

ARM-N8LD (Long Distance)

DATASHEET



Narrow band ISM Transceiver 868MHz / 27dBm

REQUIREMENTS

ATIM contributes to the expansion of wireless world and reduced the amount of power and time necessary to embed communication between devices. ATIM with his new range of product have also enabled a wide range of new business opportunities. We set up new connections between electronic devices with these new Nano module family, easy and simple to use. These modules operate in the license-free ISM frequency, typically in the bands of 169, 433, 868 and 915 MHz. They are available in dedicated protocol or in option with standard protocols such as wireless M-Bus and Knx. They allow 'point-to-point', 'multipoint'. The radio link is a Half-Duplex bi-directional link.

The N1LD (169MHz) and N8LD (868MHz) Nano-modules are designed for users whose range is essential. The very low sensitivity of these modules allows us to increase the radio link. This link exceed 150 dB in narrowband this allows us to have a range over 25km (Line-Of-Sight) at 869MHz and 40km at 169MHz.

All our N8 modules (868MHz) are compatible SIGFOX™ transceiver. 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.).



1. GENERAL CHARACTERISTICS

1.1 DC CHARACTERISTICS

	Min.	Typ.	Max.
Power Supply (Vcc) :	3V	3.3V	3.6V
Consumption @3.3V			
Transmission : <i>25mW / 500mW</i>		50/700mA	60/900mA
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 at 27dBm	Channel number at 14dBm	Modulation
0,3	19	506	2gfsk
2,4	19	506	2gfsk
9,6	9	249	4gfsk
19,2	5	124	4gfsk
38,4	5	77	4gfsk
57,6	3	56	4gfsk
115,2	1	6	4gfsk
<i>9,6</i>	<i>10</i>	<i>10</i>	<i>2gfsk</i>
<i>19,2</i>	<i>10</i>	<i>10</i>	<i>2gfsk</i>
<i>38,4</i>	<i>10</i>	<i>10</i>	<i>2gfsk</i>

2. HARDWARE CHARACTERISTICS

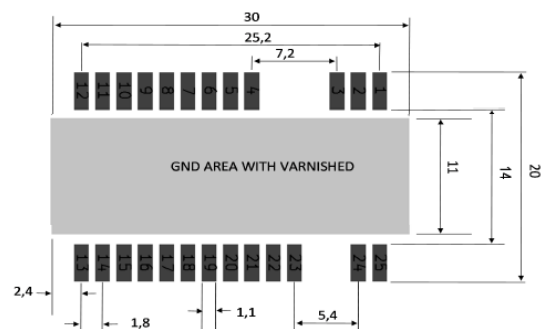
2.1 LAYOUT / FOOTPRINT

Size: Rectangular 30x 18 mm,

Number of I/O pins: 25

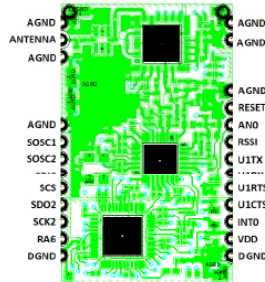
Pins: The terminals allowing conveying I/O signals are half-moons

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.

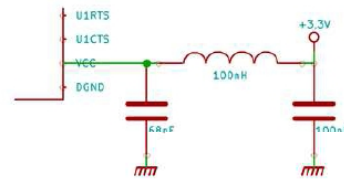


2.2 PINS DESCRIPTION

Pin	Name	I/O	Function
1	AGND	-	GROUND
2	ANTENNA	-	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	VDD	-	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	RESET	I	Digital
23	AGND	-	GROUND
24	AGND	-	GROUND
25	AGND	-	GROUND



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)
- EN 301 489-3 (v1.4.1) (2002-08)

According to the RTTE Directive 99/5/EC

2.3 MINIMAL HARDWARE REQUIREMENTS

2.3.1 RF CONSIDERATIONS

