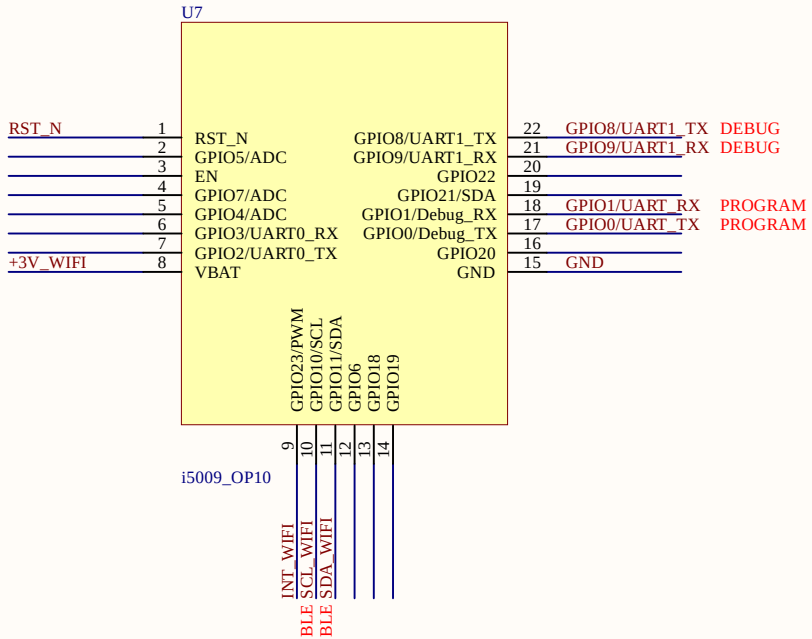
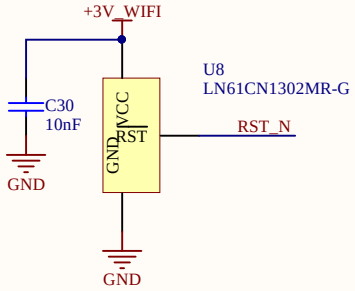
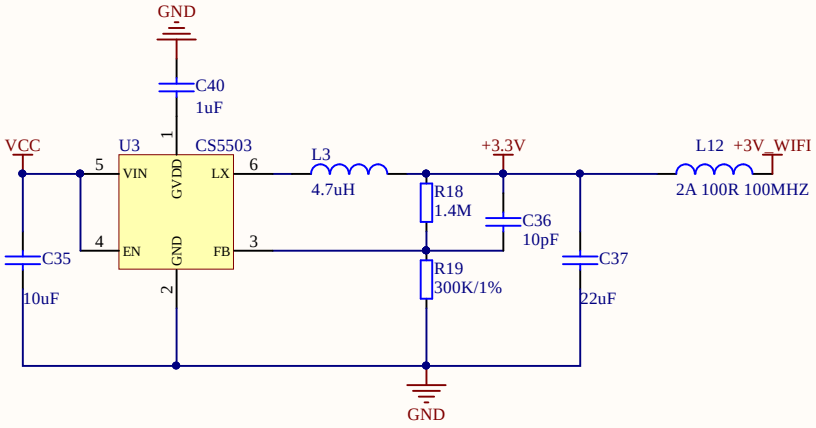
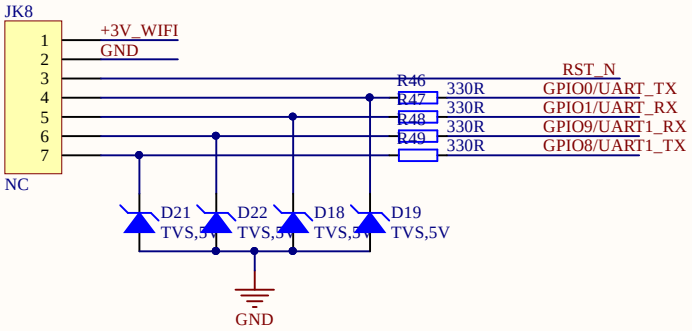
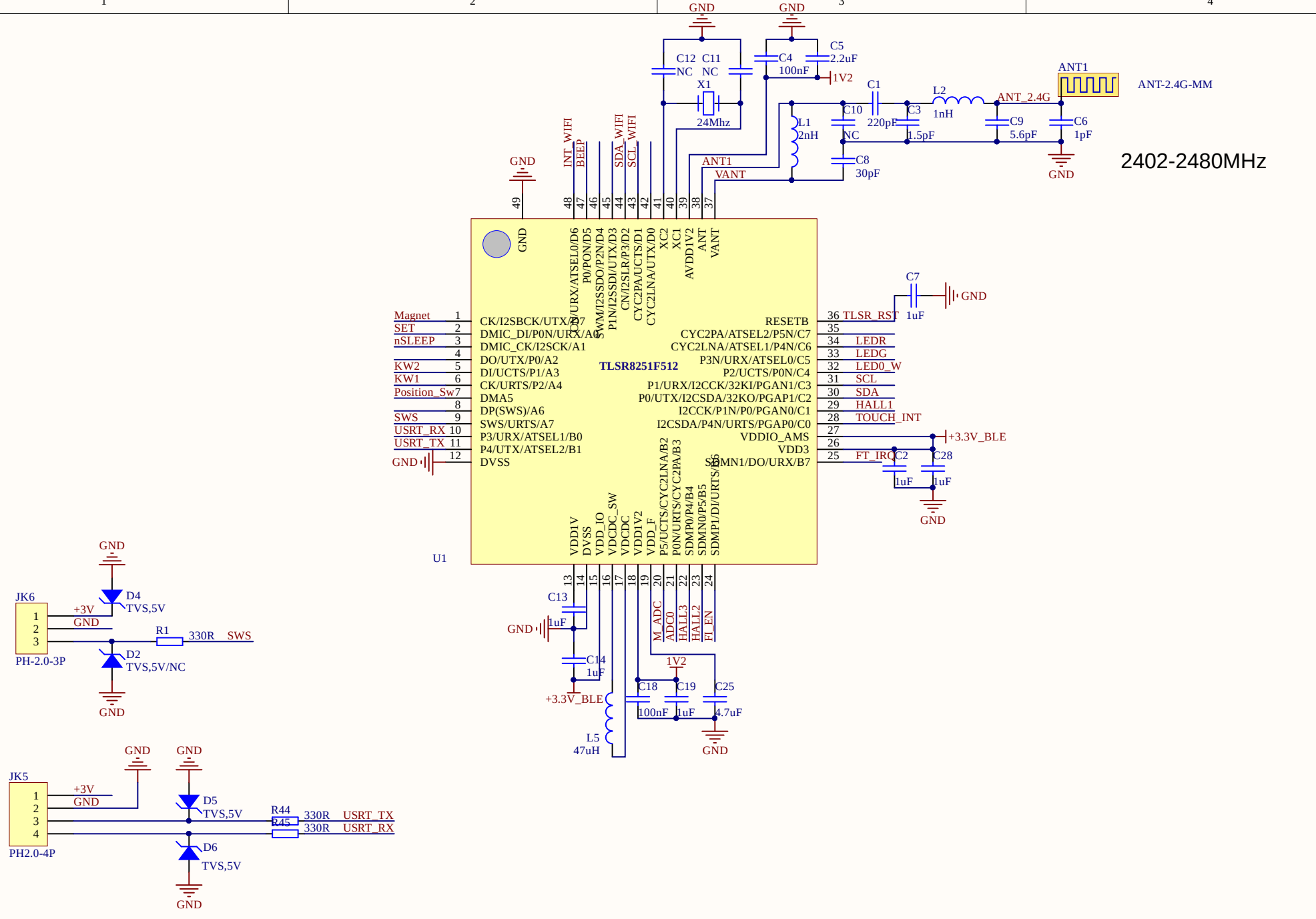
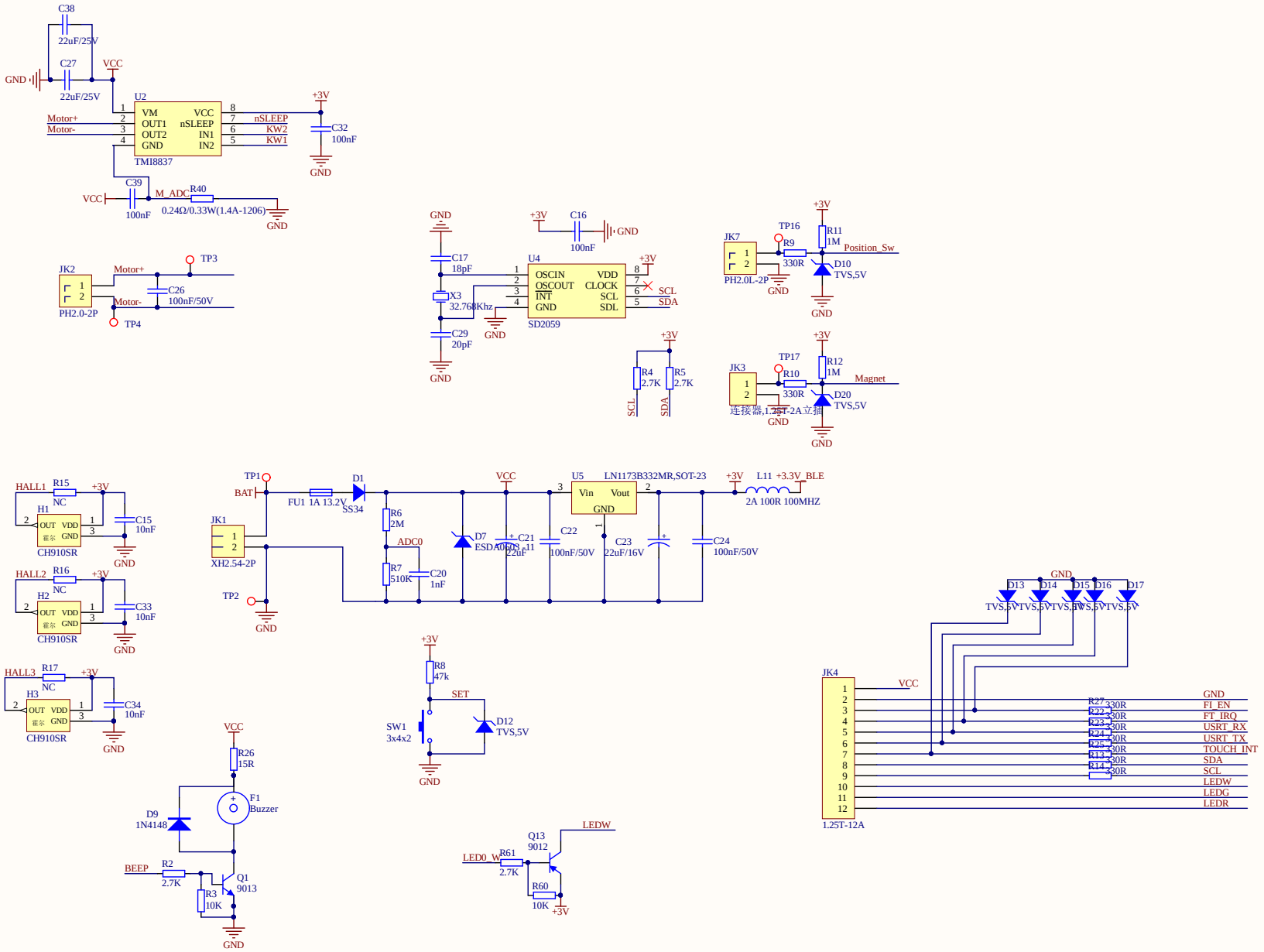

U7
RST_N
GPIO5/ADC
EN
GPIO7/ADC
GPIO4/ADC
GPIO3/UART0_RX
GPIO2/UART0_TX
+3V_WIFI
VBAT
GPIO8/UART1_TX
GPIO9/UART1_RX
GPIO22
GPIO21/SDA
GPIO1/Debug_RX
GPIO0/Debug_TX
GPIO20
GND
GPIO8/UART1_TX DEBUG
GPIO9/UART1_RX DEBUG
GPIO1/UART_RX PROGRAM
GPIO0/UART_TX PROGRAM
GPIO23/PWM
GPIO10/SCL
GPIO11/SDA
GPIO6
GPIO18
GPIO19
i5009_OP10
INT_WIFI
BLE SCL_WIFI
BLE SDA_WIFI

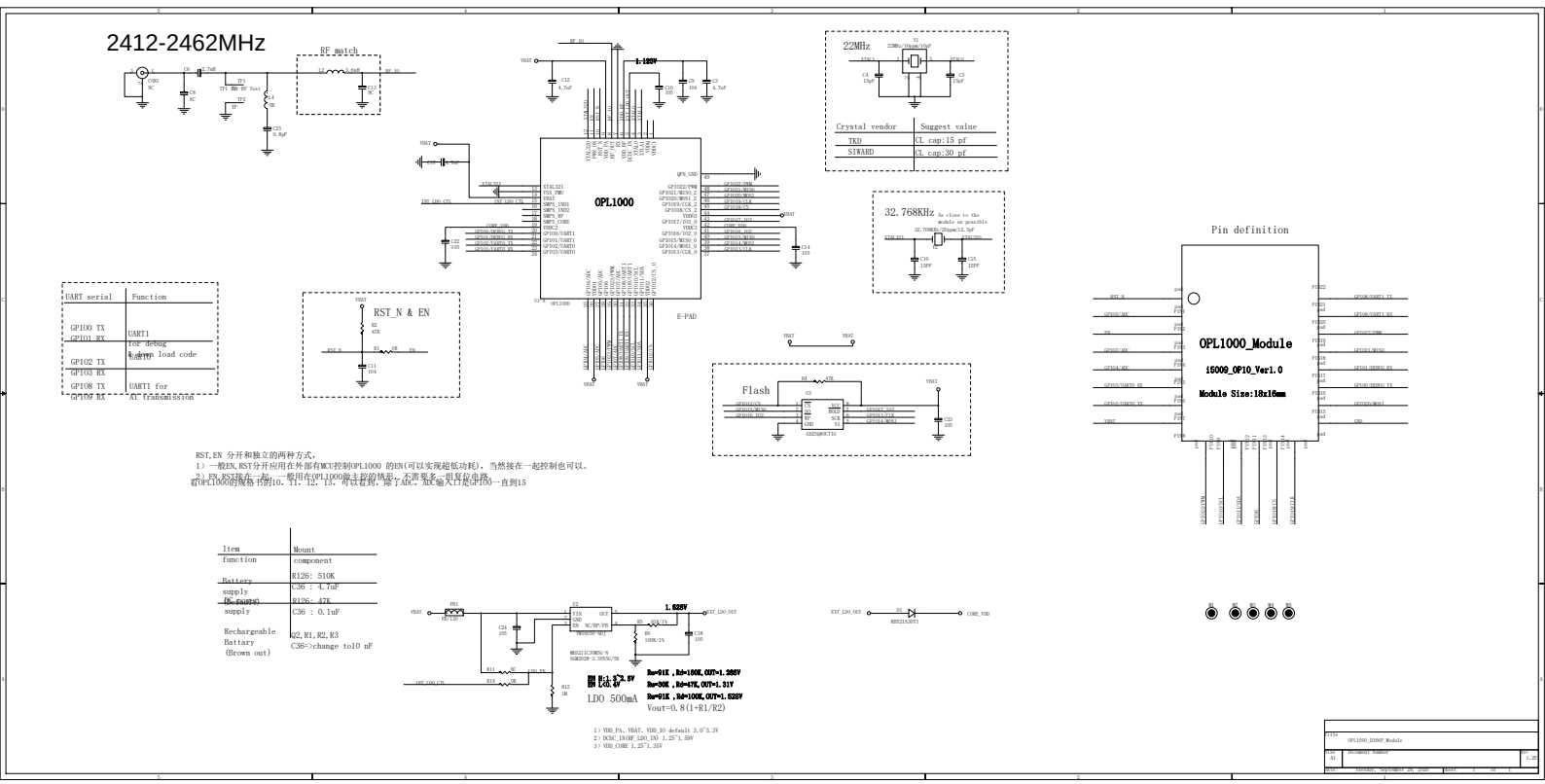

+3V_WIFI
C30
10nF
GND
U8
LN61CN1302MR-G
VCC
RST
GND
RST_N
GND

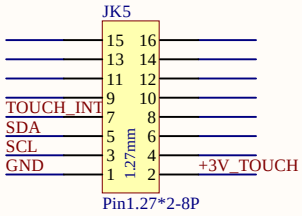

GND
C40
1uF
VCC
U3
CS5503
VIN
GVDD
LX
EN
GND
FB
L3
4.7uH
+3.3V
R18
1.4M
C36
10pF
R19
300K/1%
C35
10uF
C37
22uF
L12 +3V_WIFI
2A 100R 100MHZ
GND

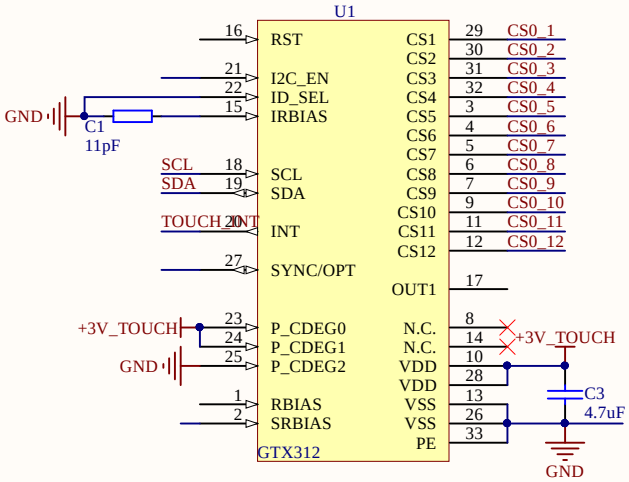

JK8
+3V_WIFI
GND
NC
RST_N
R46 330R GPIO0/UART_TX
R47 330R GPIO1/UART_RX
R48 330R GPIO9/UART1_RX
R49 330R GPIO8/UART1_TX
D21 TVS,5V
D22 TVS,5V
D18 TVS,5V
D19 TVS,5V
GND

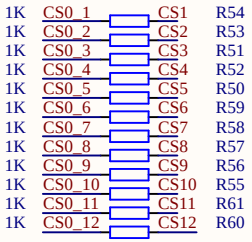

TLSR8251F512
U1
2402-2480MHz
ANT-2.4G-MM
ANT1
ANT_2.4G
24Mhz
X1
C12 NC
C11 NC
C4 100nF
C5 2.2uF
1V2
C1 220pF
C3 1.5pF
L2 1nH
C9 5.6pF
C6 1pF
C10 NC
C8 30pF
L1 2nH
GND
ANT1
VANT
INT_WIFI
BEEP
SDA_WIFI
SCL_WIFI
Magnet
SET
nSLEEP
KW2
KW1
Position_Sw
SWS
USRT_RX
USRT_TX
CK/I2SBCK/UTX/D7
DMIC_DI/P0N/URX/A5
DMIC_CK/I2SCK/A1
DO/UTX/P0/A2
DI/UCTS/P1/A3
CK/URTS/P2/A4
DMA5
DP(SWS)/A6
SWS/URTS/A7
P3/URX/ATSEL1/B0
P4/UTX/ATSEL2/B1
DVSS
RESETB
CYC2PA/ATSEL2/P5N/C7
CYC2LNA/ATSEL1/P4N/C6
P3N/URX/ATSEL0/C5
P2/UCTS/P0N/C4
P1/URX/I2CCK/32KI/PGAN1/C3
P0/UTX/I2CSDA/32KO/PGAP1/C2
I2CCK/P1N/P0/PGAN0/C1
I2CSDA/P4N/URTS/PGAP0/C0
VDDIO_AMS
VDD3
SDMN1/DO/URX/B7
TLSR_RST
LEDR
LEDG
LED0_W
SCL
SDA
HALL1
TOUCH_INT
FT_IRQ
C7 1uF
C2 1uF
C28 1uF
+3.3V_BLE
C13 1uF
C14 1uF
C18 100nF
C19 1uF
C25 4.7uF
L5 47uH
M_ADC
ADC0
HALL3
HALL2
FI_EN
JK6
PH-2.0-3P
D4 TVS,5V
D2 TVS,5V/NC
R1 330R SWS
+3V
JK5
PH2.0-4P
D5 TVS,5V
D6 TVS,5V
R44 330R USRT_TX
R45 330R USRT_RX

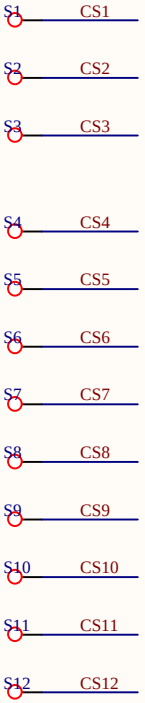

C38
22uF/25V
C27
22uF/25V
GND
VCC
U2
VM
OUT1
OUT2
GND
VCC
nSLEEP
IN1
IN2
TMI8837
Motor+
Motor-
nSLEEP
KW2
KW1
+3V
C32
100nF
C39
100nF
M_ADC
R40
0.24Ω/0.33W(1.4A-1206)
JK2
PH2.0-2P
TP3
TP4
C26
100nF/50V
C16
100nF
C17
18pF
X3
32.768Khz
C29
20pF
U4
OSCIN
OSCOUT
INT
GND
VDD
CLOCK
SCL
SDL
SD2059
SCL
SDA
R4
2.7K
R5
2.7K
JK7
PH2.0L-2P
TP16
R9
330R
R11
1M
Position_Sw
D10
TVS,5V
JK3
连接器,1.25T-2A立插
TP17
R10
330R
R12
1M
Magnet
D20
TVS,5V
HALL1
HALL2
HALL3
R15
R16
R17
NC
H1
H2
H3
OUT
VDD
GND
霍尔
CH910SR
C15
10nF
C33
10nF
C34
10nF
TP1
BAT
FU1 1A 13.2V
D1
SS34
JK1
XH2.54-2P
TP2
R6
2M
ADC0
R7
510K
C20
1nF
D7
ESDA6V8
C21
22uF
C22
100nF/50V
U5
LN1173B332MR,SOT-23
Vin
Vout
GND
C23
22uF/16V
C24
100nF/50V
L11 +3.3V_BLE
2A 100R 100MHZ
R8
47k
SET
SW1
3x4x2
D12
TVS,5V
R26
15R
F1
Buzzer
D9
1N4148
BEEP
R2
2.7K
Q1
9013
R3
10K
LED0_W
R61
2.7K
Q13
9012
LEDW
R60
10K
D13
D14
D15
D16
D17
TVS,5V
JK4
1.25T-12A
R27 330R
R22 30R
R23 30R
R24 30R
R25 30R
R13 30R
R14 30R
GND
FI_EN
FT_IRQ
USRT_RX
USRT_TX
TOUCH_INT
SDA
SCL
LEDW
LEDG
LEDR

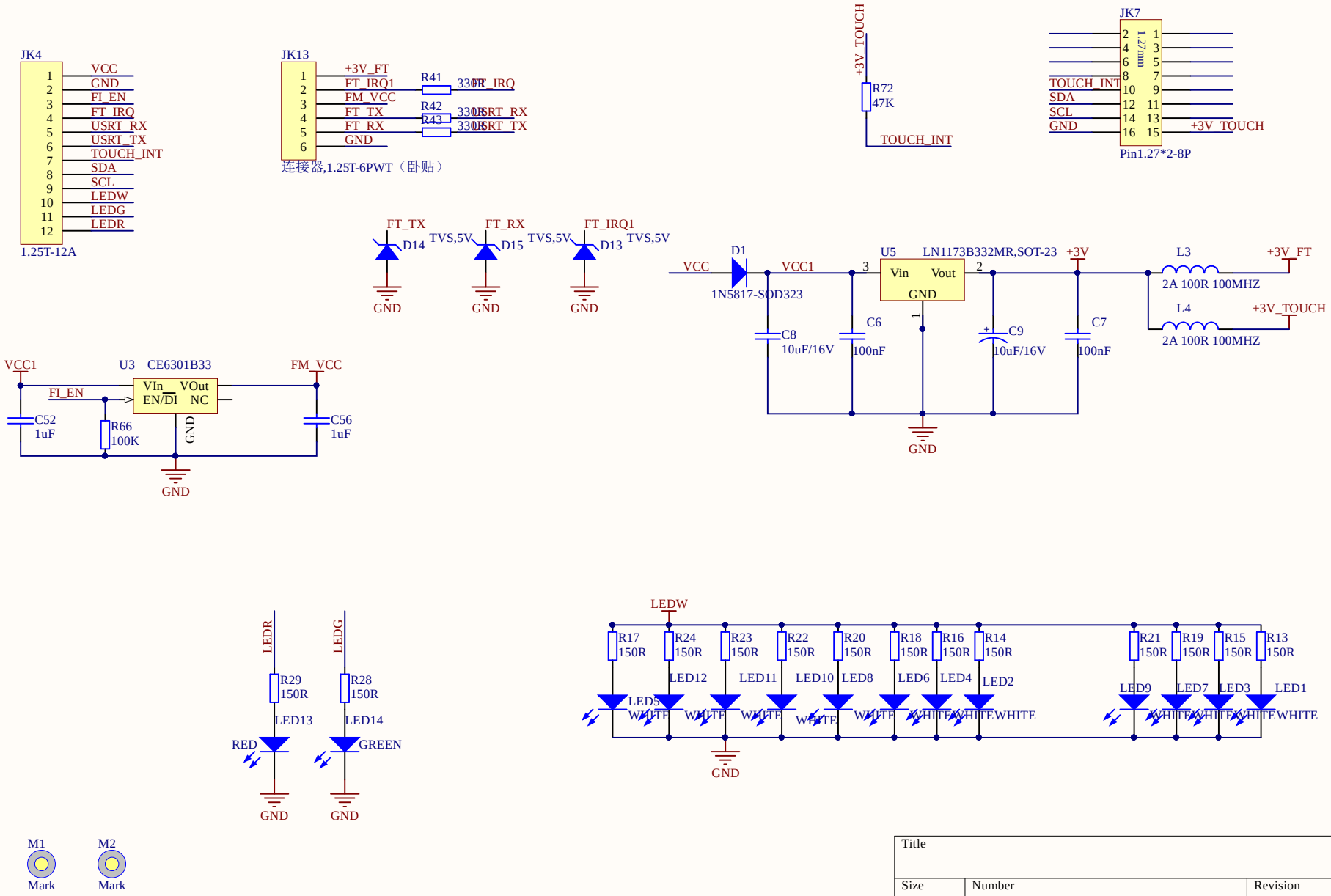

2412-2462MHz
RF match
1.185V
22MHz
Crystal vendor
Suggest value
TKD
CL cap:15 pf
SIWARD
CL cap:30 pf
OPL1000
32.768KHz
As close to the module as possible
E-PAD
RST_N & EN
Flash
Pin definition
OPL1000_Module
i5009_OP10_Ver1.0
Module Size:18x16mm
UART serial
Function
GP100 TX
UART1
GP101 RX
for debug
GP102 TX
UART0
GP103 RX
load code
GP108 TX
UART1 for
GP109 RX
AT transmission
RST,EN 分开和独立的两种方式，
1）一般EN,RST分开应用在外部有MCU控制OPL1000 的EN(可以实现超低功耗)，当然接在一起控制也可以。
2）EN,RST接在一起，一般用在OPL1000做主控的情况，不需要多一组复位电路。
和OPL1000的规格书的10，11，12，13，可以看到，除了ADC，加C输入只是GP100一直到15
Item
Mount
function
component
Battery supply
R126: 510K
C36 : 4.7uF
Battery supply
R126: 47K
C36 : 0.1uF
Rechargeable Battary (Brown out)
R2,R1,R2,R3
C36->change to10 nF
1.628V
R=91K , R3=100K, OUT=1.285V
R=30K , R3=47K, OUT=1.31V
R=91K , R3=100K, OUT=1.628V
Vout=0.8(1+R1/R2)
LDO 500mA
1）VDD_PA、VBAT、VDD_IO default 3.0~3.3V
2）DCDC_IN0F_LDO_IN0 1.25~1.58V
3）VDD_CORE 1.25~1.35V


JK5
15 16
13 14
11 12
9 10
7 8
5 6
3 4
1 2
1.27mm
TOUCH_INT
SDA
SCL
GND
+3V_TOUCH
Pin1.27*2-8P


U1
RST
I2C_EN
ID_SEL
IRBIAS
SCL
SDA
INT
SYNC/OPT
P_CDEG0
P_CDEG1
P_CDEG2
RBIAS
SRBIAS
GTX312
CS1
CS2
CS3
CS4
CS5
CS6
CS7
CS8
CS9
CS10
CS11
CS12
OUT1
N.C.
N.C.
VDD
VDD
VSS
VSS
PE
CS0_1
CS0_2
CS0_3
CS0_4
CS0_5
CS0_6
CS0_7
CS0_8
CS0_9
CS0_10
CS0_11
CS0_12
GND
C1
11pF
+3V_TOUCH
C3
4.7uF


1K CS0_1 CS1 R54
1K CS0_2 CS2 R53
1K CS0_3 CS3 R51
1K CS0_4 CS4 R52
1K CS0_5 CS5 R50
1K CS0_6 CS6 R59
1K CS0_7 CS7 R58
1K CS0_8 CS8 R57
1K CS0_9 CS9 R56
1K CS0_10 CS10 R55
1K CS0_11 CS11 R61
1K CS0_12 CS12 R60


S1 CS1
S2 CS2
S3 CS3
S4 CS4
S5 CS5
S6 CS6
S7 CS7
S8 CS8
S9 CS9
S10 CS10
S11 CS11
S12 CS12


JK4
1 VCC
2 GND
3 FI_EN
4 FT_IRQ
5 USRT_RX
6 USRT_TX
7 TOUCH_INT
8 SDA
9 SCL
10 LEDW
11 LEDG
12 LEDR
1.25T-12A
JK13
1 +3V_FT
2 FT_IRQ1
3 FM_VCC
4 FT_TX
5 FT_RX
6 GND
R41 330R FT_IRQ
R42 330R USRT_RX
R43 330R USRT_TX
连接器,1.25T-6PWT（卧贴）
+3V_TOUCH
R72
47K
TOUCH_INT
JK7
TOUCH_INT
SDA
SCL
GND
+3V_TOUCH
1.27mm
Pin1.27*2-8P
FT_TX
FT_RX
FT_IRQ1
D14 TVS,5V
D15 TVS,5V
D13 TVS,5V
GND
VCC
D1
1N5817-SOD323
VCC1
U5 LN1173B332MR,SOT-23
Vin Vout GND
+3V
L3 2A 100R 100MHZ +3V_FT
L4 2A 100R 100MHZ +3V_TOUCH
C8 10uF/16V
C6 100nF
C9 10uF/16V
C7 100nF
VCC1
U3 CE6301B33
VIn VOut
EN/DI NC
FI_EN
FM_VCC
C52 1uF
R66 100K
C56 1uF
GND
LEDR
LEDG
R29 150R
R28 150R
LED13
LED14
RED
GREEN
LEDW
R17 150R
R24 150R
R23 150R
R22 150R
R20 150R
R18 150R
R16 150R
R14 150R
R21 150R
R19 150R
R15 150R
R13 150R
LED12
LED11
LED10
LED8
LED6
LED4
LED2
LED9
LED7
LED3
LED1
WHITE
M1 Mark
M2 Mark
Title
Size A4
Number
Revision
Date: 2023/4/24
Sheet of
File: F:\20230128之后F盘\..\SN-540-2- 2.SchDoc
Drawn By: