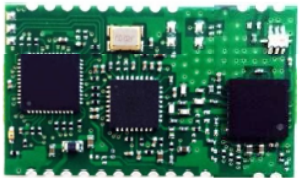
ARM-N8LP (low power)

DATASHEET

Narrow band ISM Transceiver 868MHz / 14dBm



REQUIREMENTS

Nano-module family has been designed to operate in the ISM band (169MHz, 433MHz and 868MHz) delivering up to 500mW for the N1LD and N8LD. All Nano-modules are single/multi-channel radio boards. They allow 'point-to-point', `multipoint'. The radio link is a Half-Duplex bi-directional link.

The N4LP modules N8LP were designed for users for whom consumption is the main criterion. They can be used with battery. However, the radio range of the modules is not sacrificed. Our long experience allowed us to improve reception sensitivity to increase the radio link. This radio link exceed 137 dB in narrowband this allows us to have a range (Line-Of-Sight) over 5km at 869MHz and 7km at 433MHz.
They can be used for applications such as meter reading, water detection, energy monitoring etc…
All our N8 modules (868MHz) are compatible with SIGFOX™ transceivers. They have a double function: they can be used in the local ISM network and/or in the SIGFOX™ network.
All Nano-module family has the same footprint: (same PCB format, half-moons connectors, etc.).

I. GENERAL CHARACTERISTICS

1.1 DC CHARACTERISTICS

	Min.	Typ.	Max.
Power Supply (Vcc) :	3V	3.3V	3.6V
Consumption @3.3V			
Transmission (25mW) :			50mA
Reception :		23 mA	45 mA
Stand-by :		15µA	
I/O low level voltage:	GND		0.2xVdd
I/O high level voltage:	0.8xVDD		VDD

1.2 N8LD RF CHARACTERISTICS

Datarate in kbps	Channel number	Modulation
0,3	**506**	**2gfsk**
2,4	**506**	**2gfsk**
9,6	**249**	**4gfsk**
19,2	**124**	**4gfsk**
38,4	**77**	**4gfsk**
57,6	**56**	**4gfsk**
115,2	**6**	**4gfsk**
9,6	*10*	*2gfsk*
19,2	*10*	*2gfsk*
38,4	*10*	*2gfsk*

2 HARDWARE CHARACTERISTICS

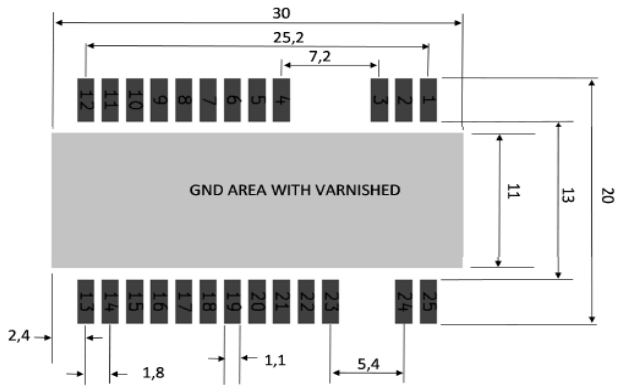
2.1 LAYOUT / FOOTPRINT

Size: Rectangular 30x 18 mm,

Number of I/O pins: 25

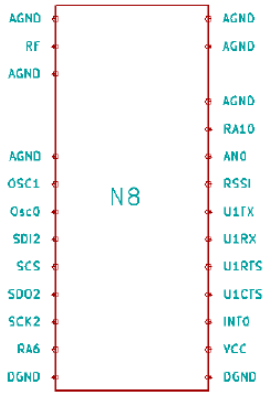
Pins: The terminals allowing conveying I/O signals are half-moons

It is recommended to fill out all area PCB under the module with only ground plane. This area must be varnished to avoid short circuit with the module.



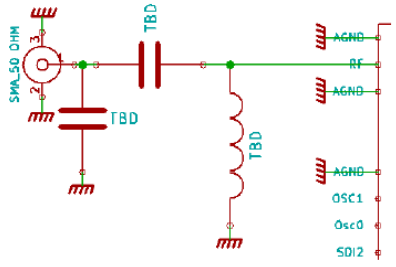
2.2 PINS DESCRIPTION

Pin	Name	I/O	Function
1	AGND	-	GROUND
2	RF	-	RF signal
3	AGND	-	GROUND
4	AGND	-	GROUND
5	OSC1	O	TBD
6	OSC0	O	TBD
7	SDI2	I	TBD
8	SCS	I/O	Digital SPI
9	SDO2	I/O	Digital SPI
10	SCK2	I/O	Digital SPI
11	RA6	I	Digital
12	DGND	-	GROUND
13	DGND	-	GROUND
14	VCC	-	Power Supply
15	INT0	I/O	Digital Interup
16	U1CTS	I	Clear To Send
17	R1RTS	O	Request To Send
18	U1RX	I	Data input
19	U1TX	O	Data output
20	RSSI	O	Analog
21	AN0	I	Analog
22	RA10	I/O	Analog/Digital
23	AGND	-	GROUND
24	AGND	-	GROUND
25	AGND	-	GROUND

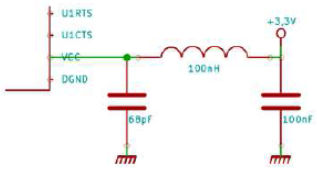


2.3 MINIMAL HARDWARE REQUIREMENTS

2.3.1 RF CONSIDERATIONS



2.3.2 POWER SUPPLY



The LC filter should be mounted as close as possible to the module Vcc pin.

2.3.3 INTERFACE / SERIAL LINK

- SPI (<16MHz)
- UART (1.2kbps - 250 kbps)

3 SOFTWARE

3.1 OPERATING MODES

Several operating modes are available from 'AT' commands/settings via UART / SPI:

- Transparent
- Securized (address, acknowledge, crc)
- ModbusRTU (remote / local / routed)
- Repeater
- Test : ping / pong, spectrum analyzer

3.2 SETUP

According to operating mode, several settings (frequency, output power, baudrates, etc.) can be changed from 'AT' commands via UART/SPI or OTA (over-the-air).

4 STANDARDS:

- *EN 300 220-2 (V2.4.1)*
- *EN 60950-1 (Ed 2000)*
- *EN62311 (2008)*
- *EN 301 489-3 (v1.4.1) (2002-08)*

According to the RTTE Directive 99/5/EC