



LoRa +BLE5.0 Module WSL300N

Compact-sized
With Ultra-low Power
Consumption



LoRaWAN Support
BLE5.0 Support



WSL300N(L) : 470 – 510MHz
WSL300N(H) : 862 – 932MHz



AT Commands



Extended Temperature
Range: -40°C to +85°C



Ultra-Low Power Consumption
(2.0uA @ sleep mode)

The WSL300N transceivers SX127x feature the LoRa™ long range modem that provides ultra-long range spread spectrum communication and high interference immunity whilst minimising current consumption.

LoRa™ also provides significant advantages in both blocking and selectivity over conventional modulation techniques, solving the traditional design compromise between range, interference immunity and energy consumption.

◆ General Feature

- General LoRa module for Smart City, Smart Agriculture , Smart Industry, IOT Application
- Compact Form Factor: 15 x 23 x 2.5 mm
- 42 Pin Stamp Pad for PCB SMT mounting
- I/O port: UART/I2C/GPIO
- Temperature range: -40°C to +85°C
- Supply voltage: 2.0 ~ 3.6V
- Frequency range: 470 – 510 MHz(or 862 – 932 MHz),ISM and SRD systems
- IEEE 802.15.4g, Wireless M-Bus and Proprietary Systems
- Maximum 20dBm output power @ power boost mode
- Low-Power Wireless Systems with 7.8-kHz to 500-KHz Bandwidth

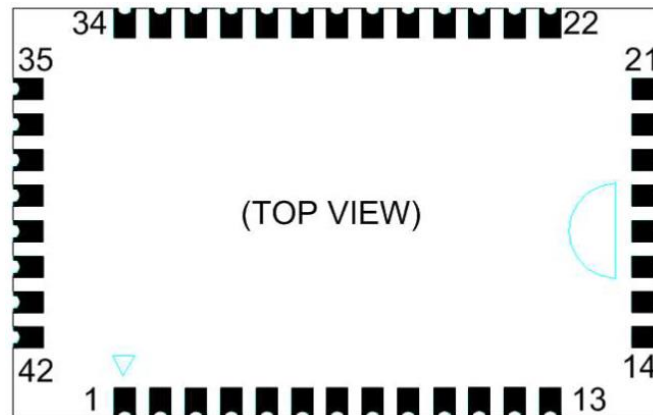
◆ Product Specifications

	RF Function
Standard	IEEE 802.15.4g BLE 5.0
Interface	UART/I2C/GPIO/NFC
Transmit Output Power	LoRa: Max. 20dBm BT: Max. 4dBm
Data Rate	LoRa: 0.018 - 37.5 Kbps BT: 1 – 2Mbps
Modulation Techniques	Multilevel (G)FSK and MSK
Frequency bands	470 – 510 MHz or 862 – 932 MHz
Operating Voltage	2.0 ~ 3.6V
Operating Temperature	-40 ~ 85 degree C

◆ Power Consumption

Item	Min.	Typ.	Max.	Unit	Condition
Transmit mode @20dBm		125		mA	on PA_BOOST
Transmit mode @17dBm		92		mA	on PA_BOOST
Transmit mode BT@4dBm		8			
Receive mode @37.5Kbps		17		mA	
Receive mode BT@2Mbps		11.5			
Sleep mode		2.0		uA	

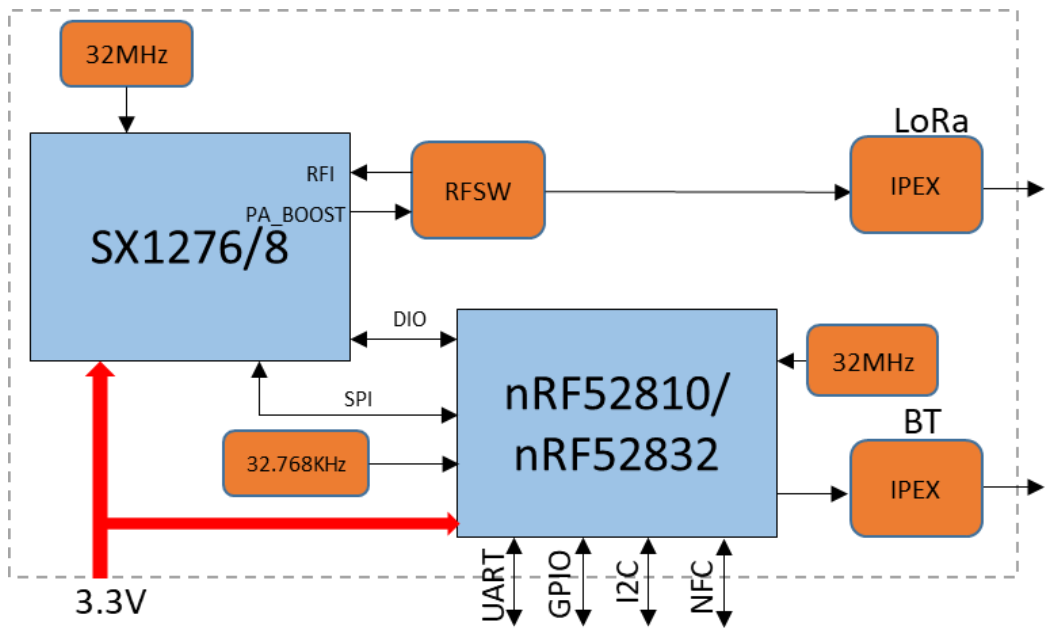
◆ MODULE PINOUT



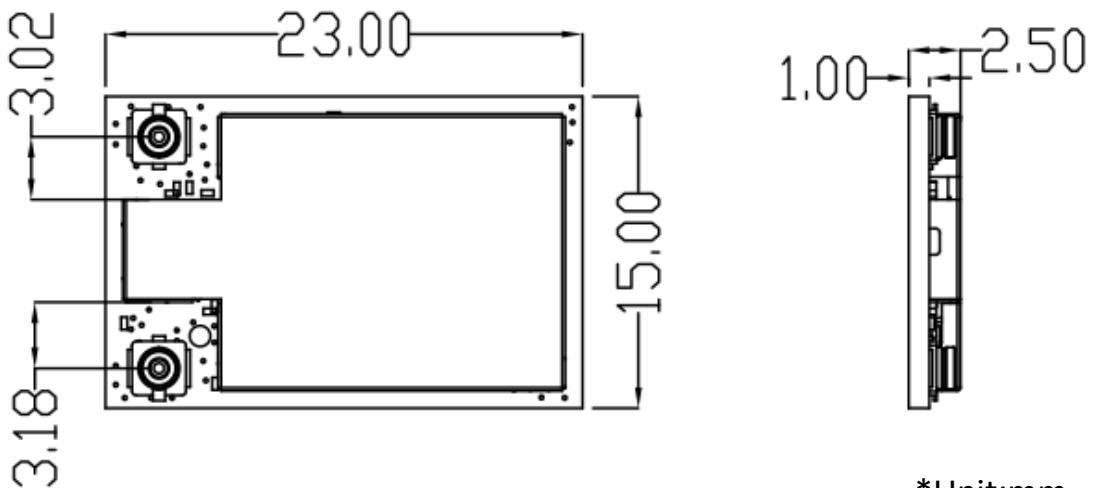
◆ PIN DEFINITION

Pin No.	Name	Description	Pin No.	Name	Description
1	GND	Ground	22	USART1_RX	Input
2	NC	NC	23	USART1_TX	Output
3	NC	NC	24	Reserved1	GPIO
4	I2C1_SDA	I2C	25	NC	NC
5	I2C1_SCL	I2C	26	NC	NC
6	NFC1	Only for nRF52832	27	NC	NC
7	NFC2	Only for nRF52832	28	NC	NC
8	GND	Ground	29	NC	NC
9	USART2_RX	Input	30	NC	NC
10	USART2_TX	Output	31	GND	Ground
11	NC	NC	32	NC	NC
12	GND	Ground	33	NC	NC
13	GND	Ground	34	NC	NC
14	GND	Ground	35	NC	NC
15	RF BT	RF Pin	36	MCU_NRST	MCU Reset
16	GND	Ground	37	SYS_SWDIO	Programming
17	RF L	RF Pin	38	SYS_SWDCCLK	Programming
18	GND	Ground	39	GND	Ground
19	GND	Ground	40	3V3_IN	Input Power
20	GND	Ground	41	3V3_IN	Input Power
21	Reserved	GPIO	42	GND	Ground

◆ BLOCK DIAGRAM

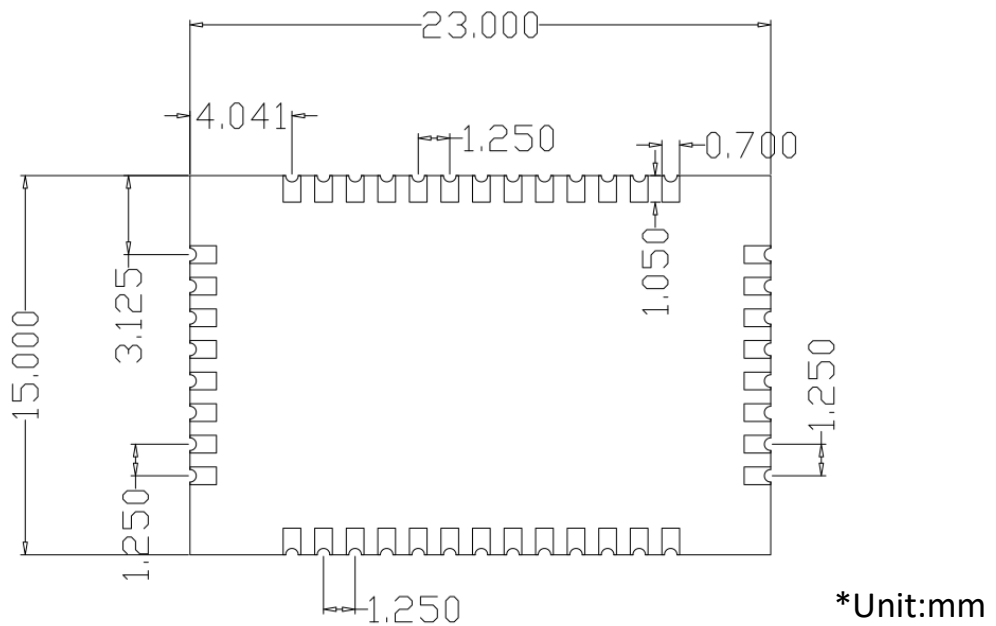


◆ MODULE DIMENSION

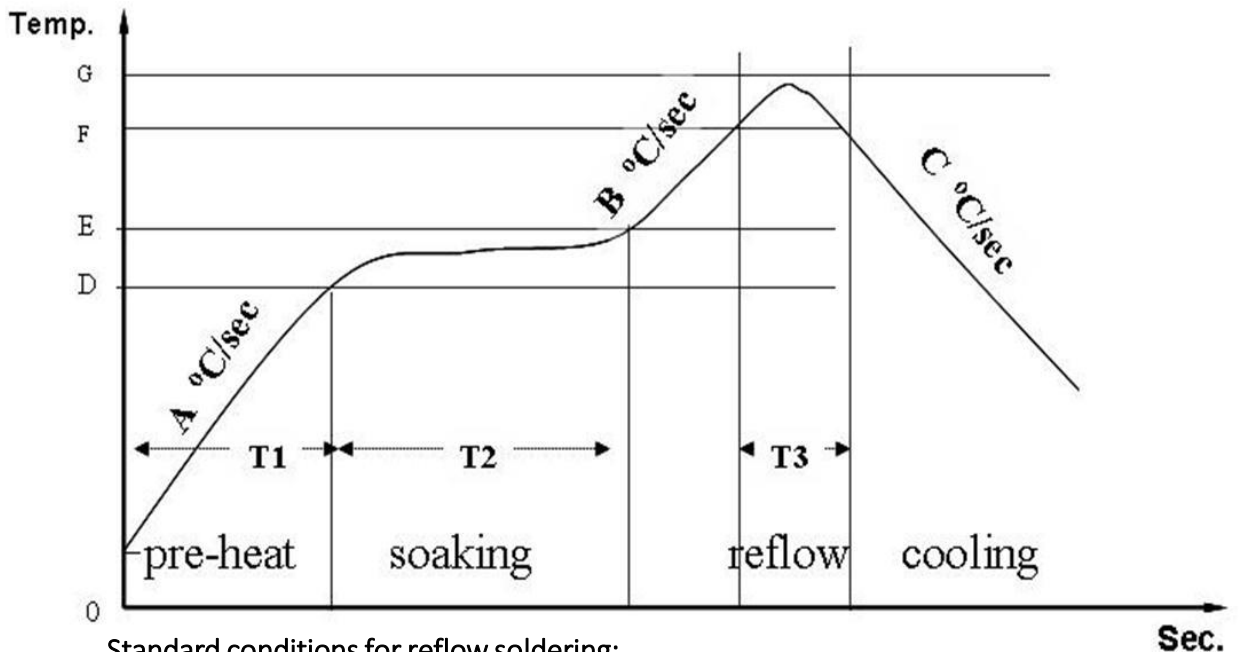


*Unit:mm

◆ **RECOMMENDED FOOTPRINT**



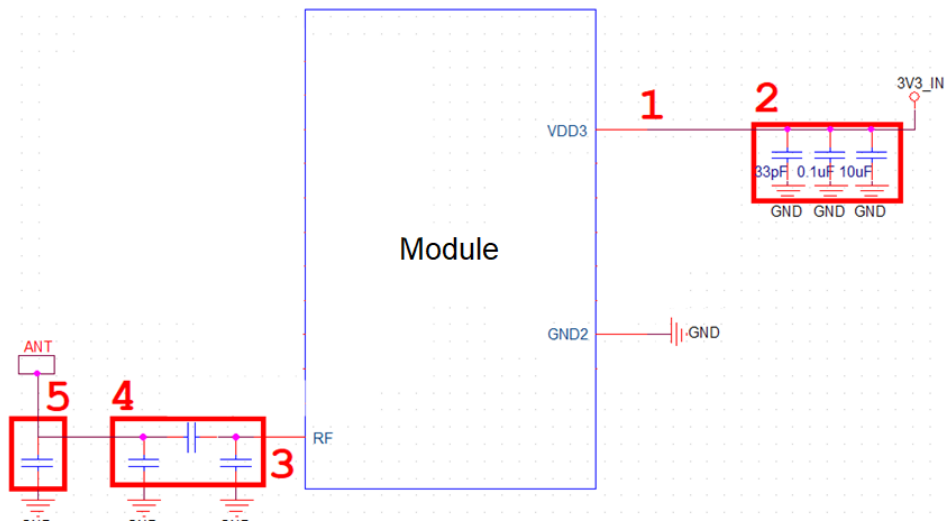
◆ **RECOMMENDED REFLOW PROFILE**



Standard conditions for reflow soldering:

- a. Pre-heating Ramp (A) (Initial temperature: 150°C): 1~2.5°C/sec;
- b. Soaking Time (T2) (150°C~180°C): 60sec~100sec;
- c. Peak Temperature (G): 230~250°C;
- d. Reflow Time (T3) (>220°C): 30~60 sec;
- e. Ramp-up Rate (B): 0~2.5°C/ sec;
- f. Ramp-down Rate (C): 1~3°C/ sec.

◆ Additional Guidelines



1. Power output routing width recommended more than 1mm.
2. Recommended to reserve capacitors to suppress ripple and noise.
3. RF output need routing with 50ohm impedance line.
4. Reserve the Pi-Matching for Antenna performance tuning.
5. Reserve the TVS for ESD protection. (Option)

◆ CHANGE LIST

Rev	Date	Author	Change List
V1.0	2018.07.20	Kelly Hsu	Preliminary
V1.1	2018.07.24	Kelly Hsu	Update Module Dimension Drawing
V1.2	2019.05.10	Kelly Hsu	Add Additional Guidelines