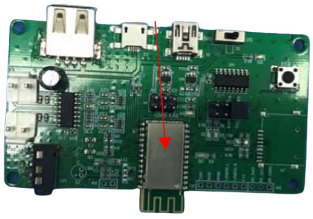
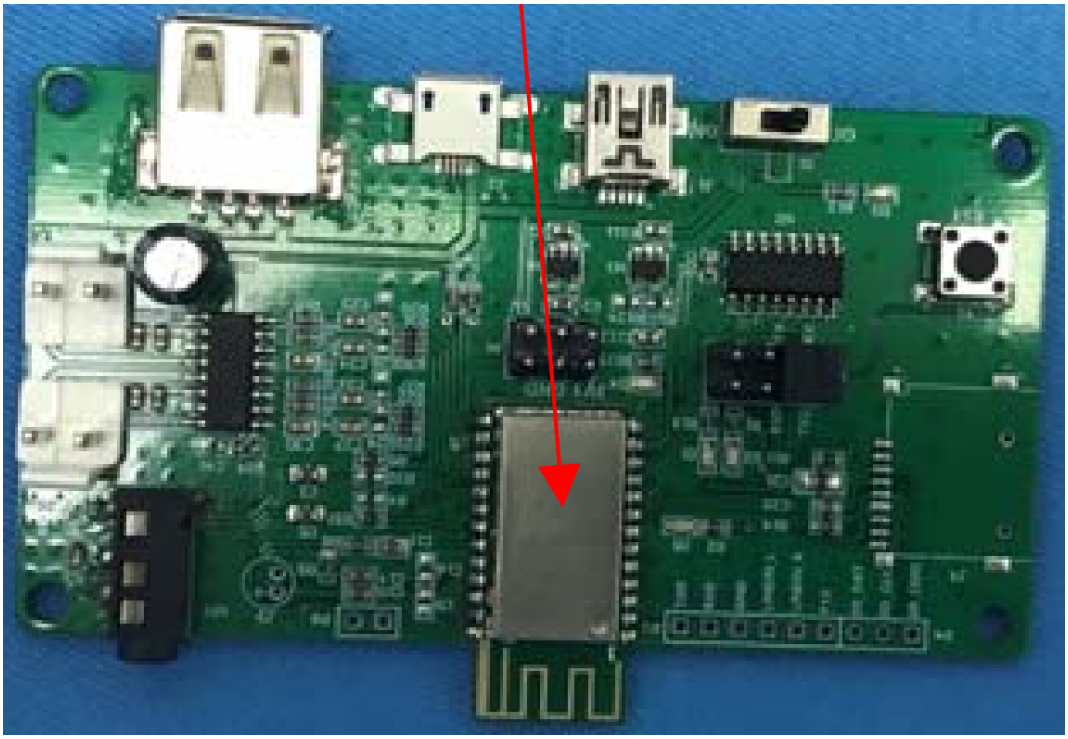


# Wi-Linktech WLT3266 Dual mode bluetooth module User Manual



**Wi-Linktech WLT3266 Dual mode bluetooth module User Manual**



Contents



## Summary

WLT3266 is an audio Bluetooth module developed by WLT , and a single chip audio Bluetooth solution based on BK3266.Audioprotocol stack with built in Bluetooth and various applications profile, It can easily realize the interconnection, data transmission, voice, music and other applications of the user's

#### Functional characteristics

Support Bluetooth HFP , A2DP, HID,AVRCP…
Support transparent / protocol data transfer mode AT + instruction set configuration
Support UART communication interface, UART interface up to 3Mbps. Built-in 16-bit audio DAC and 16-bit audio ADC Built-Capless headphone amplifier
Built-in MIC bias and amplifier
Support multiple analog audio input
Onboard PCB antenna, the customer can also be an external antenna
Single-supply operation 2.8~4.2V
Stamp hole pin, easy and reliable welding. Small size 13×27.2mm
Flexible software platform to provide customized services

#### Application area

Bluetooth Speaker Bluetooth music transponder Car Bluetooth hands-free Health care Wireless POS machine Portable printer

## Electrical characteristics

#### Basic characteristics

table 1. Absolute maximum

| Parameter | Description | Min | TYP | Max | Unit |
|---|---|---|---|---|---|
| VCC4BAT | Battery regulator supply voltage | -0.3 | – | 4.2 | V |
| VCC5USB | USB power supply voltage | 4.75 | – | 5.75 | V |
| RX | RX Input power | – | 10 | – | dBm |
| TSTR | Storage temperature range | -40 | – | 150 | °C |

table 2. Recommended working conditions

| Parameter | Description | Min | TYP | Max | Unit |
|---|---|---|---|---|---|
| VCC4BAT | Battery regulator supply voltage | 2.8 | 3.6 | 4.2 | V |
| VCC5USB | USB power supply voltage | 4.75 | 5 | 5.75 | V |
| TOPR | Operation temperature range | -40 | – | 80 | °C |

table 3. Antenna characteristics

| | | |
|---|---|---|
| **Wireless Standard** | Bluetooth BR/EDR/LE | |
| **Frequency** | 2.402GHz 2.480GHz | |
| **TX power** | 4dBm | |
| **Antenna** | external RF_PIN | |
| | internal PCB antenna | High gain as external antenna |

**Radio frequency performance**

table 4.Radio frequency performance

| **Parameter** | **Condition** | **Min** | **TYP** | **Max** | **Unit** |
|---|---|---|---|---|---|
| Operate Frequency | 2402~2480 | 2402 | – | 2480 | MHz |
| RXSENS-1 Mbps | BER=0.001 | – | -88 | – | dBm |
| RXSENS-2 Mbps | BER=0.0001 | – | -91 | – | dBm |
| RXSENS-3 Mbps | BER=0.0001 | – | -83 | – | dBm |
| Maximum received signal | BER=0.001 | 0 | – | – | dBm |
| Maximum RF transmit power | | – | 8 | – | dBm |
| RF Power Control Range | | 30 | – | – | dBm |

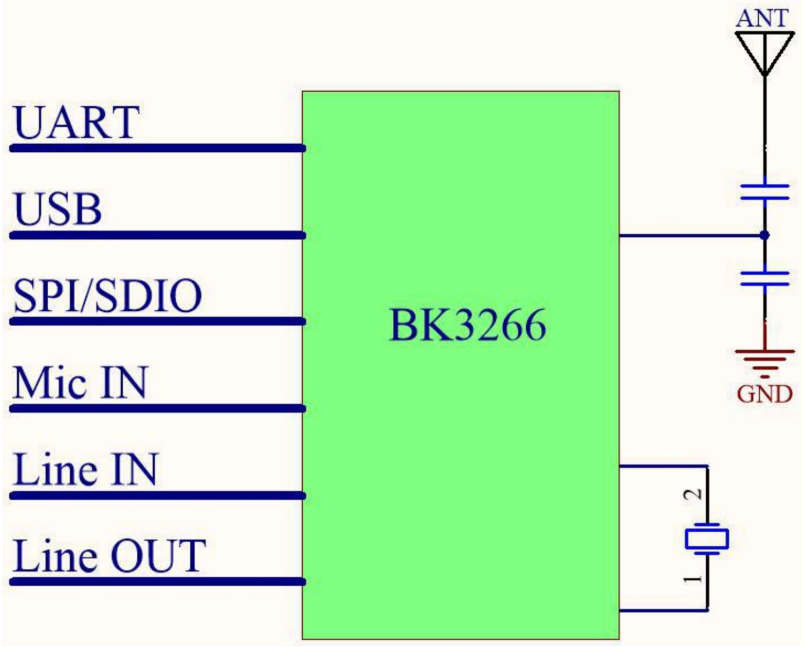
table 5. Audio performance

| Parameter | Condition | Min | TYP | Max | Unit |
|---|---|---|---|---|---|
| DAC Diff. Output | With 600ohm loading | – | – | 1.1 | **Vrms** |
| | With 32ohm loading | – | – | – | **Vrms** |
| | With 16ohm loading | – | – | 0.9 | **Vrms** |
| DAC Diff. Output THD | With 1.1Vrms@600ohm loading | – | 75 | – | dB |
| | With 0.8Vrms@16ohm loading | – | 75 | – | dB |
| DAC output SNR | 1 kHz sine wave | – | 98 | – | dB |
| DAC Sample Rate | | 8 | – | 48 | kHz |
| ADC SNR | 1 kHz sine wave | – | 96 | – | dB |
| ADC Sample Rate | | 8 | – | 48 | kHz |

## Hardware introduction

#### Functional block diagram

**figure 1. WLT3266Block diagram of the module**



WLT3266 There are two main parts inside the module

1. Bluetooth part Contains the Bluetooth chip BK3266 2.4GHzPCB Antenna and external interface.
2. Audio section  WLT3266integrated Audio Codec, Provides analog audio input and output, Digital audio input and output, Headphone amplifier and so on, Support for Bluetooth HFP A2DP Source  Sink Other audio applications.

#### Module size and pin arrangement

**figure2. WLT3266Module Dimensions (Front)**

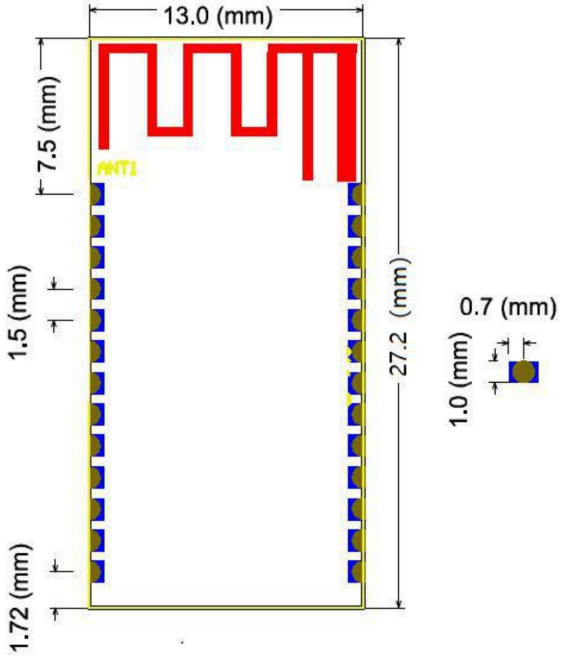



**figure3. WLT3266Module thickness**


#### Pin definition

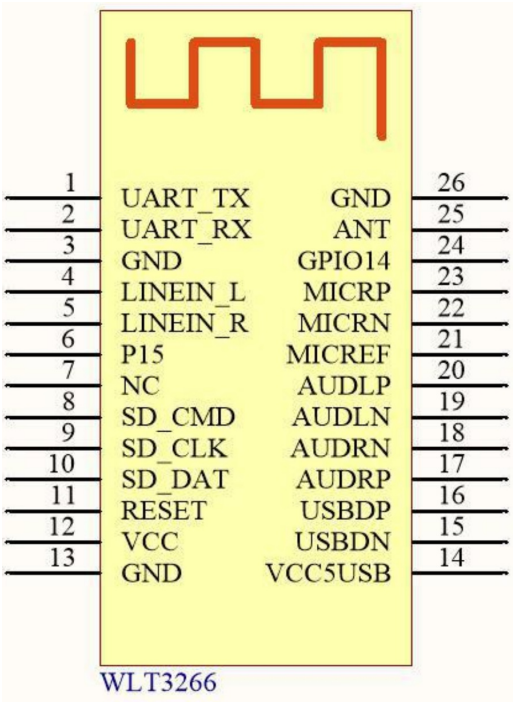
table 6. WLT3266Pin definition

| Pin # | Name | Type | Description |
|---|---|---|---|
| 1 | UART_TX | I/O | UART_TXD/I2C_SCL, Download port |

| | | | |
|---|---|---|---|
| 2 | UART_RX | I/O | UART_RXD/I2C_SDA, Download port |
| 3 | GND | POWER | Ground |
| 4 | LINEIN_L | I | Line in L |
| 5 | LINEIN_R | I | Line in R |
| 6 | P15 | I/O | SPI_SCK/ADC2/CLKOUT<br>Soft shut down and wake up (active high) |
| 7 | NC | | |
| 8 | SD_CMD | I/O | JTAG_TMS/PWM3/PCM_CLK/SD_CMD/SPI2_MOSI |
| 9 | SD_CLK | I/O | JTAG_TCK/PWM2/ADC4/PCM_SYNC/SD_CLK/SPI2_SCK |
| 10 | SD_DAT | I/O | JTAG_TDI/PWM4/ADC6/PCM_DIN/SD_DATA0/SPI2_MISO |
| 11 | RESET | – | External reset input, active low |
| 12 | VDD | POWER | Battery power supply |
| 13 | GND | POWER | Ground |
| 14 | VCC5USB | POWER | USB charge power input |
| 15 | USBDN | I/O | PWM1 / USBN |
| 16 | USBDP | I/O | PWM0 / USBP |

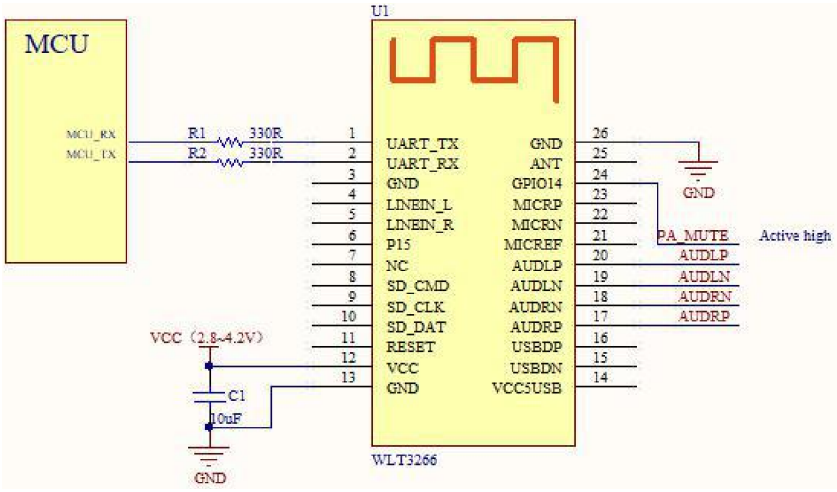
| | | | |
|---|---|---|---|
| 17 | AUDRP | O | Audio right channel positive |
| 18 | AUDRN | O | Audio right channel negative |
| 19 | AUDLN | O | Audio left channel negative |
| 20 | AUDLP | O | Audio left channel positive |
| 21 | MICREF | POWER | Microphone reference voltage |
| 22 | MICRN | I | Microphone input negative |
| 23 | MICRP | I | Microphone input positive |
| 24 | GPIO14 | I/O | Digital input and output |
| 25 | ANT | – | External ANT PIN |
| 26 | GND | POWER | Ground |

**figure 4. Description of 26-Pin Package**




**Reference design**

**Figure 5. Reference design**

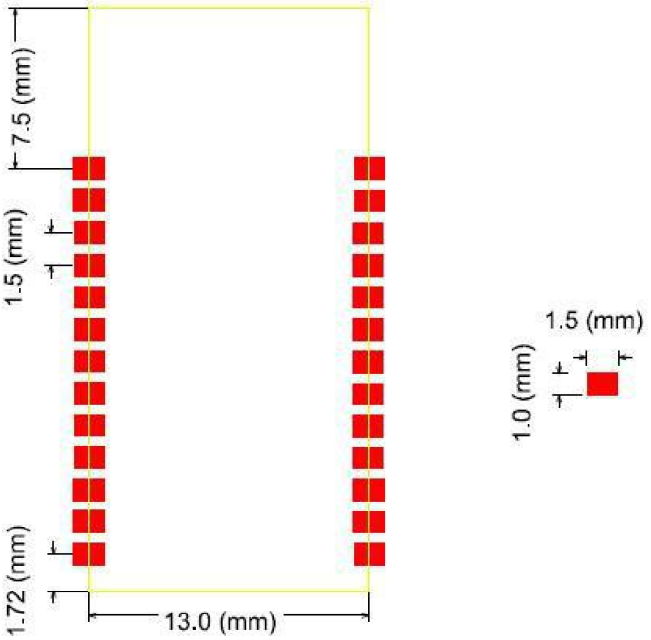



**Note:** GPIO14 as amplifier enable pin, high level effective. When the customer uses the audiopower amplifier, the GPIO14 needs to be connected to the enable pin of the chip. Refer to figure 6 below:

**Figure 6. GPIO14 Reference design**


## PCB Design

**Recommended weld plate size**




**PCB layout Matters needing attention**

Bluetooth is working 2.4GHz under the frequency, Should try to avoid the impact of various factors on the wireless transceiver, pay attention to the following points:

1. The part of the product enclosure that surrounds the module avoids the use of metal, and if the enclosure is metallic, consider using an external antenna.
2. Metallic screws inside the product should be kept away from the RF part of the module.
3. Module should be placed around the motherboard, the antenna part of  the edgeor angle, the module antenna below the motherboard area does not allowcopper shop or alignment.

## Reflux parameter recommendation

Reflow parameters can refer to the following settings:

**figure 8. Reflow recommended curve**

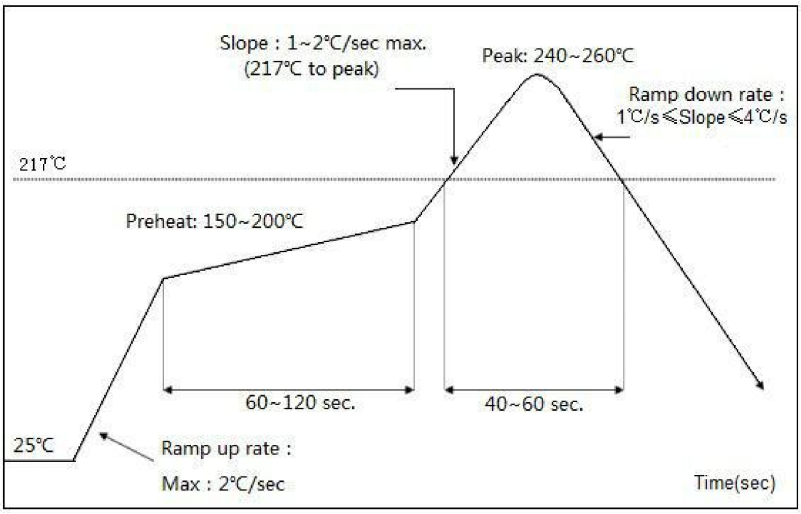



table 7. Reflow recommended parameters

| Temperature range | Time | Key parameters |
|---|---|---|
| Preheat zone(<150℃) | 60-120S | Ramp up rate:≤2S |
| Uniform temperature zone(150-200℃) | 60-120S | Ramp up rate:<1S |
| Recirculation zone(>217℃) | 40-60S | Peak:240-260℃ |
| Cooling zone | Ramp down rate:1℃/s≤Slope≤4℃/s | |

## Software application

WLT3266 is an audio Bluetooth module that supports Audio Codec. The module integrates audio Bluetooth protocol stack, supports a variety of traditional Bluetooth applications and Bluetooth low energy applications. For example: HFP, A2DP, AVRCP and so on. WLT3266 module supports UART AT + command mode to configure and select the mode of operation, the specific command, please see the relevant WLT3266 module software application documentation. WLT3266 module to support custom software, please contact our company

## Regulatory Module Integration Instructions

### List of applicable FCC rules

This device complies with part 15 of the FCC Rules.

### Limited module procedures

Not applicable

### Summarize the specific operational use conditions

This module can be applied in remote Bluetooth Speaker, Bluetooth music transponder Car and Bluetooth hands-free Health , Wireless POS, Portable printer as well as smart home. The input voltage to the module should be nominally 2.8-4.2 V DC  typical value 3.3V DC and the ambient temperature of the module should not exceed 80℃.

### RF exposure considerations

Module is limited to OEM installation ONLY.

That OEM integrators is responsible for ensuring that the end user has no manual instructions to remove or install module. That module is limited to installation in mobile or fixed applications, according to Part 2.1091(b).

### FCC Radiation Exposure Statement

This modular complies with FCC RF radiation exposure limits set forth for an uncontrolled environment. This

transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

**Label and compliance information**

If the FCC identification number is not visible when the module is installed inside another device, then the outside of the device in to which the module is installed must also display a label referring to the enclosed module. This exterior label can use wording such as the following: “Contains Transmitter Module FCC ID: **2AOO6-WLT3266** Or Contains FCC ID: **2AOO6 WLT3266”**

**When the module is installed inside another device, the user manual of the host must contain below warning statements**

1. 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.
    2. This device must accept any interference received, including interference that may cause undesired operation.
2. Changes or modifications not expressly approved by the party responsible for compliance could void the user’s authority to operate the equipment.

The devices must be installed and used in strict accordance with the manufacturer’s instructions as described in the user documentation that comes with the product

**Additional testing Part 15 subpart B disclaimer**

The final host / module combination need to be evaluated against the FCC Part 15B criteria for unintentional radiators in order to be properly authorized for operation as a Part 15 digital device . The host integrator installing this module into their product must ensure that the final composite product complies with the FCC requirements by a technical assessment or evaluation to the FCC rules including the transmitter operation and should refer to guidance in KDB 996369.

**Frequency spectrum to be investigated**

For host products with certified modular transmitter the frequency range of investigation of the composite system is specified by rule in Sections 15.33(a)(1) through (a)(3) or the range applicable to the digital device as shown in Section 15.33(b)(1) whichever is the higher frequency range of investigation.

## FCC Statement

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

**ISED RSS Warning/ISED RF Exposure Statement**

ISED RSS Warning: This device complies with Innovation, Science and Economic Development Canada licence-exempt RSS standard(s). 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.

## Documents / Resources

| | |
|---|---|
|  WLT3266 Dual mode bluetooth module Product specification V1.2 | Wi-Linktech WLT3266 Dual mode bluetooth module [pdf] User Manual WLT3266, 2AOO6-WLT3266, 2AOO6WLT3266, WLT3266, Dual-mode Bluetooth module, mode Bluetooth module, Bluetooth module, module |