

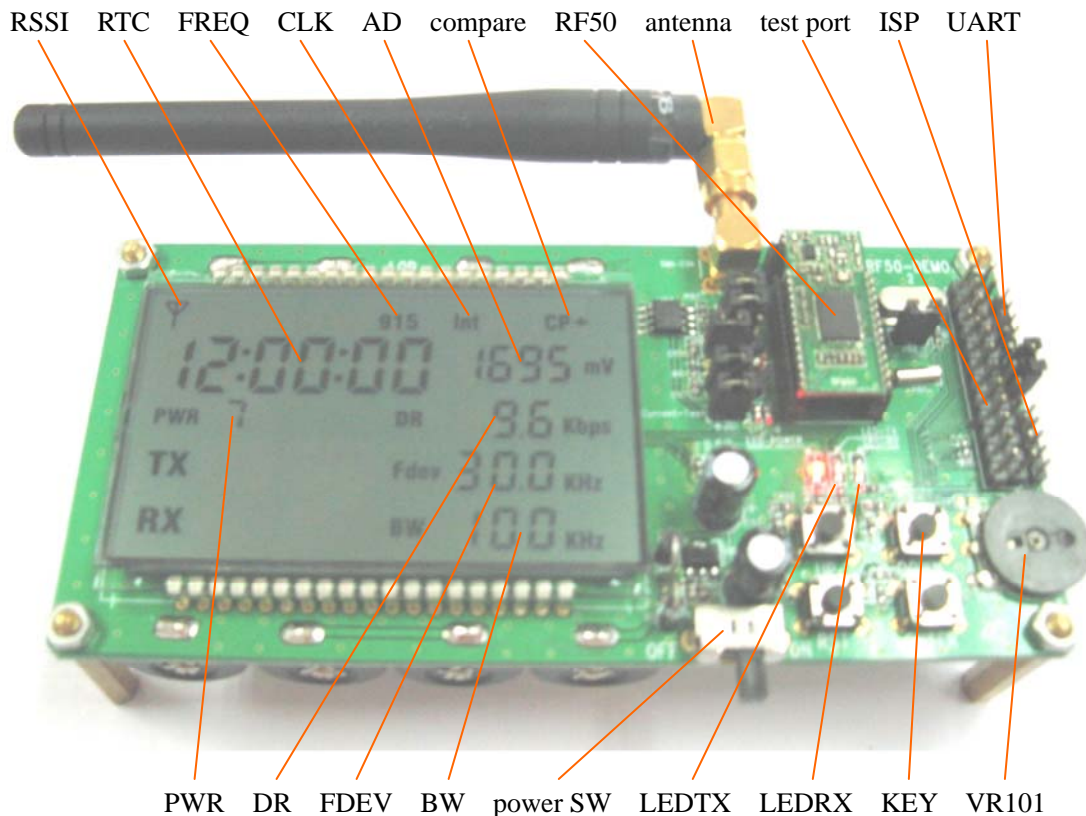
## 1. General

RF50 demo board is developed for RF50 chip (which is integrated MCU and RF circuit in single chip) to demonstrating function, testing distance and debugging software.

## 2. Board characters

4 keys, UP key, DOWN key, ENTER key and RST key. RST key is used to reset MCU, the other 3 keys is used to parameter setup and TX control. A piece of LCD is used to display the parameters and result of test. 3 indication LED, the first is power, the second is TX, the third is RX..

Power on, LCD display as follows:



## 3. A/D function

As top displaying, rotate the variable resistor (VR101) to adjust the input voltage of A/D port, the LCD display 's A/D voltage result is change from 0 to 3300mV.

## 4. RTC function

As top displaying, can display and setup the current time, using 24 hour mode.

## 5. Compare function

As top displaying, rotate the variable resistor (VR101) to adjust the input voltage of A/D port, when the input voltage higher than 1650mV (VDD/2) the LCD display "CP+", when lower than 1650mV(VDD/2) the LCD display "CP\_".

## 6. UART function

Can transmit testing information, error information and received RF data to UART port.

## 7. Timer function

In demo code have a 1ms timer.

## 8. Interrupt function

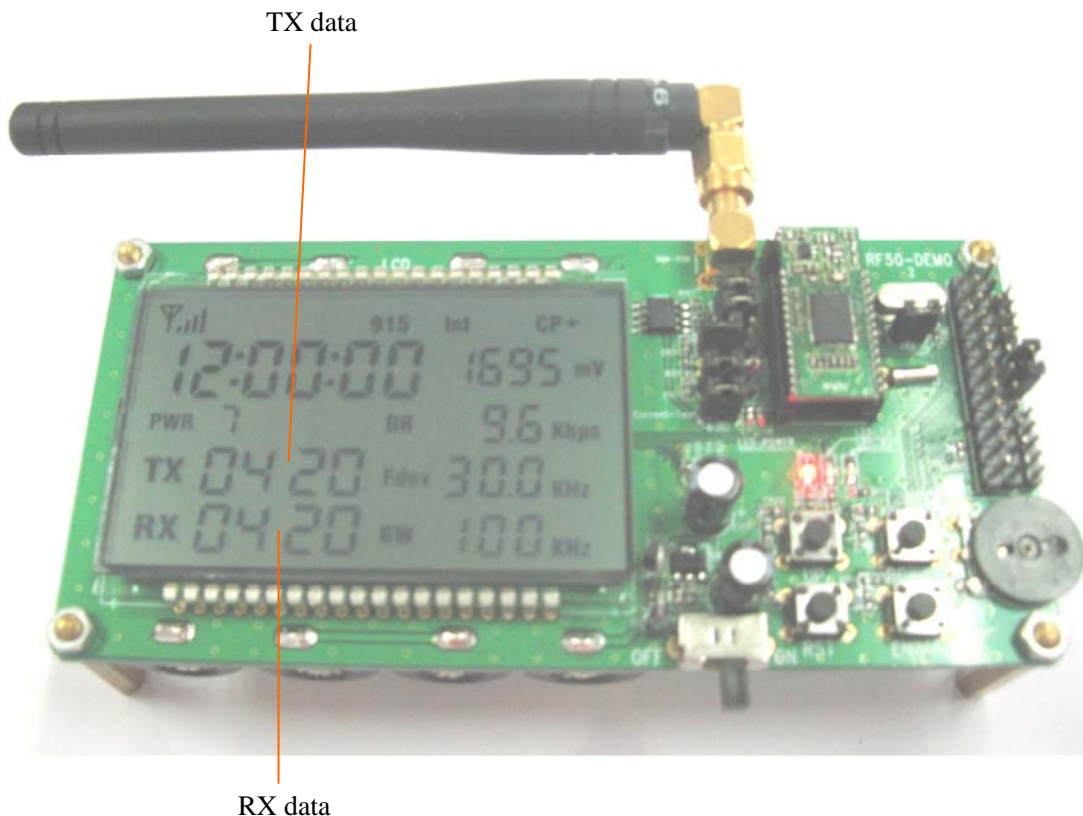
This function is used in any other functions testing.

## 9. Clock source function

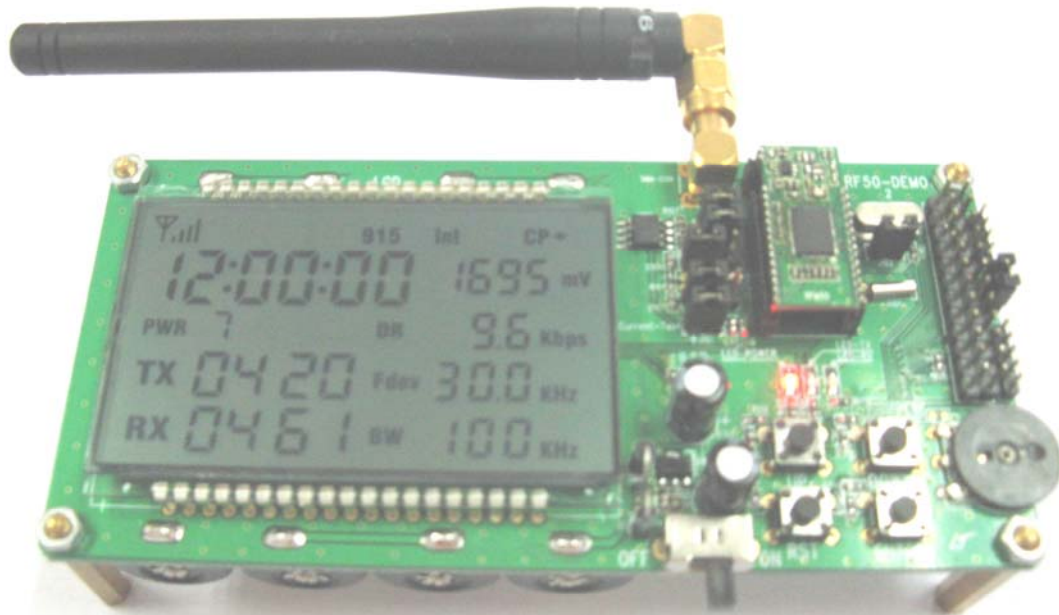
Can select the RF50 working with internal OSC or external OSC. When select external OSC, the jumper J104 and J105 must connect to left..

## 10. RF transceiver function

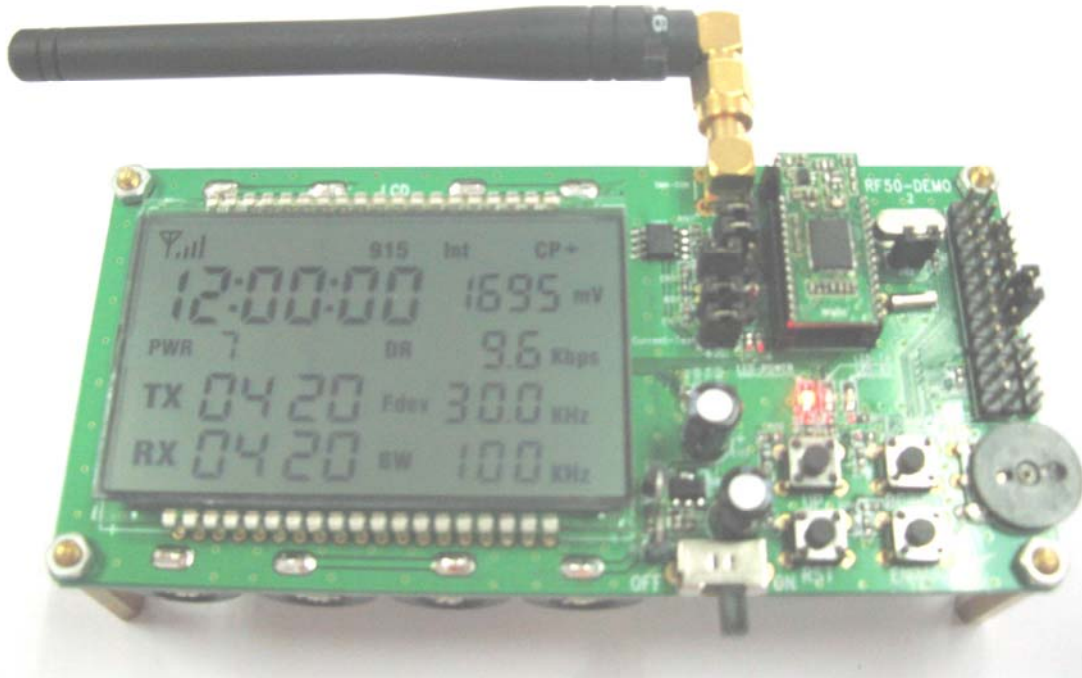
Must connect jumper J102. Working in normal mode, when press UP、DOWN、ENTER key on one DEMO board it will transmit RF data, the TX LED will flash once. When receive back data the RX LED will also flash once. The LCD display the transmitted RF data and the received back data (every have two bytes, the first byte is key code, the second byte is key pressed times), also display the received RF signal strength. The LCD display as follows:



When press UP、DOWN、ENTER key on the other DEMO board to transmit RF data., this DEMO board's RX LED will flash once if received data, then transmit the received data, the TX LED will flash once at the time. The LCD display the received data (two bytes the first byte is key code, the second byte is key pressed times), also display the received RF signal strength. The LCD display as follows:



## 11. Parameter setup



When press ENTER key 2s on the board, it will work in setup mode and all setup items will flash. Then short press ENTER key, the board will enter next setup item by the order that frequency, MCU clock, hour, minute, second, power, data rate, Fdev, band width. When finish setup the band width item, the board will exit the setup mode. In setup mode, when long press the ENTER key or no press key in 10s the board will also exit the setup mode.

When in frequency setup mode, the frequency item flash continue, pressing UP key or DOWN key can select which frequency from one of the 315、433、868、915MHz.

When in MCU clock setup mode, the clock item flash continue, pressing UP key or DOWN key can select which clock from one of the Int、Ext.

When in hour setup mode, the hour item flash continue, pressing UP key or DOWN key can select which hour from 0 to 23 at present.

When in minute setup mode, the minute item flash continue, pressing UP key or DOWN key can select which minute from 0 to 59 at present.

When in second setup mode, the second item flash continue, pressing UP key or DOWN key can select which second from 0 to 59 at present.

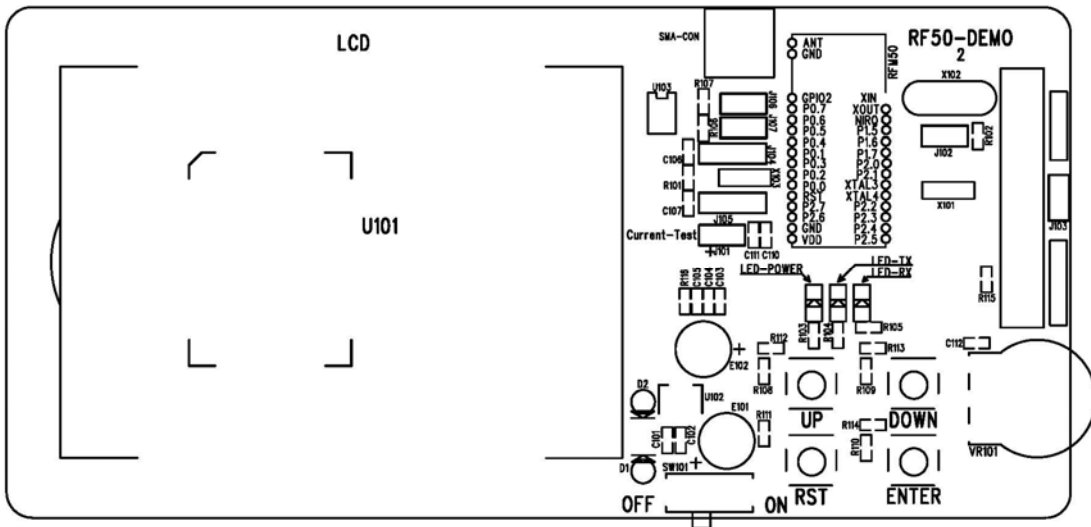
When in power setup mode, the power item flash continue, pressing UP key or DOWN key can select which grade of TX power from 0 to 7.

When in data rate setup mode, the DR item flash continue, pressing UP key or DOWN key can select which data rate of transceiving from one of the 1.2、2.4、4.8、9.6、19.2、38.4、57.6、115Kbps.

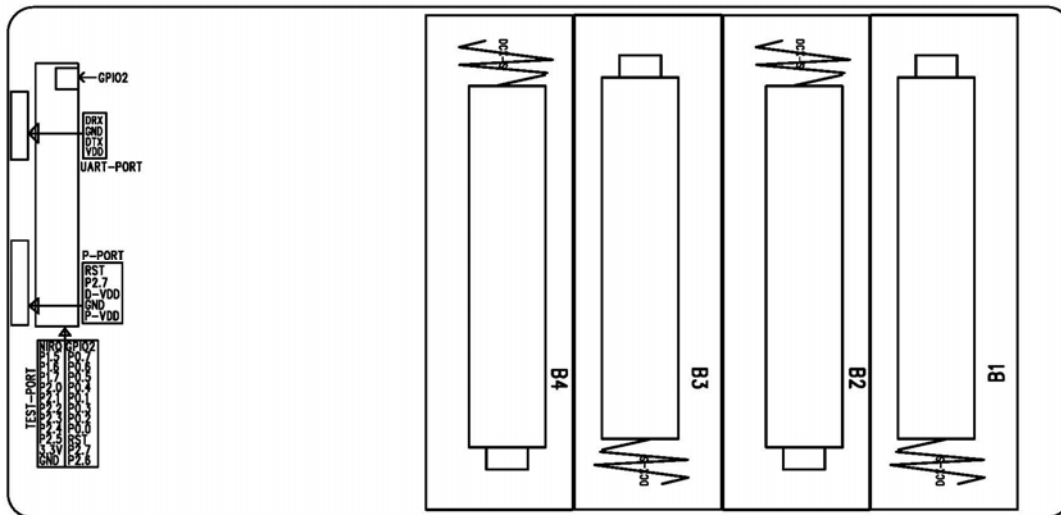
When in Fdev setup mode, the Fdev item flash continue, pressing UP key or DOWN key can select which Fdev of TX from one of the 5、10、20、30、45、60、75、90KHz.

When in band width setup mode, the band width item flash continue, pressing UP key or DOWN key can select which band width of RX from one of the 40、60、80、100、120、150、180、210KHz.

**12. PCB picture**



**Top view**



**Bottom view**

- SW101 Power switch, ON position turn on power
- J101 Current test
- J102 Must connect the jumper if RF transceiver is tested
- J103 Must connect the jumper if UART supply power
- J104, J105 Clock select, connect the jumpers to left when using external OSC
- J106, J107 EEPROM select, connect the jumpers when using external EEPROM
- VR101 Adjust the voltage on AD port

**13. Circuit picture ( Page 6 )**

6

5

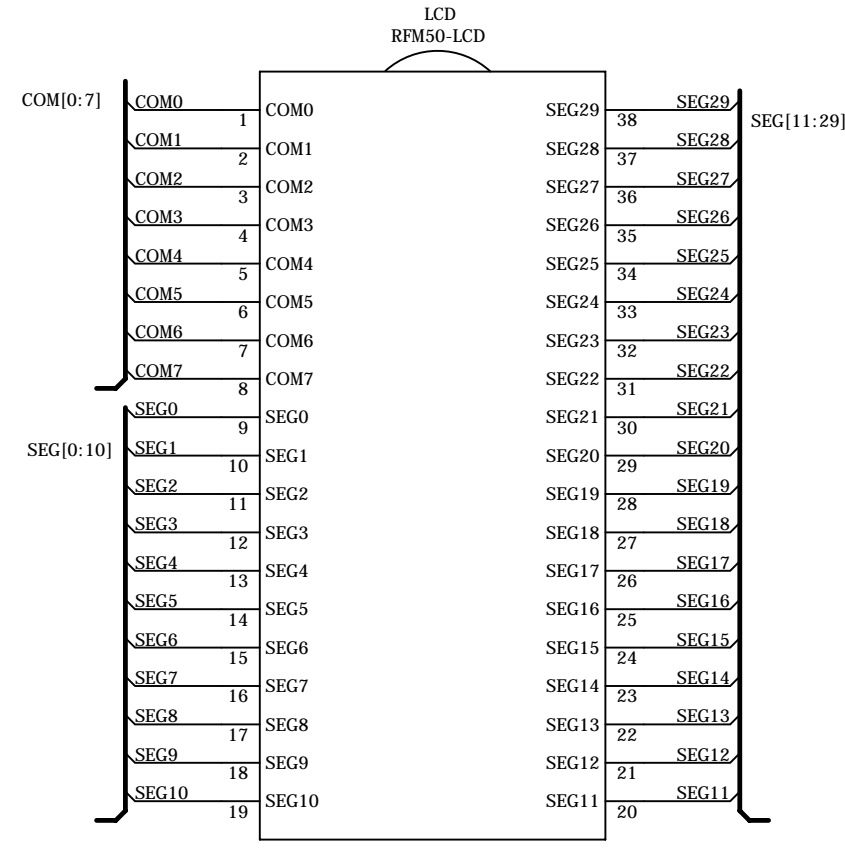
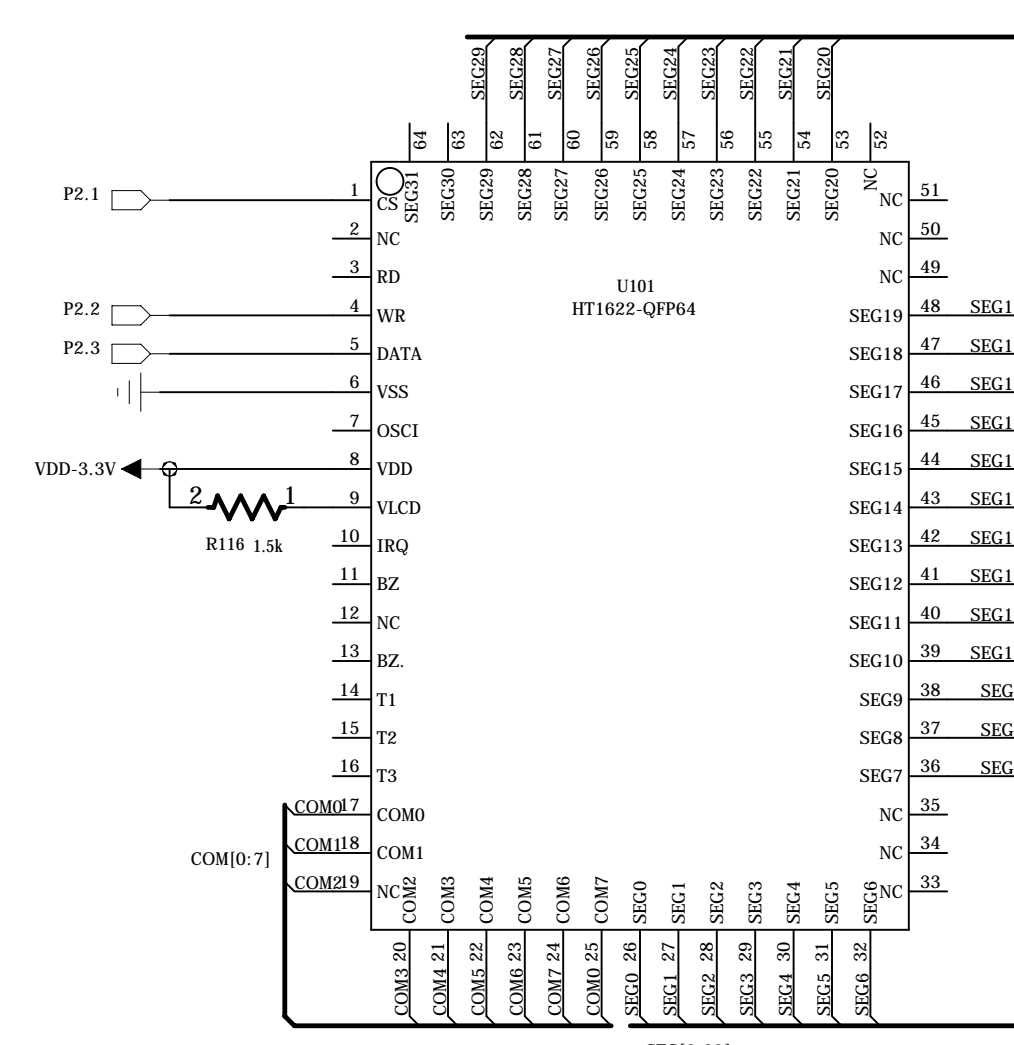
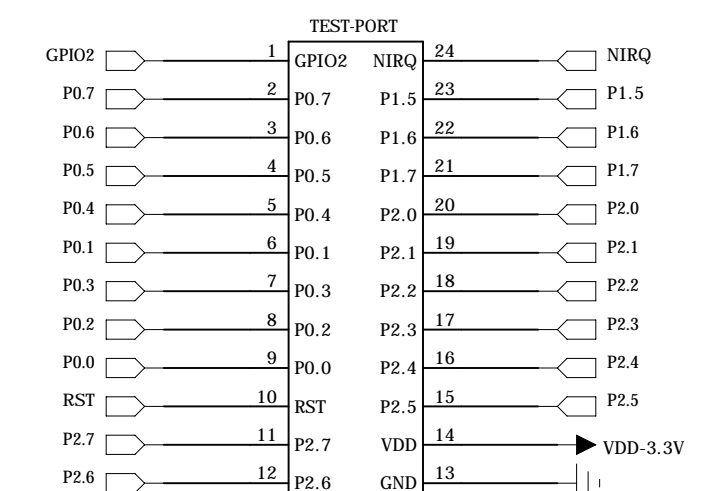
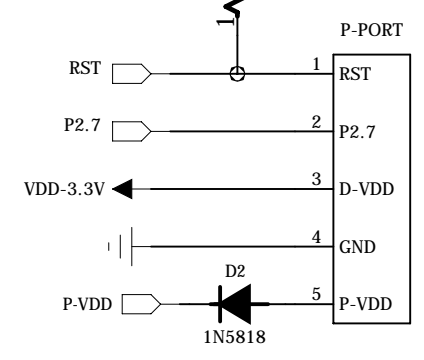
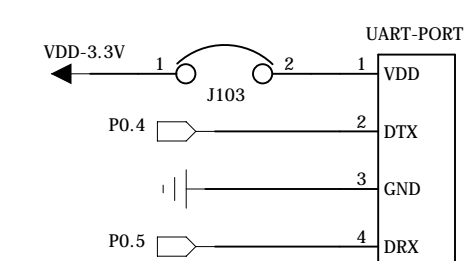
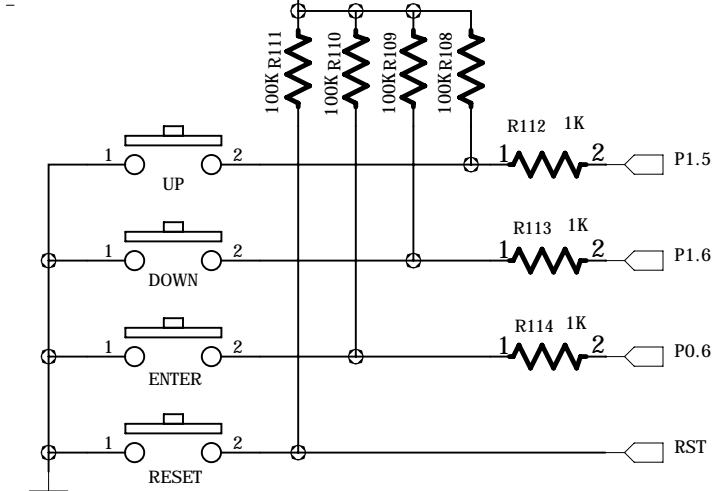
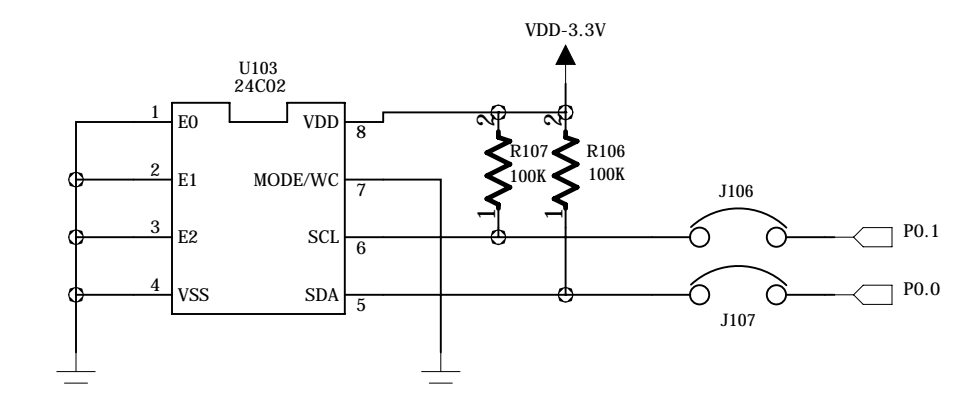
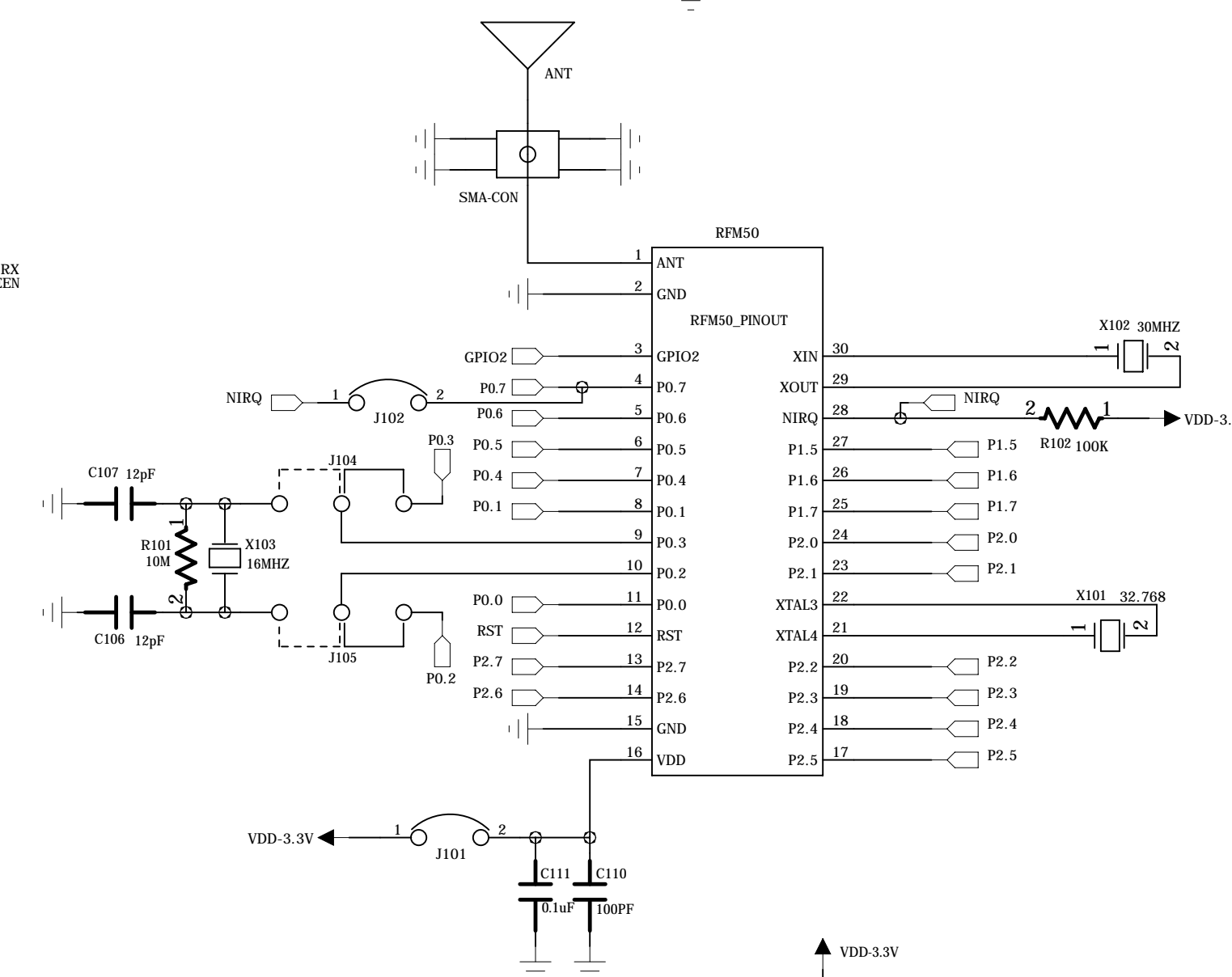
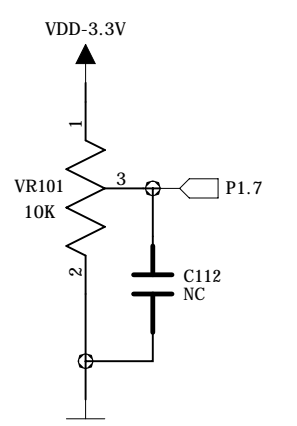
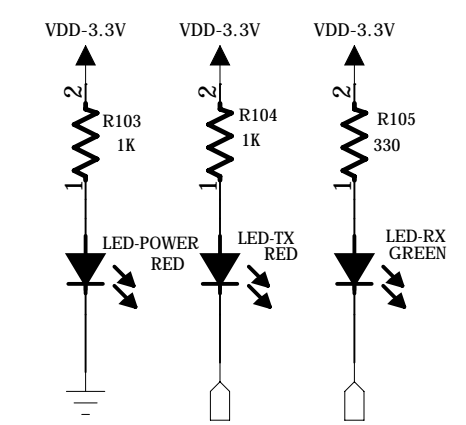
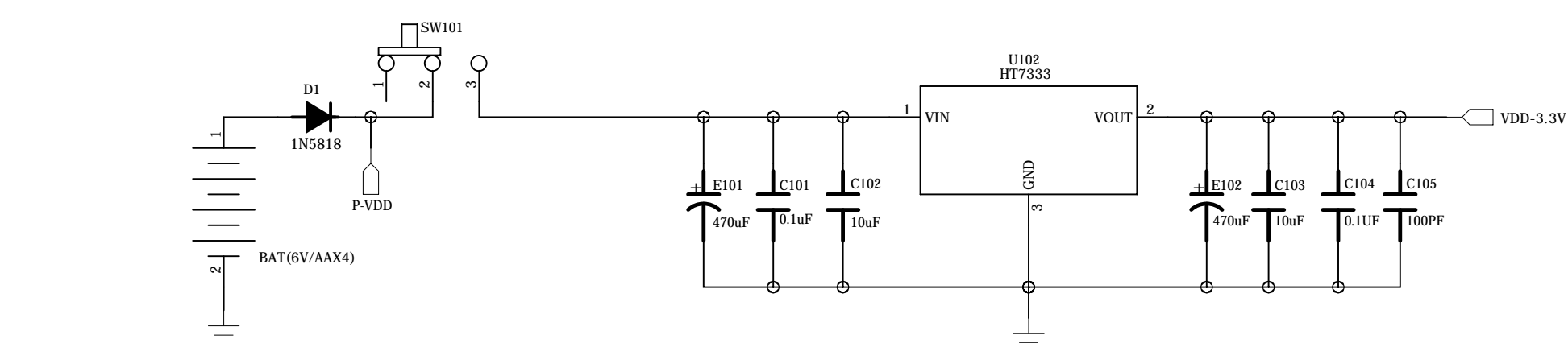
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REVISION RECORD			
LTR	ECO NO:	APPROVED:	DATE:



COMPANY: HOPERF

TITLE: RF50/RFM50 DEMO

DRAWN: SUNBO	DATED: 2010.08.16
CHECKED: <Checked By>	DATED: <Checked Date>
QUALITY CONTROL: <QC By>	DATED: <QC Date>
RELEASED: <Released By>	DATED: <Release Date>

CODE: <Code>	SIZE: C	DRAWING NO: <Drawing Number>	REV: <Revision>
SCALE: <Scale>		SHEET: 1 of 1	