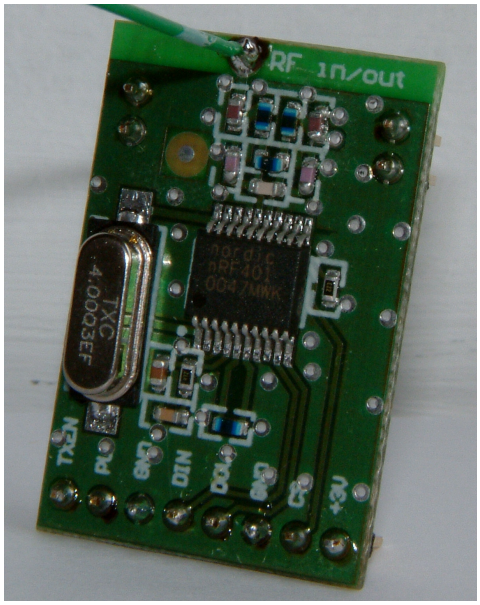
TLX401 - Low Power UHF Data Transceiver Module

The TLX401 is miniature UHF radio module capable of half duplex data transmission at speeds up to 20 kbit/s over distances of 100 meters "in building" and 800 meters open ground



TLX401

- Miniature PCB Mounting module
- Superhet receiver
- -102dBm receive sensitivity
- Single 2.7 to 5.25V power supply
- Half duplex data at up to 20 kbit/s
- Reliable link in noisy environment
- Direct interface to 5V CMOS logic

The module integrates a low power, true single chip UHF FM transceiver and all necessary passive components. The high data rates (up to 20kbit/s) and fast TX/RX changeover make the TLX401 transceiver ideal for high integrity one to one links / multi-node packet switch networks. Rapid RX power up allows effective duty cycle power saving of the receiver for battery powered applications (e.g. 250µA average with 2% duty-cycle @ 200ms period).

Features:

- No setup or configuration
- No coding of data required
- 2 channels
- Wide supply range
- Very low power consumption

Typical applications :

- Alarm and Security Systems
- Automatic meter Reading
- Home Automation
- Remote Control
- Automotive
- Telemetry
- Toys
- Low speed computer networks
- Authorisation / Access control

Quick Reference data

Frequency, channel #1 / channel#2	433,93 / 434,33 MHz
Modulation	FSK
Frequency deviation	±15 kHz
Output power.	7 dBm
Sensitivity, BR=20 kbit/s, BER<10^{-3}	-102 dBm
Maximum bit rate	20 kbit/s
Supply voltage	2.7 – 5.25 V
Receive supply current	11 mA
Transmit supply current	26 mA
Standby supply current	8 µA
Dimensions	32,5 mm * 21,5 mm
Weight	4 g

Pin description

Connector J1:

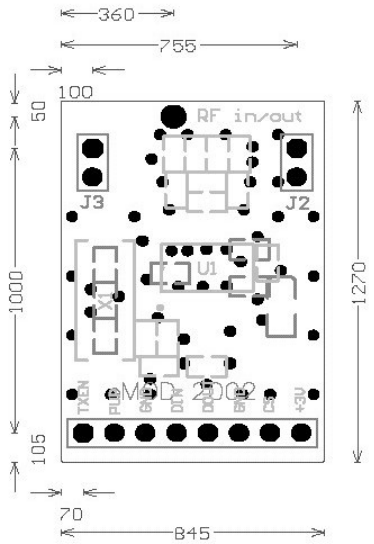
TXEN - Transmit enable: **1** - transmit mode, **0** - receive mode
PUP - Power on/off: **1** - power up (operating mode), **0** - power off (standby mode)
GND - Ground
DIN - Data input (to transmitter)
DOUT - Data output (from receiver)
GND - Ground
CS - Channel selection: **1** - 434,33 MHz, **0** - 433,93 MHz
+3V - Power supply (2,7...5,25V)

Connectors J2 and J3:

These pins should be connected to the ground plane on the motherboard (together with GND pins from connector J1)

RF in/out

RF input / RF output for connection to an integral antenna. It has a nominal RF impedance of 50Ω and is capacitively isolated from the internal circuit.



TLX401 - mechanical dimensions (in mils, 1000mils = 25,4 mm)

Design notes

- Keep all tracks as short as possible.
- The TLX401 DC supply voltage should be decoupled as close as possible to the +3V pin.
- Full swing digital signals should not be routed close to the PLL loop filter components or the external VCO inductor (components between nRF401 and J1 connector).
- The TLX401 supply voltage should be routed separately from the supply voltage of any digital circuitry (star routed).
- Connect all GND pins to ground on the motherboard.
- Control signals must not exceed supply voltage.
- When there are no signal on the RF input TLX401 generates digital noise at the output. It is normal behavior of the nRF401. Filtration has to be done in microcontroller.
- More information in nRF401 data sheet and in application notes available on www.nvlsi.no.

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