

# Technical Description

The brief circuit description is listed as follows:

U1 acts as MCU

U3 acts as 3.3V Regulator

Charger Circuit (U2, Q1, Q2) act as the charging circuit part

Y1 acts as 16MHz Oscillator

RF Chip set TNT-2400SSV-UDN acts as 2.4GHz RF transceiver

Antenna Used:

An internal, integral antenna has been used.

Antenna Gain: 0dBi

Nominal rated field strength: 100.0dB $\mu$ V/m at 3m

Maximum allowed field strength of production tolerance: +/- 3dB

## 2.4GHz GFSK Transceiver Module

**TNT-2400SSV-UDN**

**Data Sheet**

## General Description

The TNT-2400SSV\_UDN module is designed for 2.4GHz ISM band wireless application using GFSK transceiver. This module is a fully programmable frequency synthesizer through SPI. The maximum data rate is 2Mbps.

## Features

- 2.4GHz ISM band operation
- 250Kbps, 1Mbps, 2Mbps
- Continuous TX mode, no re-lock between packets required
- Programmable status monitor: dedicated RX/FIFO monitor mode
- 1.9 to 3.6V supply range
- Automatic packet processing
- Advanced RSSI recording mode

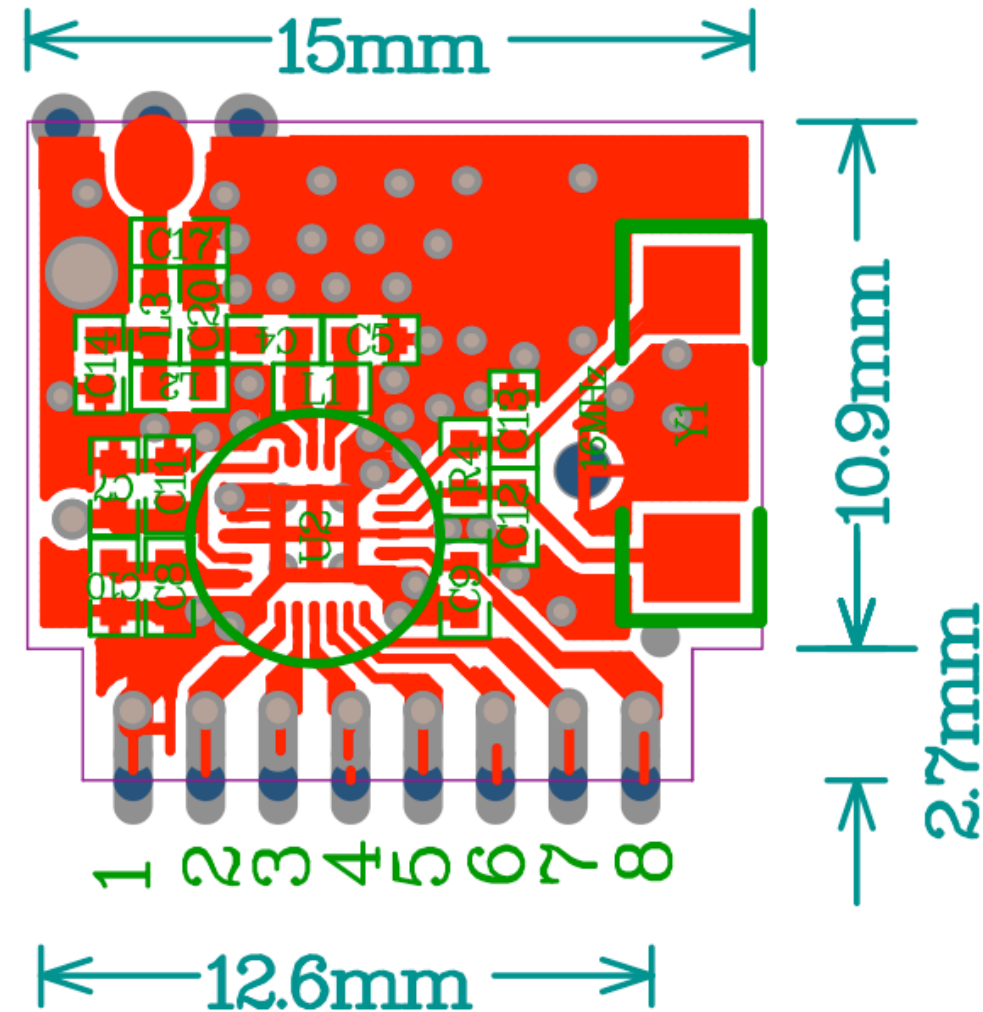
## Application

- Wireless PC peripherals
- Wireless keyboard and mice
- Wireless gamepads
- VOIP & wireless headsets
- Remote controls
- Home automation
- Toys
- Consumer electronics

## Specification

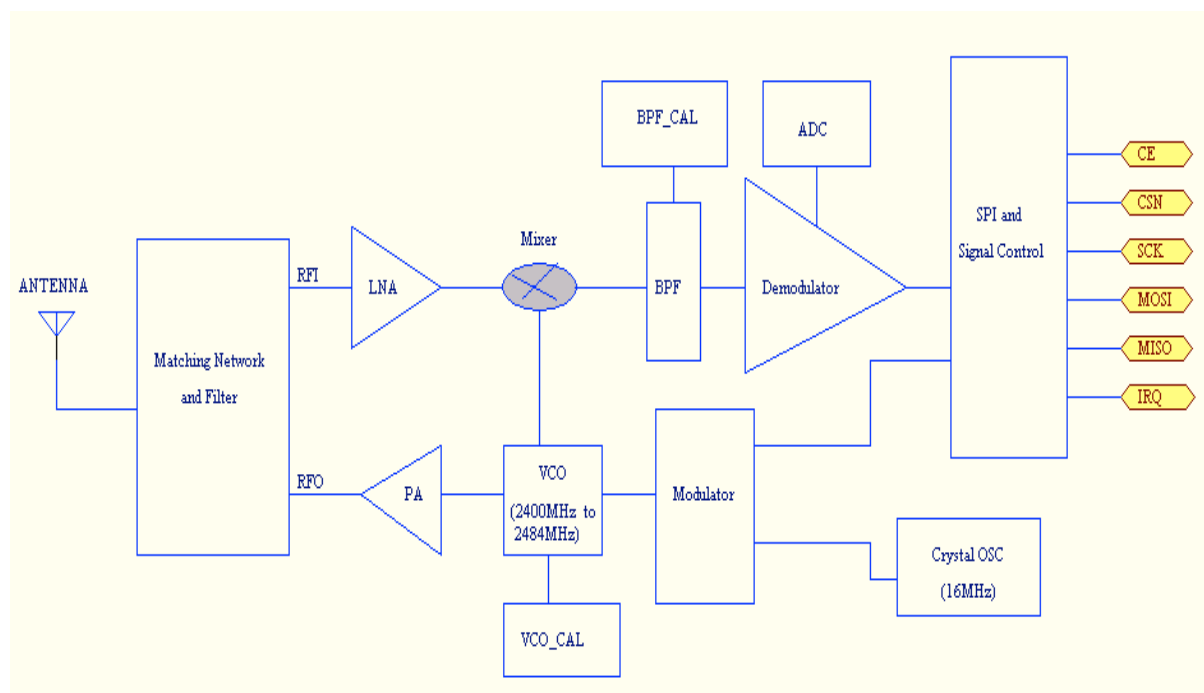
| Item                  | Specification                                                                                | Remark   |
|-----------------------|----------------------------------------------------------------------------------------------|----------|
| Supply Voltage        | 1.9V ~ 3.6V                                                                                  |          |
| Current consumption   | 9uA @Power-down mode<br>47uA @Standby mode<br>26.6mA @Rx mode<br>20.5mA @TX mode (Pout=0dBm) | Typical  |
| Frequency             | 2400 - 2484MHz                                                                               | ISM band |
| Maximum TX power      | 2dBm                                                                                         |          |
| RX sensitivity        | -92 dBm @250kbps<br>-90 dBm @1Mbps<br>-88 dBm @2Mbps                                         |          |
| Modulation            | GFSK                                                                                         |          |
| Transmission distance | about 40 meter                                                                               |          |
| Dimension             | 15mm x 13.6mm                                                                                |          |

Pad Description



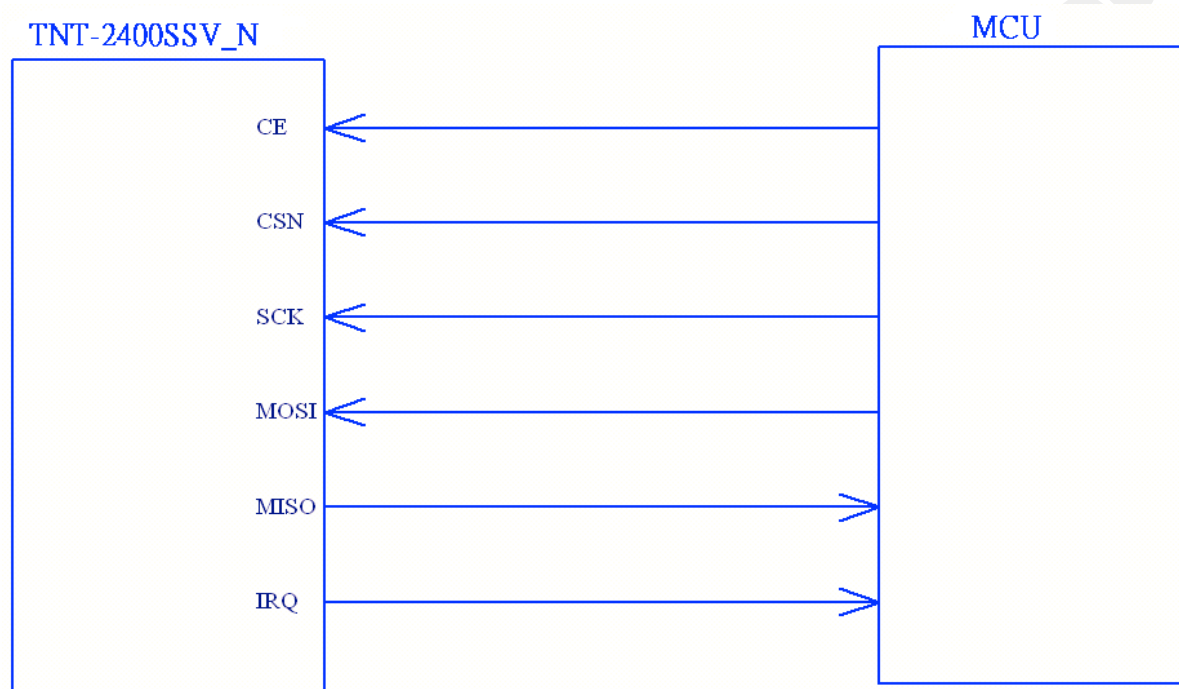
| Pad No. | Symbol | Function Description                  | Remark   |
|---------|--------|---------------------------------------|----------|
| 1       | GND    | Ground                                | 1        |
| 2       | CE     | Hard-wire pin to activate radio TX/RX |          |
| 3       | CSN    | SPI chip selection                    |          |
| 4       | SCK    | SPI clock                             |          |
| 5       | MOSI   | SPI slave data input                  |          |
| 6       | MISO   | SPI slave data output                 |          |
| 7       | IRQ    | Programmable interrupt, active low    |          |
| 8       | VCC    | Supply voltage                        | 1.9 ~3.6 |

## Block Diagram



## Application circuit

### SPI serial bus (4 wires)



## Data Sheet Document History

| Revision | Date      | Description                            |
|----------|-----------|----------------------------------------|
| A1       | 2013 / 10 | Preliminary version I                  |
| A2       | 2014 / 01 | Updated part number to TNT-2400SSV_UDN |
|          |           |                                        |
|          |           |                                        |
|          |           |                                        |