- Low power consumption long standby, you can use the button battery, with keyboard interface without external MCU
- Smartphone accessories
- Wireless Microphone



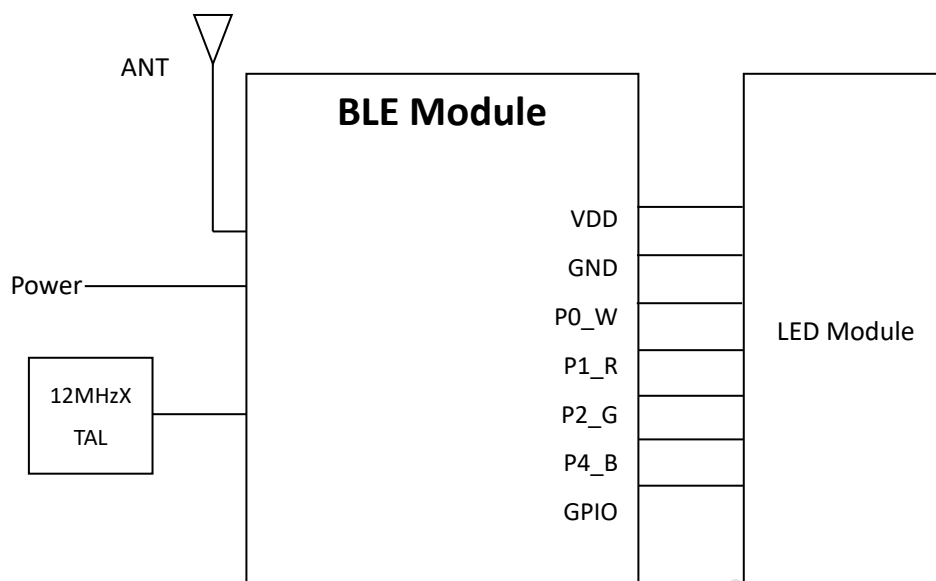
- Health monitoring
- Sports and fitness tracking
- Wearable devices
- PC and tablet peripherals, including Mouse / Keyboard

## 4. Module Diagram

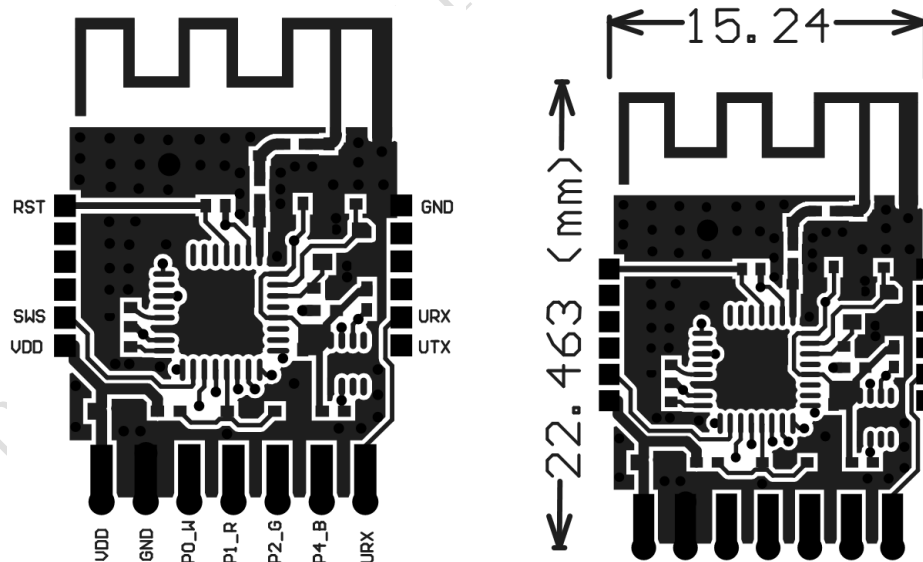
### SoC diagram



## BLE Module 7 pins diagram



## PCBA top view diagram & Module physical map



## 5.Pins Description

Pin	NAME	Inter face	I/O	Description
1	VDD	Power	I	DC 3.3V input, Max 3.6V, Min 3.0V
2	GND	Ground	-	Ground
3	P1_R	Analog	I/O	SoC TLSR8267F512 P3 P1_R Red (R)
4	P2_G	Analog	I/O	SoC TLSR8267F512 P16 P2_G Green (G)
5	P4_B	Analog	I/O	SoC TLSR8267F512 P17 P4_B Blue (B)
6	P0_W	Analog	I/O	SoC TLSR8267F512 P18 P0_W Bright (W)

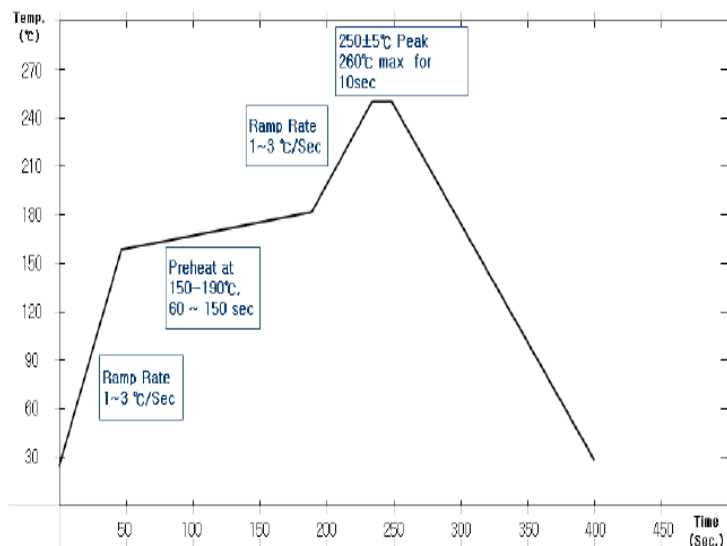
## 6.Electronic Specification

Item	Specification
RF Transmitting Power Level	7+ dBm Max
RF Receiver Sensitivity	-93 dBm at 1Mbps
Flash	512kb
Antenna	Printed PCB Antenna -0.15 dBi Gain
Linking Distance	30 M Out of Sight
RAM	16 KB x 32 bits
Data Rate	250 kbps, 500 kbps, 1 Mbps, 2 Mbps
Physical Connectors	1 x 8 pins 1.27mm pitch through terminal 13 holes PCB board edge stamp holes
Operation Voltage	2.9V to 3.6V
Operation Temperature	ET Version: -40℃ ~ +85℃, AT version: - 40℃~+125℃
Security	128 Bit AES encryption
Interface	PWM, UART, I2C, USB, GPIO
EMC	Europe: ETSI EN 300 328 and EN 300 440 Class 2 USA: FCC CFR47 Part 15 Japan: ARIB STD-T66

## 7.Power Consumption

Operation Mode	Consumption
Operation (TX/RX) 0dBm	30mA
Standby (Deep Sleep) depend on firmware	0.7uA (optional by firmware)

## 8. Reflow Profile



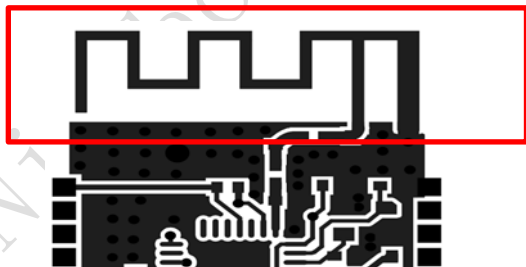
## 9. Application Design Note

To Be Discussed

## 10. Antenna Design

To Be Discussed

## 14. Antenna Design



Influence of GND on Antenna

- The GND interrupts the emission of antenna but is essential.
- RF vertical GND is important in antenna design.
- Normally, the emission rate is improved as more GND is secured and edged GND of antenna is cut.