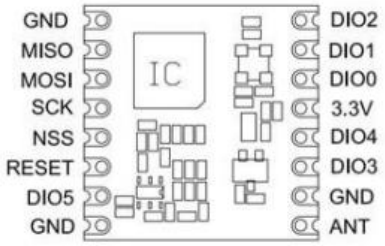
SX1278 Lora Module

Item Info

SX1278 is a LoRa module consists of SX1278 chip, it features long range transmission,excellent anti-inteference, link budget is over 157dB. It applies in many products, with high performance and lower cost than same range items in the market, SX1278 is one of the best options for your solutions. Under same application enviroment and same transmit power value, its transmission range is 3 times or more than FSK module, upto 10km in open area and 3km in city enviroment.

Frequency:	433.92 Mhz
Chip:	SX1278
Sensitivity:	-136dBm(LoRa, BW=125KHz)
Receive Current:	10.8mA
Modulation:	LoRa/FSK/GFSK/OOK
Supply Voltage:	1.8-3.7V, typical 3.3V

Pin Assignment



Pin Description

Number	Name	Type	Description Description Stand Alone Mode
1	GND	-	Ground
2	MISO	I	SPI Data output
3	MOSI	O	SPI Data input
4	SCK	I	SPI Clock input
5	NSS	I	SPI Chip select input
6	RESET	I/O	Reset trigger input
7	DIO5	I/O	Digital I/O, software configured
8	GND	-	Ground
9	ANT	-	RF signal output/input.
10	GND	-	Ground
11	DIO3	I/O	Digital I/O, software configured
12	DIO4	I/O	Digital I/O, software configured
13	3.3V	-	Supply voltage
14	DIO0	I/O	Digital I/O, software configured
15	DIO1	I/O	Digital I/O, software configured
16	DIO2	I/O	Digital I/O, software configured

More Specs

Frequency: 433.92 Mhz

Chip: SX1278

Sensitivity: -136dBm(LoRa, BW=125KHz,SF=12,CR=4/5,1%PER)

Receive Current: 10.8mA

Modulation: LoRa/FSK/GFSK/OOK

Supply Voltage: 1.8-3.7V, typical 3.3V

Transmit Power: 20dBm

Data Rate: FSK300Kbps,OOK:32Kbps

Transmit Current: 120mA(+20dBm)

Receive Current: 10.8mA

Standby Current:0.2μA

Interface: SPI

Transmission Range: >8000m(1.2kbps data rate, in open area)@LoRa

Antenna Impedance: 50 ohm

Operate Temperature: -20 to +70℃

Supply Voltage: DC 1.8-3.7V, transmit power will not drop at 1.8V

Size: 16*16mm

Absolute Maximum Ratings

Symbol	Description	Min	Max	Unit
VDDmr	Supply Voltage	-0.5	3.9	V
Tmr	Temperature	-55	+115	° C
Tj	Junction temperature	-	+125	° C
Pmr	RF Input Level	-	+10	dBm

Operating Range

Symbol	Description	Min	Max	Unit
VDDop	Supply voltage	1.8	3.7	V
Top	Operational temperature range	-20	+70	°C
Clop	Load capacitance on digital ports	-	25	pF
ML	RF Input Level	-	+10	dBm

Power Consumption

Symbol	Description	Conditions	Min	Typ	Max	Unit
IDDSL	Supply current in Sleep mode		-	0.2	1	uA
IDDIDLE	Supply current in Idle mode	RC oscillator enabled	-	1.5	-	uA
IDDST	Supply current in Standby mode	Crystal oscillator enabled	-	1.6	1.8	mA
IDDFS	Supply current in Synthesizer mode	FSRx	-	5.8	-	mA
IDDR	Supply current in Receive mode	*LnaBoost* Off, higher bands *LnaBoost* On, higher bands Lower bands	- - -	10.8 11.5 12.1	- - -	mA
IDDT	Supply current in Transmit mode with impedance matching	RFOP = +20 dBm, on PA_BOOST RFOP = +17 dBm, on PA_BOOST RFOP = +13 dBm, on RFO_LF/HF pin RFOP = + 7 dBm, on RFO_LF/HF pin	- - - -	120 87 29 20	- - - -	mA mA mA mA

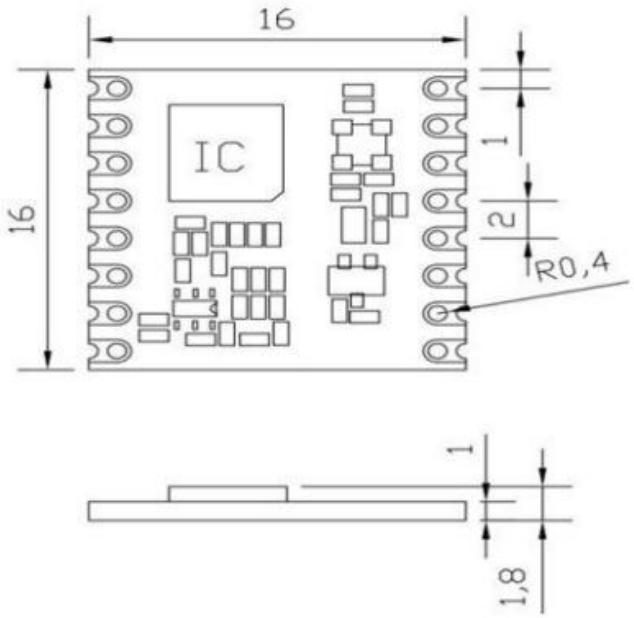
Frequency Synthesis

Symbol	Description	Conditions	Min	Typ	Max	Unit
FR	Synthesizer frequency range	Programmable	137 410 862	- - -	175 525 1020	MHz
FXOSC	Crystal oscillator frequency		-	32	-	MHz
TS_OSC	Crystal oscillator wake-up time		-	250	-	us
TS_FS	Frequency synthesizer wake-up time to PllLock signal	From Standby mode	-	60	-	us
TS_HOP	Frequency synthesizer hop time at most 10 kHz away from the target frequency	200 kHz step 1 MHz step 5 MHz step 7 MHz step 12 MHz step 20 MHz step 25 MHz step	- - - - - - -	20 20 50 50 50 50 50	- - - - - - -	us us us us us us us
FSTEP	Frequency synthesizer step	FSTEP = FXOSC/2^{19}	-	61.0	-	Hz

Applications

Wireless Meter Reader	Mining Equipment
Industrial Surveillance	Long Range Communication Device
Remote Conrol	Building Automation
Security	Garage/Subway/Tunnel

Dimensions



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