

LL2380-I Product Manual V1.1

Specifications

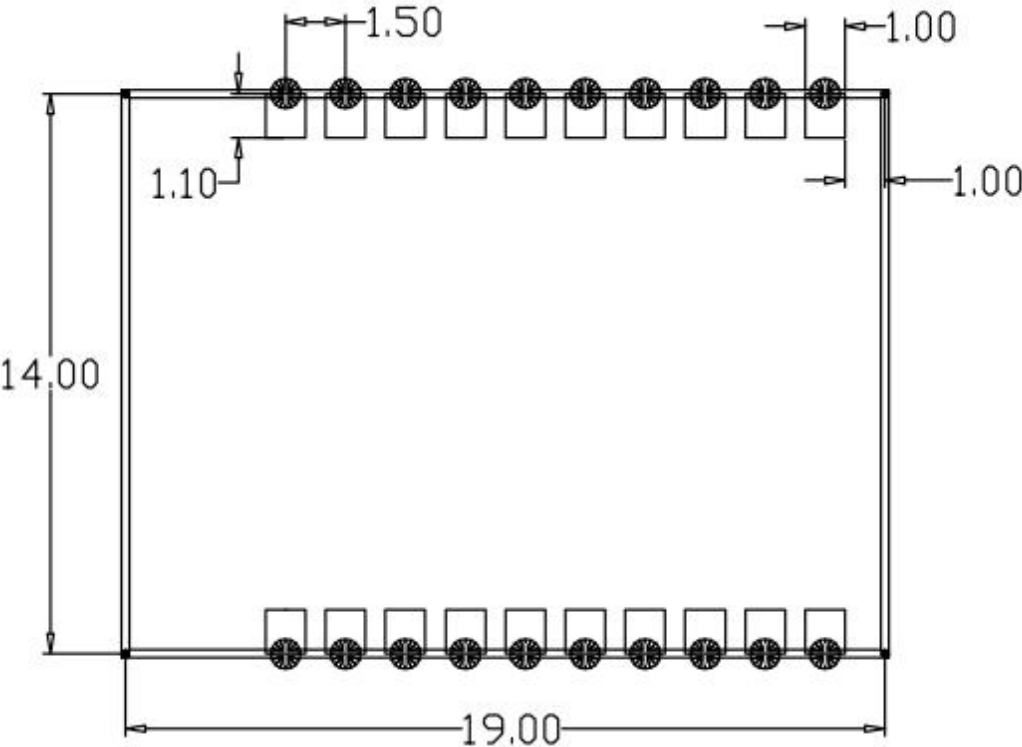
Model	LL2380-I
Firmware Type	Custom
Radio range	127~1020MHz
Support	(G)FSK
Radio output	433.2M@ 19± 1dBm
Receiving sensitivity	-109dBm@FSK
Data speed	0.5bps~ 300kbps
Support UART	2*UART
Working voltage	1.8V~3.6V
Dimensions	19mm*14mm*2.8mm

1. Overview (Hardware)

LL2380-I is an SoC ultra-low power RF module covering radio range 127~1020MHz. The module integrates RF transceiver and peripheral circuit and communicates with external MCU via UART. It can be widely used on smart home devices, home security devices, remote control systems and wireless sensors.

1.1 Hardware

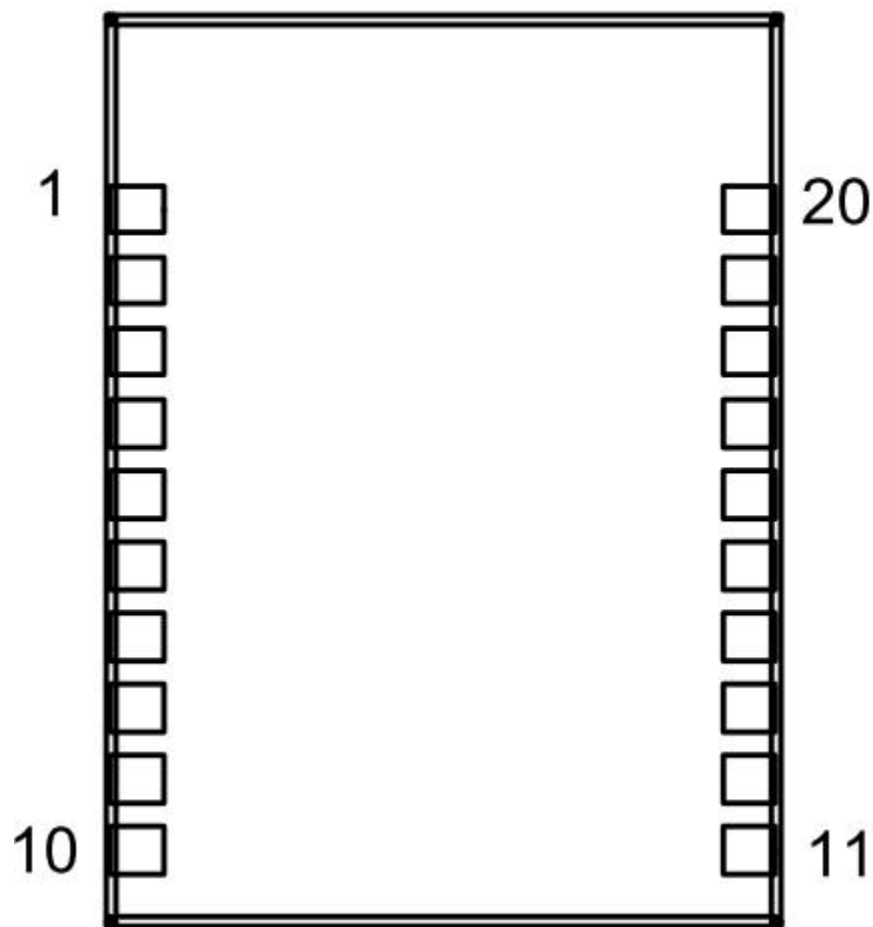
1.2.1. Mechanical Dimensions



Welding pad diameter: 0.75mm

Unit: mm

1.2.2. Pin Definitions

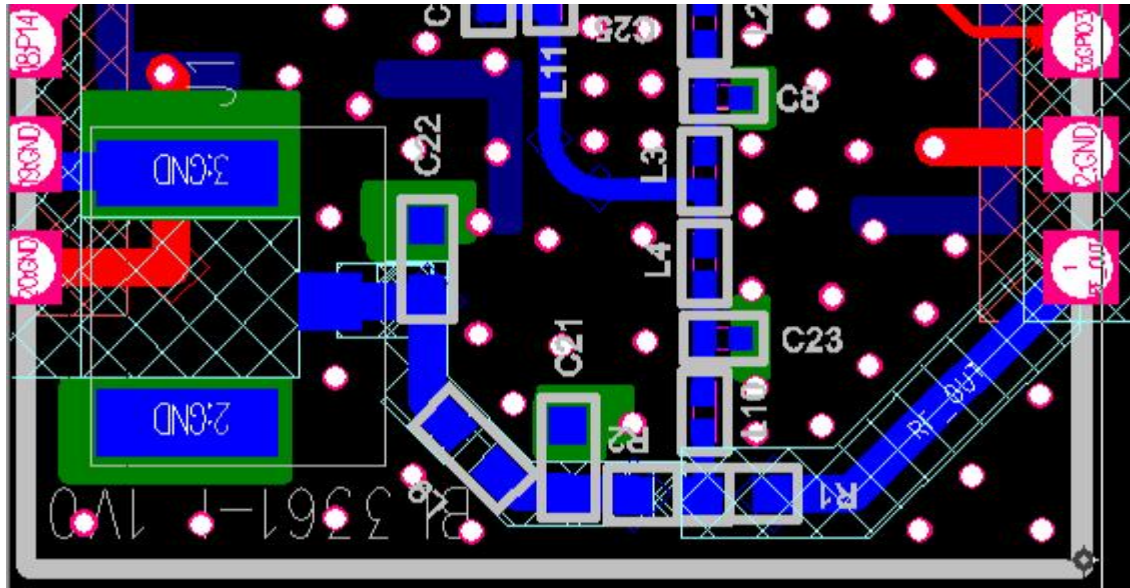


Pin	Interface	Description	Type
1	RF_OUT		0
2	GND		POWER
3	GPI03	RF_GPIO	I/O
4	NC		
5	P34		I/O
6	P36		I/O
7	TX0	UART0_ (DEBUG)	I/O
8	RX0		I/O
9	T1	UART1 (Pass-through)	I/O
10	R1		I/O
11	PB6	SWDIO (For firmware programming)	I/O
12	PB7	SWCLK (For firmware programming)	I/O
13	NC		
14	RESET	HW reset	I/PU

15	VOUT_3.3		POWER
16	GND		POWER
17	P23		I/O
18	P14		I/O
19	GND		POWER
20	GND		POWER

1.2.3. RF Design

This module does not have PCB antenna. An external antenna is required for actual use.



As illustrated in above picture:

1. The module is designed with a UFL antenna port for connecting external UFL/SMA antenna. For this purpose, R2 should be connected while R1 should be NC.

For PCB antenna designs, R1 should be connected while R2 should be NC. The PCB antenna should be conducted out via RF_OUT and proper circuit is required for matching the antenna design.

2.2 List of applicable FCC rules
FCC Part 15.231

2.6 RF exposure considerations

This module certified that complies with RF exposure requirement under 5mm RF distance.

2.7 Antennas

This product has an external Antenna. The antenna types listed below, with the maximum permissible gain indicated. Antenna types not included in this list that have a gain greater than the maximum gain indicated for any type listed are strictly prohibited for use with this device.

No.	Antenna Type	Gain	Impedance
1	Ceramic Chip Antenna	0.79dBi	50ohm

2.8 Label and compliance information

FCC ID label on the final system must be labeled with "Contains FCC ID: 2A9BE-LL2380-I" or "Contains transmitter module FCC ID: 2A9BE-LL2380-I".

2.9 Information on test modes and additional testing requirements

Contact Hangzhou LinknLink Technology Co., Ltd. will provide stand-alone modular transmitter test mode. Additional testing and certification may be necessary when multiple modules are used in a host.

2.10 Additional testing, Part 15 Subpart B disclaimer

To ensure compliance with all non-transmitter functions the host manufacturer is responsible for ensuring compliance with the module(s) installed and fully operational. For example, if a host was previously authorized as an unintentional radiator under the Supplier's Declaration of Conformity procedure without a transmitter certified module and a module is added, the host manufacturer is responsible for ensuring that the after the module is installed and operational the host continues to be compliant with the Part 15B unintentional radiator requirements. Since this may depend on the details of how the module is integrated with the host, Hangzhou LinknLink Technology Co., Ltd. shall provide guidance to the host manufacturer for compliance with the Part 15B requirements.

FCC Warning

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.

NOTE 1: Any 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.

FCC Radiation Exposure Statement:

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. End users must follow the specific operating instructions for satisfying RF exposure compliance.

Note 1: This module certified that complies with RF exposure requirement under 5mm RF distance.

Note 2: Any modifications made to the module will void the Grant of Certification, this module is limited to OEM installation only and must not be sold to end-users, end-user has no manual instructions to remove or install the device, only software or operating procedure shall be placed in the end-user operating manual of final products.

Note 3: Additional testing and certification may be necessary when multiple modules are used.

Note 4: The module may be operated only with the antenna with which it is authorized. Any antenna that is of the same type and of equal or less directional gain as an antenna that is authorized with the intentional radiator may be marketed with, and used with, that intentional radiator.