1.1 General Decription

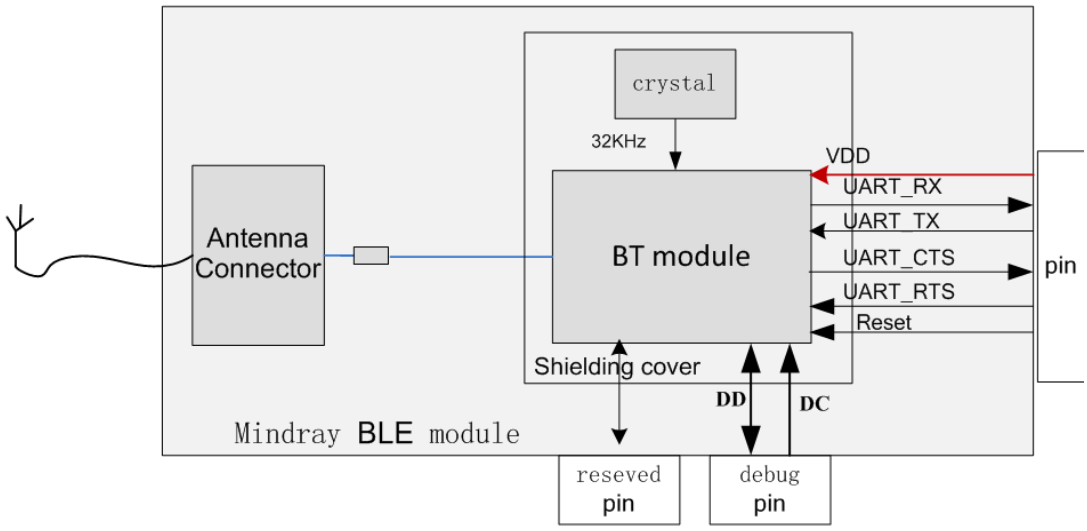
Panlink module consists of a BT module, crystal and antenna connector. This module can change UART signal to wireless signal using Bluetooth low energy technology. This module uses external antenna via a Antenna connector.

Panlink communication type is piconet, which means Panlink transfers data to another Panklink(one is master, the other one is salve).

When transfering data from master to slave, data was given to master by UART. Then master panlink controls signal, frames, radiation power and transmits them via the antenna to slave panlink. Slave panlink get RF signal via the antenna and resolve it to data.

When transfering data from slave to master, data was given to master by UART. Then slave panlink controls signal, frames, radiation power and transmits them via the antenna to master panlink. Master panlink get RF signal via the antenna and resolve it to data.

1.2 Block diagram



1.3 Interface and pin definition

No.	Pin name	Type	description
1 to 8	NC	/	No use
9	DC	I	Debug clock
10	DD	O	Debug data

11	SLEEP_OUT/P3_0	O	Wakeup out
12	VDD	Power	Power in
13	GND	Power	ground
14	Reset	RSTN	Reset in
15	Wake/P0_3	I	Wake up input
16	UART_RXD0	I	Uart in, baud rate is 115200
17	UART_TXD0	O	Uart out, baud rate is 115200
18	nCS1/CTSn1/P1_2	I/O	Reserved
19	CLK1/RTSn1/P1_3	I/O	Reserved
20	MOSI1/TXD1/P1_1	I/O	Reserved
21	MISO1/RXD1/P1_0	I/O	Reserved
22	CD	O	Module detect pin
23	RF Connector	RF	Connect to external antenna

1.4 Operation specification

ABSOLUTE MAXIMUM RATINGS

Over operating room temperature range (unless otherwise noted)

Item	VALUE	UNIT
Supply voltage range	-0.3 to 3.9	V
Voltage range to any of digital pins	-0.3 to VDD + 0.3, <3.9	V
Storage temperature range	-40 to +85	℃

RECOMMENDED OPERATING CONDITIONS

Over operating room temperature range (unless otherwise noted)

Item	MIN	NOM	MAX	UNIT
Supply voltage	2.0		3.6	V

range				
Operational temperature range	-20		+70	℃

1.5 Wireless specifications

Protocol：Bluetooth low energy 4.0

Modulation mode：GFSK

Operating frequency：2402 ~ 2480MHz(40 channels)

Channel spacing：2MHz

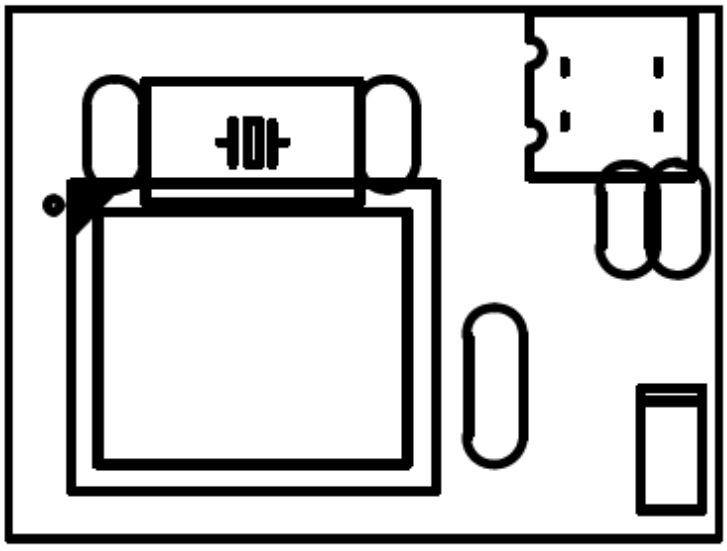
Wireless baud rate(data rate)： 1Mbps

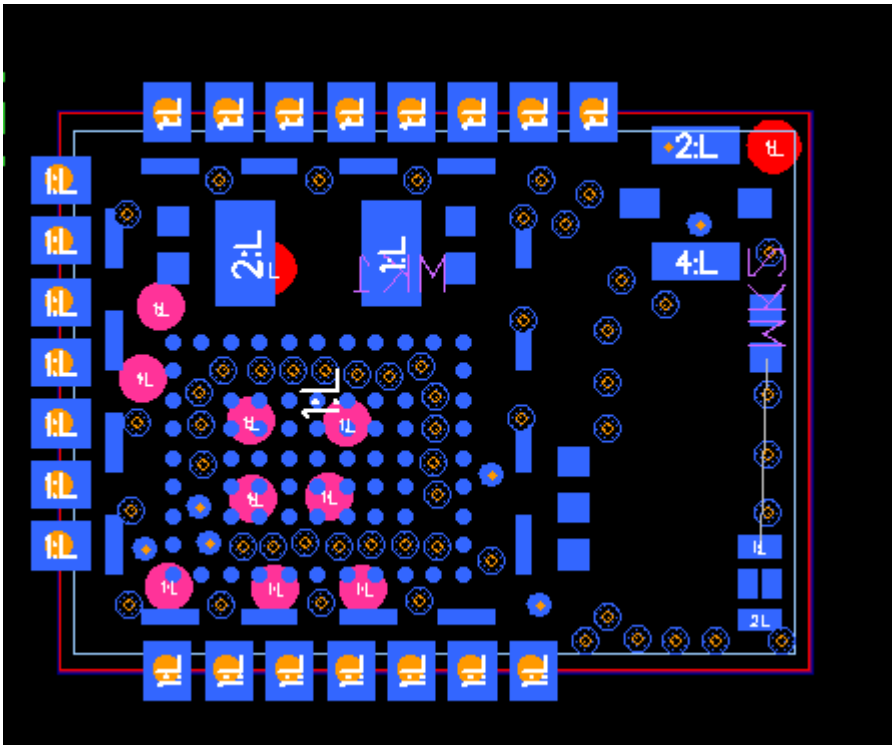
Output power (transfer power)： ≤2.5mW

Data security ： 128bit AES

1.6 Mechanical and package description

Dimension is 9.6mm*12.9mm*2.3mm, and package type is SMT.





This device and its antenna must not be located or operating in conjunction with any other antenna and transmitter.

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.

Changes or modifications not expressly approved by the party responsible for compliance 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 Important announcement

LABEL OF THE END PRODUCT:

The final end product must be labeled in a visible area with the following" Contains FCC ID: ZLZTDBTFE ". The FCC part 15.19 statement below has to also be available on the label: This device complies with Part 15 of 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.

To comply with FCC regulations limiting both maximum RF output power and human exposure to RF radiation, the maximum antenna gain including cable loss in a mobile-only exposure condition must not exceed -1dBi.

A user manual with the end product must clearly indicate the operating requirements and conditions that must be observed to ensure compliance with current FCC RF exposure guidelines.

The end product with an embedded Pan link Module may also need to pass the FCC Part 15 unintentional emission testing requirements and be properly authorized per FCC Part 15.

a. The module is limited to OEM installation ONLY;

b. The OEM integrators is responsible for ensuring that end-user has no manual instructions to remove or install module;

c. The module is limited to installation in mobile or fixed application

d. The separate approval is required for all other operating configurations, including portable configuration with respect to Part 2.1093 and different antenna configurations;

e. The host manufacturer is responsible for ensuring that after the module is installed and operational the host continues to be compliant with the Part 15B unintentional radiator requirements.