

# SNIOT712 Specification

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# Catelog

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# 1 Product introduction

## 1.1 Product introduction

SNIOT712 is a compact, low power ZigBee module with high sensitivity, the module with IEEE 802.15.4 specification, Light Link supports ZigBee protocol and ZigBee HA protocol, which can be applied to the wireless sensor, control and data acquisition module. All leads to external port, can be conveniently embedded into the application, so as to the development of user saves a lot of time and energy, reducing the risk of research and development, can save time for the product to the market.



## 1.2 Product application

The SCNIOT702 module with IEEE802.15.4 ZigBee protocol stack, it supports self-repair, network self-organization, optimize the network traffic and reduce the power consumption. The module supports two application configurations: customization: we can according to customer specific application, provide a reliable customer, application security transparent transmission: the user. According to our AT instruction program for program development. The application of modules including but not limited to: - building automation monitoring and control - Lighting - wireless smoke and gas detectors - structural integrity monitoring - HVAC monitoring and control of inventory management - - Environmental Monitoring - Security - water - measuring industrial monitoring - mechanical equipment state and performance monitoring - plant monitoring system (such as temperature, pressure, water flow, humidity etc.) - automatic meter reading.

## 1.3 Main characteristics

- a. Size: 22 \* 15 \* 2.60mm
- b. The high receiving sensitivity: -102 dBm
- c. The link budget outstanding: 103 dB / 110dB (configurable)
- d. The output power up to 21 dBm (PA)
- e. The power consumption is very low:

Sleep mode: 1.25 A

Receiving mode: 27 mA

Emission mode: 31 mA

f. The storage resource rich:

EM3585:512 K bytes Flash; 64K bytes RAM

g. A variety of interfaces: analog and digital interface:

25 GPIO, 4 interrupt.

6 analog input channels

1 USART band hardware flow control, with hardware flow control

1 TWI interface

1 SPI interface

h. To support the MAC address into the Flash function

j. A variety of antenna selection

k. To comply with IEEE 802.15.4 standard

l. The 2.4G license free band license free band

m. To support USART bootloader and AT instructions, support transmission mode

n. Support ZigBee Light, Link protocol and protocol and ZigBee HA protocol

## 1.4 Product advantage

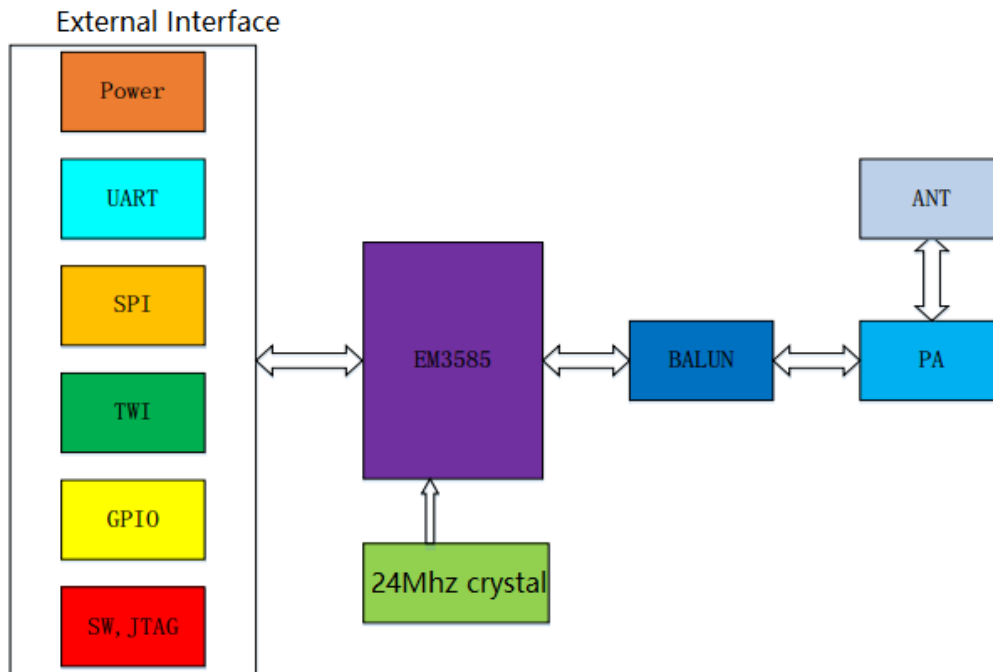
a. The package design is small, even for very small equipment.

- b. Industry leading link budget
- c. Ultra low power consumption
- d. Level 4 PCB board design
- e. Rich storage resources for customer software applications
- f. Networking capability
- g. Easy to use low cost development kit
- h. ISM unlicensed frequency band

## 2 Technical specifications

### 2.1 Product Overview

ZigBee SNIOT712 module is a compact, low power ZigBee module with high sensitivity, meet the IEEE 802.15.4 specification, Scinan IoT based on Meshbee hardware platform has excellent RF performance , low power consumption, and very easy to user integration.



ZigBee FSNIOT712 module with FCC, IC and CE specifications, can be applied to different environment equipment. ZigBee FSNIOT712 module meets ROHS specifications.

## 2.2 Electrical parameters

Parameters	Minimum	Maximum
Pin voltage range	-0.3v	3.6v
I/O maximum drive current	-	4mA
I/O maximum drive current	-	8mA(PA6,PA7 , PB6 , PB7,PC0)
The chip maximum received signal strength	-	+15dBm

## 2.3 Performance

Test conditions (unless otherwise agreed), VCC=3.3V, temperature =25 DEG C

Parameters	Range	Unit
The power supply voltage VCC	2.1—3.6	V
Receive current	27	mA
Send current	31(+3dBm)/42(+8dBm)	mA
Sleep current	1.25(Maximum sleep current)	uA
Wake up time	110	us
Sleep time	5	us

## 2.4 RF characteristics

Parameters	Range	Unit
Working frequency	2400-2485	MHZ
channel number	16	
channel sequence number	0B-1A	HEX
Channel spacing	5	MHZ
Transmit power	21(PA)dBm	dBm
Receiving sensitivity	-100 (Can be configured as -102, 1%PER)	dBm
Maximum transmission rate	250	Kbps
The output impedance	50	$\Omega$



of RF		
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## 2.5 CPU Performance

Silicon Labs' ZigBee chip EM357.

Parameters	Specifications	Unit
Chip core	32bit ARM CORTEX-M3	-
On chip Flash	512	kB
On chip RAM	64	kB
Working frequency	24	MHZ

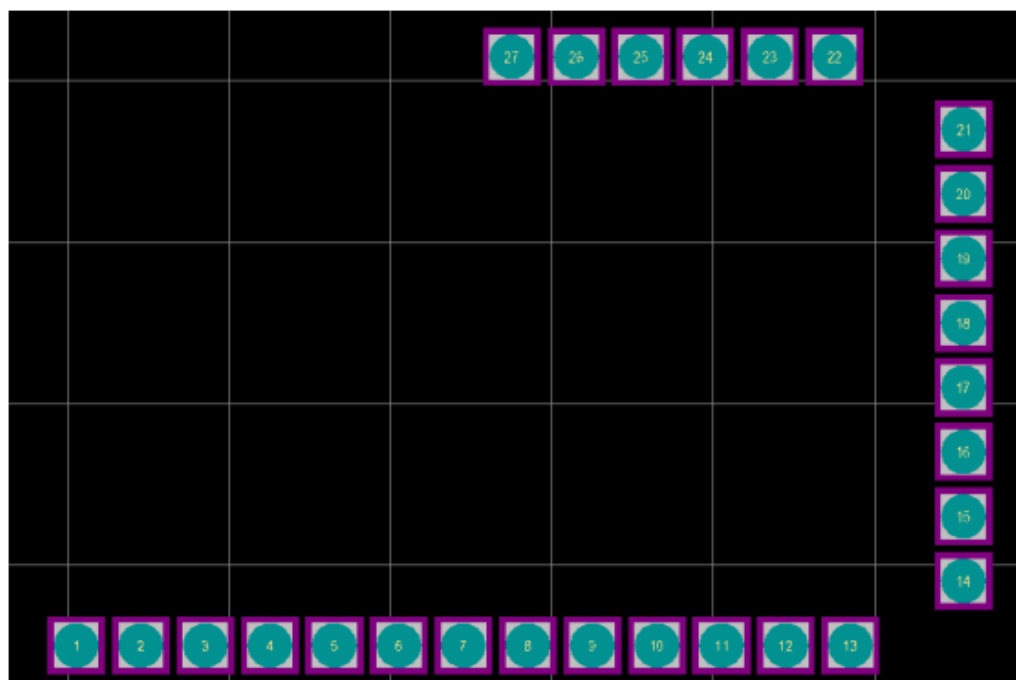
## 2.6 Module interface characteristics

Parameters	Specifications	Unit
UART maximum baud rate	300—921.6k	bps
Analog input impedance		
The analog input voltage	-0.3-3.6	V
The maximum clock frequency of SPI bus	12	MHZ
GPIO output high level	$0.82 \cdot V_{CC} - V_{CC}$	V
GPIO output low level	$0 - 0.18 \cdot V_{CC}$	V

### 3 Pins function definition

Pin No	Pin Name	The default function
1	GND	Ground
2	GND	Ground
3	PB7	GPIO/PWM/ADC2/TIM1
4	PA1	GPIO/PWM/TIM2/IIC_SDA/MISO
5	SWCLK	SWCLK/JCLK
6	SWDIO,PC4	GPIO/SWDIO/JTMS
7	PA5	GPIO/ADC5/nBOOTMODE
8	VCC	POWER
9	PA4	GPIO/ADC4
10	PA2	GPIO/PWM/TIM2/IIC_SCL/SCLK
11	GND	Ground
12	GND	Ground
13	GND	Ground
14	PB1	GPIO/UART_TXD/MISO/MOSI/IIC_SDA/TIM2/ PWM
15	PB2	GPIO/UART_RXD/MISO/MOSI/IIC_SCL/TIM2/ PWM

16	PA3	GPIO/PWM/SSEL/TIM2
17	GND	Ground
18	VCC	POWER
19	GND	Ground
20	PB3	GPIO/PWM/TIM2/UART_CTS/SCLK
21	PB4	GPIO/PWM/TIM2/UART_RTS/SSEL
22	GND	Ground
23	RESET_N	RESET
24	PB5	GPIO/ADC0/TIM2CLK/TIM1MSK
25	PC6	GPIO/OSC32B
26	PB6	GPIO/OSC32A/OSC32_EXT/ADC1



Pin diagram

## 4 Physical environment characteristics

Parameter	Specification	Remark
Physical size	36.2*15mm	
Weight	3.0g	
Operating temperature	-40—+85℃ (+125℃)	There are three kinds of main chip temperature specifications
Relative humidity	< 80%	

## 5 Ceramic antenna

The impedance of 50 ohms 2.4G band antenna, the maximum gain of 2.5dB, the average gain is 0.5dB, and the storage temperature is -40~80 degrees Celsius.

