

## Operation description of SRx

### 1. SYSTEM DESCRIPTION

This Standalone (SRx) receiver has to support the receipt of RF telegram from transmitted in free air way by corresponding transmitter and to transmit them to a host module (e.g. the Body Control Module and PIC module).

- **KOR-baby board** receiver 315, FSK -1K data rate based on Infineon TDA 521x , which module optimized maximum for the enhanced RF working range with LNA and data filter characterization.

All receipts of RF telegram has to be transmitted to a host module with the serial linked communication line which line of single-wired serial link must be available to communicate with bi-directional for a bit rate 2.4k bauds for BCM for a bit rate 9.6k bauds for PIC.

This SRx provide a variant 4 resistors with pull- Ground down for reading of mounted code.

The processor of the SRx was selected as 8-bit Single-chip NEC's Micro-controller with 78KO series

The main function of generic SRx is

- RF signal detection (in-band)
- Data signal demodulation.
- Manchester and Shark protocol detection
- Self-polling for the standby current consumption
- Wake up function for the host module
- 315MHz RF data reception
- Serial communication with the single –wired link com.

\* For the operation of KOR-baby board is described separately.

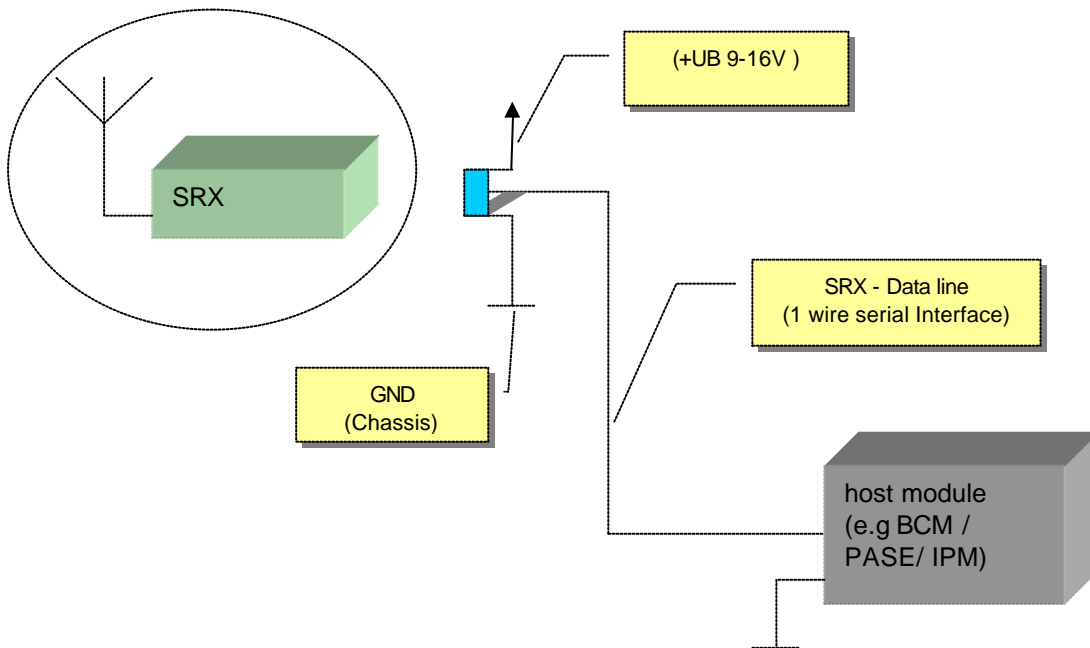
## 1.1. SRx system block diagram

Show the system block diagram and generic receivers.

The SRx generic hardware consists of:

- Battery supply inputs
- DC 5Volt Regulation circuit
- Processor micro-controller
- Serial single-wired link communication
- Variants Rx module control & support
- External RF antenna
- Main connector
- RF Antenna connector
- Ground.

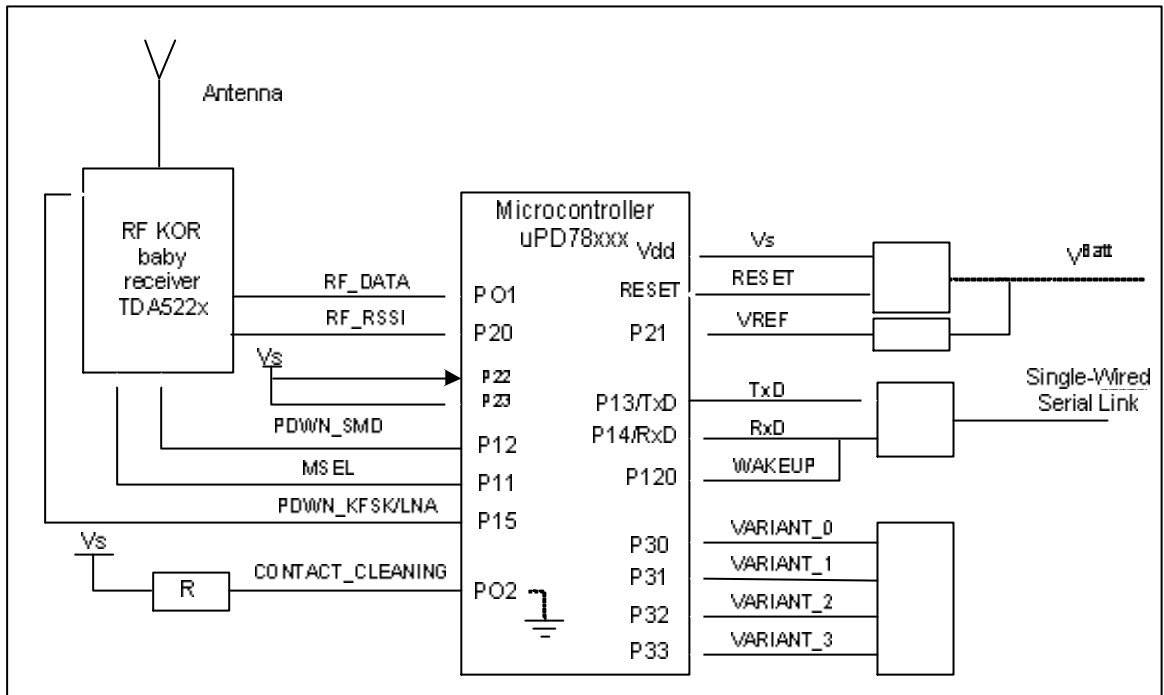
Figure 1: SRX system Block diagram



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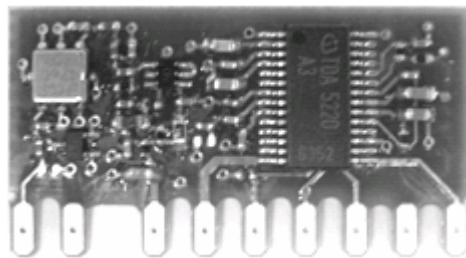
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### 1.1.1. Application for KOR-baby board receiver (TDA521X)



#### "KOR-baby board" receiver pictures

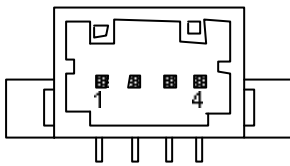
- PCB terminated pinning type (9 in/output pins)
- Manual placement on the mother board PCB.
- Vertical Standing assembled on mother PCB
- Enhanced RF sensitivity application, designed by SV Ichon



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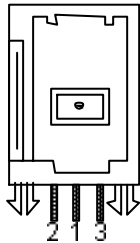
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Digital / physical inputs	Pin NO	Task description
SRX_COM	X1-1	SRX Data line (serial Interface )
N.A	X1-2	N.A reserved
V_BAT	X1-3	Battery power supply input (9 V ~16V)
GND	X1-4	SRX ground



### 1.2.2. RF antenna connector X2

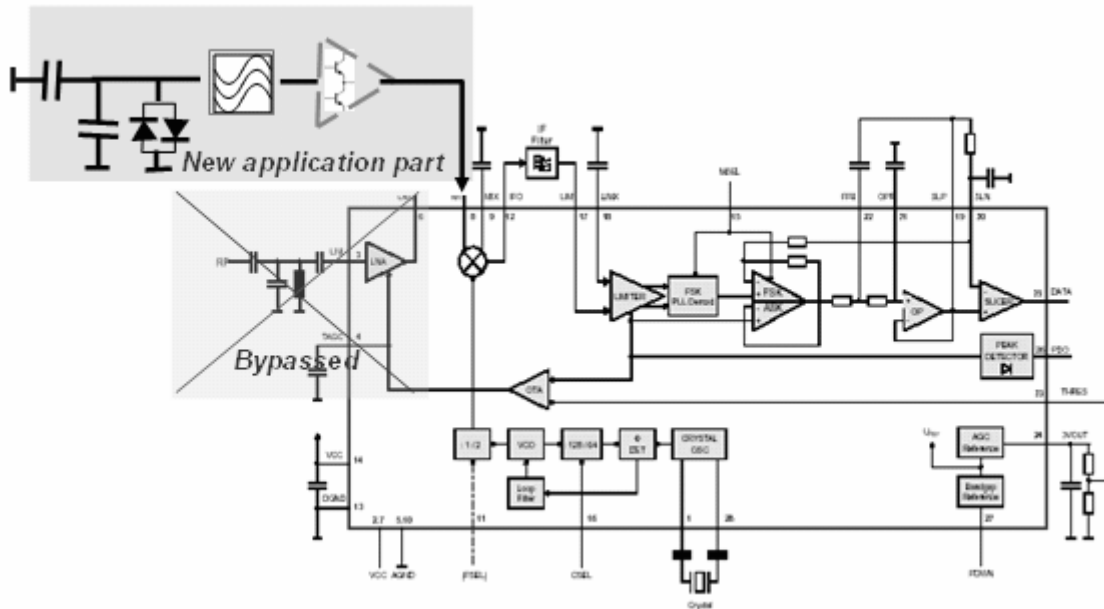
Digital / physical inputs	PIN	Task description
RF ANT-IN	X2-1	RF antenna signal input
GND	X2-2	Ground1
GND	X2-3	Ground2



## Operating Description of RF Receiver

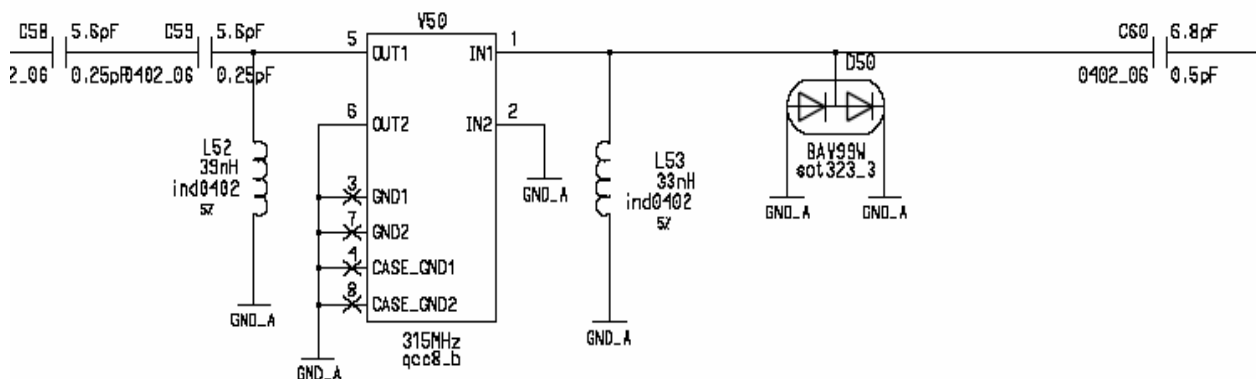
### 1. General information

The receiver principle is super heterodyne PLL frequency synthesizer and designed for the reception of 1KHz Manchester codes with only FSK signal optimized. The center frequency are 315MHz(5WY8230, USA). This receiver has 9 leg's (1.Antenna input, 2.GND- antenna, 3.LNA- power supply, 4.Vcc-power supply, 5.PWDN, 6.RSSI, 7.DATA- output, 8.GND, 9.MSL)



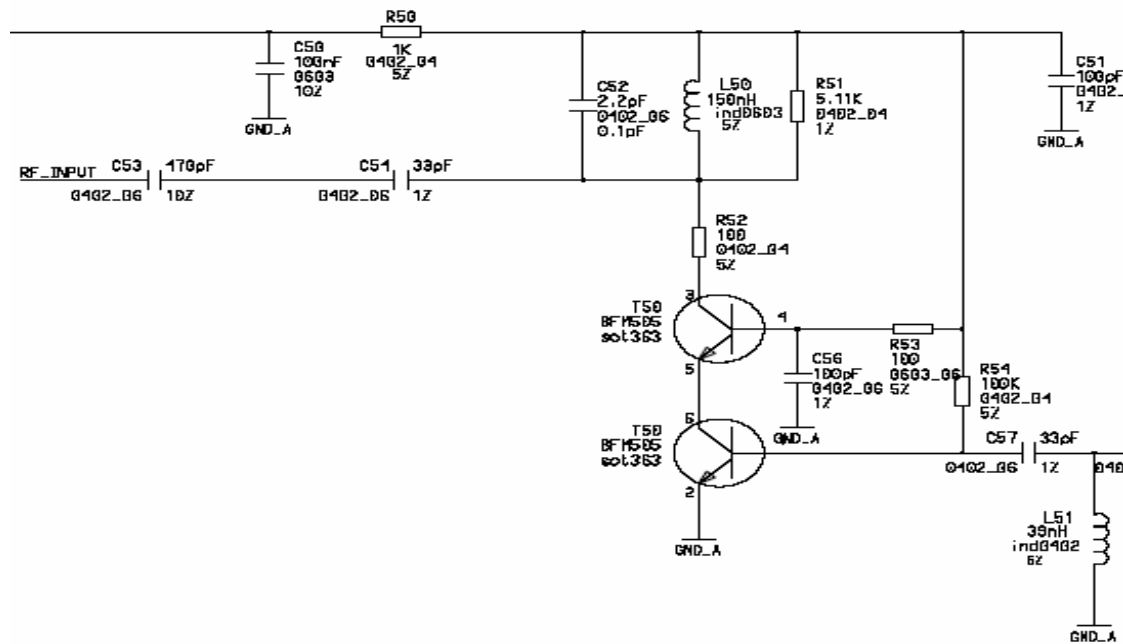
### 2. SAW Filter

The receiver module is best optimized SAW filter, External LNA and 1K data baud filtering for data band spectrum noise characteristic. The receiver module is best optimized SAW filter.



### 3. LNA (Low Noise Amplifier)

This receiver has oriented enhanced RF LNA characteristic to improve RF sensitivity instead of internal LNA part of TDA 522x provided. (Removed internal LNA)



### 4. Oscillator

This receiver use the oscillator with 10.18MHz X-tal frequency, by the PLL method to super heterodyne. The internal VCO of the PLL loop provides the local(LO) frequency which is fed into the mixer for down conversion of RF signal.

