

N516CS-B User's Guide

1. N516CS-B Module Introduce

N516CS-B transceiver module designed for 868M and 915MHz ISM band.

2. N516 Module Parameter

Model	N516CS-B
Module Interface	SPI
Frequency	860-960 Mhz
RF Data Rate	0-500 kbps
Transmitting Power	+27 dBm
Receiving Sensitivity	-122 dBm
TX Current	500 mA
RX Current	30 mA
Frequency Deviation	+/- 2 khz
Communication Distance	10 – 3000 m(Visual distance)
Antenna Interface	RF pin
Installation Mode	SMD
Volume (mm)	29.5 mm x 21 mm x 3 mm
Operating Voltage	1.8 - 3.6 V
Working Temperature and Humidity Environment	Temperature: -30-70 °C; Humidity 10-95 %RH
Storage Temperature and Humidity Environment	Temperature: -40-80 °C; Humidity 10-95 %RH

3. N516 Module Pinout

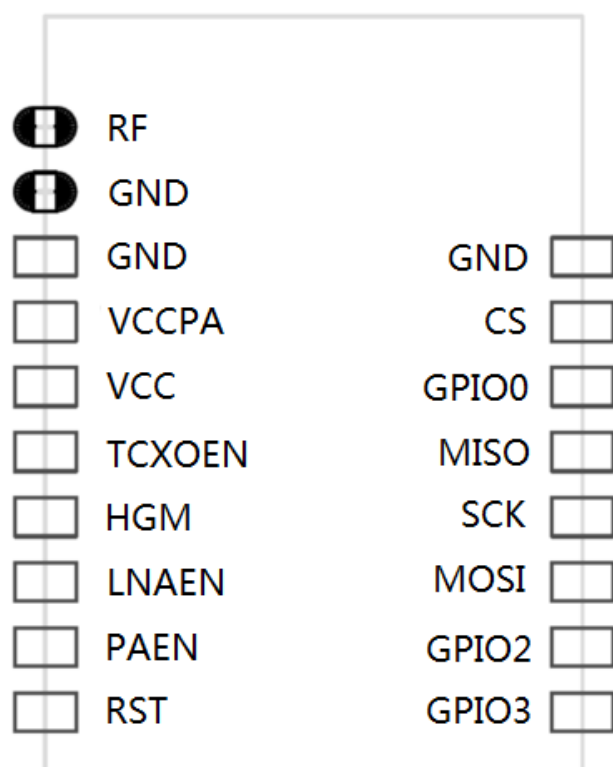
	Pin name	Description		Pin name	Description
1	GND	Ground	9	GPIO3	MCU I/O

2	VCCPA	2-3.9V	10	GPIO2	MCU I/O
3	VCC	2-3.6V	11	MOSI	SPI
4	TCXO	MCU I/O	12	SCK	SPI
5	HGM	MCU I/O	13	MISO	SPI
6	LNAEN	MCU I/O	14	GPIO0	MCU I/O
7	PAEN	MCU I/O	15	CS	SPI
8	RESET	MCU I/O	16	GND	Ground

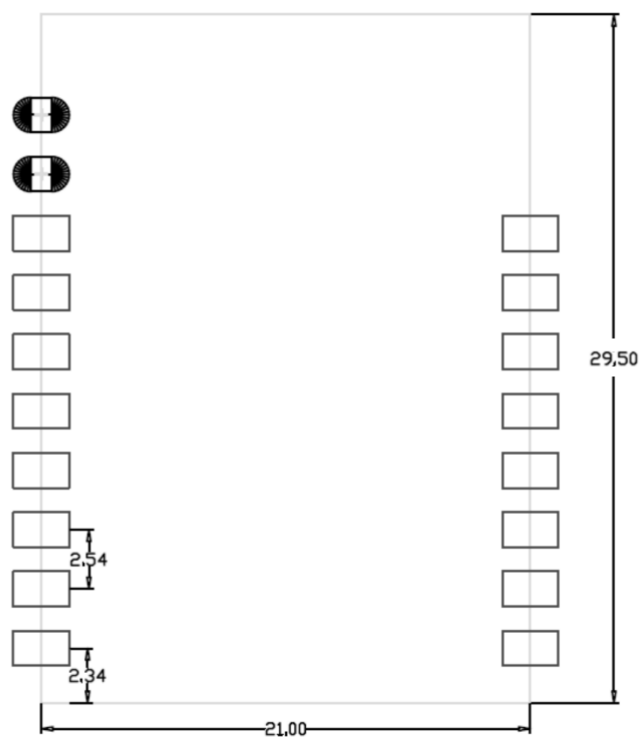
4. RF logic

	PAEN	LNAEN	HGM
TX	1	0	1
RX	0	1	1
SLEEP	0	0	0

5. N516CS-B Pin diagram



6. N516xS Layout (mm)



7. RF pin

For RF pin, Please use a 50 ohm impedance wire for connection.

Eg: For modules with FR4 material and 1.2mm PCB thickness, please use a line width of 1.35mm and a spacing of 0.254mm.

8. TCXO

N516AS-B TCXO is **32Mhz**;

N516BS-B, N516CS-B, N516DS-B TCXO is **40Mhz**.

N516 module startup sequence:

- 1) Power On TCXO;
- 2) Wait 2ms or more;
- 3) Reset module;
- 4) Configuration Register;
- 5) TX and RX.

N516 module enter to sleep and wake on sequence:

- 1) Configuration Register;
- 2) enter cc112x/cc12xx sleep mode;
- 3) Wait 2ms or more;
- 4) Power Off TCXO;
- 5) Enter MCU power off.
- 6) Wait 2ms or more;
- 6) Power On TCXO;
- 7) Wait 2ms or more;
- 8) TX and RX.

TCXO power select:

- 1) Without sleep mode: $V_{TC} = V_{CC3.3V}$
- 2) sleep mode: $V_{TC} = \text{GPIO}(\text{MCU GPIO control the power of TCXO})$

9. N516 code

The N516 soft example please down load from TI, or get from www.coralradio.com.

Note: This guide supports N516AS-B, N516BS-B, N516CS-B, N516DS-B, N516ES-B.

10. CC1120/CC1125/CC1200/CC1201 output power

For N516CS-868M V1.1, softcode, CC1200 output less than **10dBm**. Exceed than **10dBm**, If it exceeds 10dBm, please be sure to add an antenna. Without an antenna, PA may be damaged during low-speed transmission.

For N516CS-868M V2.0, softcode, CC1200 output less than **14dBm**. Exceed than **14dBm**, If it exceeds 13dBm, please be sure to add an antenna. Without an antenna, PA may be damaged during low-speed transmission.

For N516CS-B-868M, softcode, CC1200 output less than **14dBm**. Exceed than **14dBm**, If it exceeds 13dBm, please be sure to add an antenna. Without an antenna, PA may be damaged during low-speed transmission.