# EC800X QuecDuino EVB

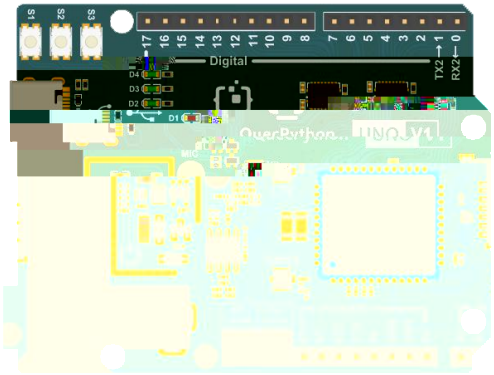
# 1

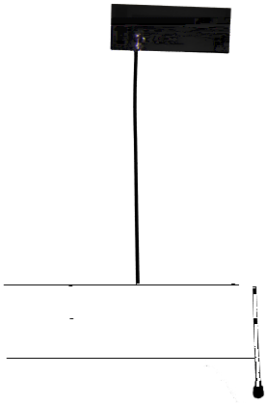
EC800X QuecDuino EVB EC800

EC800M EC800K EG800K EC800E

## EC800X QuecDuino EVB

QuecDuino EVB 4G FPC



1 EVB

**Features**

CPU

EC800 / EG800 Module Series

Pins

22x digital pins (GPIO), D0-D3,0-17 up to

2x analog input pins (ADC), A0-A1

Peripherals

Antenna Interface,LTE & GNSS(option)

SIM Interface, NANO SIM

USB 2.0, TypeC

Arduino female header Interface

Audio(option)

1xMIC onboard

1x 3W Class-D Stereo Amplifier

Power

Recommended input voltage (VIN) is 4.5-5.25 V/2A

Power via USB-C® at 5 V

Power via DC05® at 5-16V

3.3V/200mA output

Communication

4x UART (pin 0, 7) up to

1x SPI (pin 10-13, ICSP header)

1x I2C (pin 16, 17, SDA, SCL)

3x KEY(S1-S3)

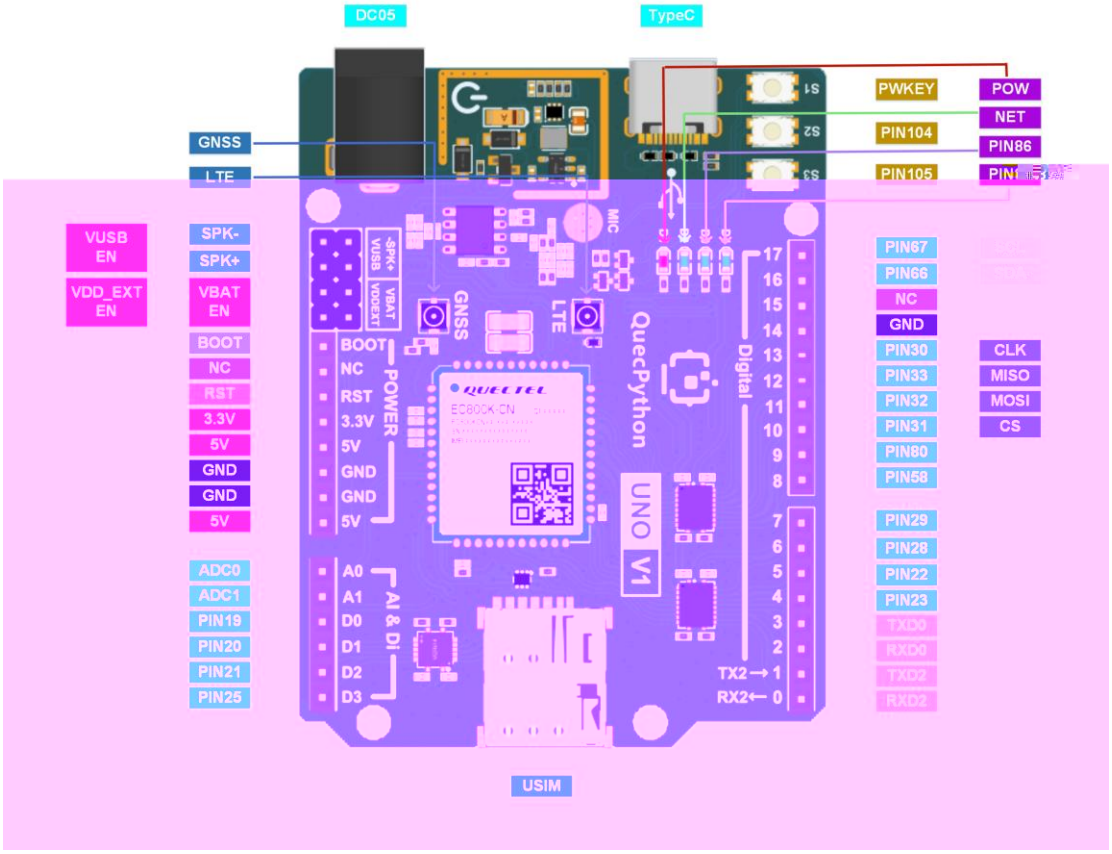
4x LED(D1-D4)

1x RESET(Pull-down reset Module)

1x BOOT(According to different model modules pull up or Pull-down the BOOT pin, Before power-on)

# 2

## 2.1




2 EVB

EVB VUBS EN VDD_EXT EN VBAT EN

## 2.2

1

| | | DC |
|---|---|---|
| BOOT | USB_BOOT | |
| NC | | |
| RST | RESET | |

| | | |
|---|---|---|
| 3.3V | | 3.3V/200mA |
| 5V | / | 5V/2A V1.1 |
| GND | | |
| GND | | |
| 5V | / | 5V/2A V1.1 |
| A0 | ADC0 | 0-1.2 V |
| A1 | ADC1 | 0-1.2 V |
| D0 | I/O 19 | 3.3V |
| D1 | I/O 20 | 3.3V |
| D2 | I/O 21 | 3.3V |
| D3 | I/O 25 | 3.3V |
| 0 | | 3.3V |
| 1 | | 3.3V |
| 2 | | 3.3V |
| 3 | | 3.3V |
| 4 | I/O 23 | 3.3V |
| 5 | I/O 22 | 3.3V |
| 6 | I/O 28 | 3.3V |
| 7 | I/O 29 | 3.3V |
| 8 | I/O 58 | 3.3V |
| 9 | I/O 80 | 3.3V |
| 10 | I/O 31 | 3.3V |
| 11 | I/O 32 | 3.3V |
| 12 | I/O 33 | 3.3V |
| 13 | I/O 30 | 3.3V |
| 14 | | |
| 15 | NC | |
| 16 | I/O 66 | 3.3V |

| | | |
|---|---|---|
| 17 | I/O 67 | 3.3V |

1

EVB 5V TypeC DC

5V 5V V1.1

2A TypeC DC 5V

USB USB

2

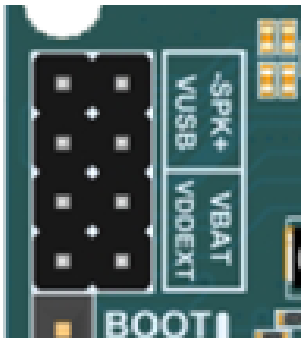
Pin0 Pin1 AT 115200

AT 4800 9600 19200 38400

57600 115200 230400 460800 921600bps AT

open C QuecPython UART2

3

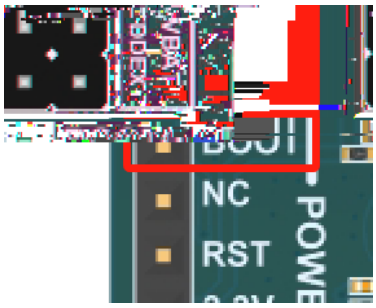



3

VBAT VUSB VDD_EXT

VBAT

4 BOOT



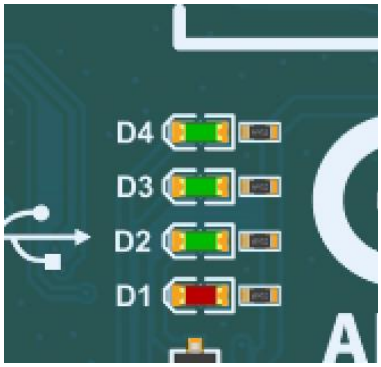

4

BOOT BOOT BOOT GND

BOOT

## 2.3

EVB 4 D1




5

D2

2

| | | |
|---|---|---|
| D2 | 200ms /1800ms | |
| | 1800ms /200ms | |
| | 125ms /125ms | |
| | | |

D3 D4 86 87

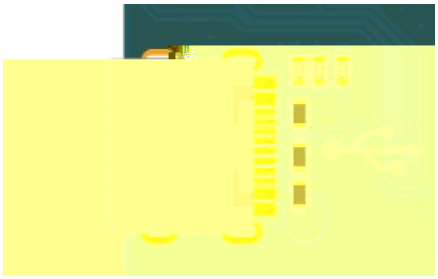
# 3 SIM

6 SIM

EVB NANO SIM USIM ETSI IMT-2000

1.8 V 3.0 V USIM

# 4 USB



7 USB

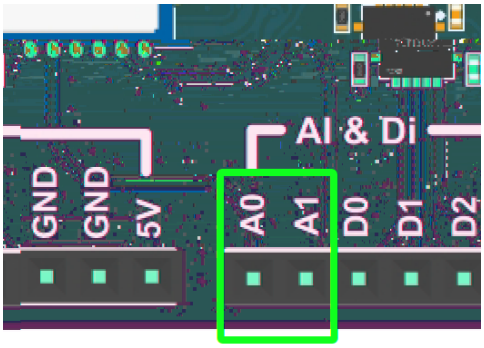
EVB 1 TypeC USB USB USB 2.0

USB 2.0 480 Mbps 12 Mbps

AT GNSS NMEA

# 5 ADC

EVB 2 ADC




8 ADC

3 ADC

| 参数 | 最小值 | 典型值 | 最大值 | 单位 |
|---|---|---|---|---|
| ADC0 电压 | 0 | - | 1.2 | V |
| ADC1 电压 | 0 | - | 1.2 | V |
| ADC 分辨率 | - | - | 12 | 位 |

# 6

## 6.1

### 6.1.1

5

| 引脚名 | 引脚号 | I/O | 描述 | 备注 |
|---|---|---|---|---|
| ANT_MAIN | 35 | AIO | 主天线接口 | 50 Ω 特性阻抗。 |

**备注**

模块支持 Wi-Fi Scan 功能。由于共用主天线接口，两种功能不可同时使用，时分复用，Wi-Fi Scan 只接收不发送。

6

| 工作频段 | 发送（MHz） | 接收（MHz） | 接收 |
|---|---|---|---|
| -2170 | LTE-FDD B1 | 1920~1980 | 2110~ |
| -1880 | LTE-FDD B3 | 1710~1785 | 1805~ |
| 894 | LTE-FDD B5 | 824~849 | 869~8 |
| 960 | LTE-FDD B8 | 880~915 | 925~9 |
| -2025 | LTE-TDD B34 | 2010~2025 | 2010~ |
| -2620 | LTE-TDD B38 | 2570~2620 | 2570~ |
| -1920 | LTE-TDD B39 | 1880~1920 | 1880~ |
| -2400 | LTE-TDD B40 | 2300~2400 | 2300~ |
| -2675 | LTE-TDD B41 | 2535~2675 | 2535~ |

## 6.1.2

7

| | 频段 | 最大值 | 最小值 |
|---|---|---|---|
| | LTE-FDD B1/B3/B5/B8 | 23 dBm ±2 dB | < -39 dBm |
| | LTE-TDD B34/B38/B39/B40/B41 | 23 dBm ±2 dB | < -39 dBm |

## 6.1.3

8

| 频段 | 接收灵敏度（典型值）（dBm） | | | 3GPP 要求（主集 + 分集） |
|---|---|---|---|---|
| | 主集 | 分集 | 主集 + 分集 | |
| LTE-FDD B1 (10 MHz) | -99.5 dBm | - | - | -96.3 dBm |
| LTE-FDD B3 (10 MHz) | -99.0 dBm | - | - | -93.3 dBm |
| LTE-FDD B5 (10 MHz) | -98.5 dBm | - | - | -94.3 dBm |
| LTE-FDD B8 (10 MHz) | -99.0 dBm | - | - | -93.3 dBm |
| LTE-TDD B34 (10 MHz) | -100.0 dBm | - | - | -96.3 dBm |
| LTE-TDD B38 (10 MHz) | -99.0 dBm | - | - | -96.3 dBm |
| LTE-TDD B39 (10 MHz) | -100.0 dBm | - | - | -96.3 dBm |
| LTE-TDD B40 (10 MHz) | -100.5 dBm | - | - | -96.3 dBm |
| LTE-TDD B41 (10 MHz) | -99.0 dBm | - | - | -94.3 dBm |

## 6.2 GNSS

EVB GNSS GNSS

- GPS BDS GLONASS Galileo
- NMEA 0183 NMEA AT USB UART 1 Hz
- GNSS AT

### 6.2.1

9

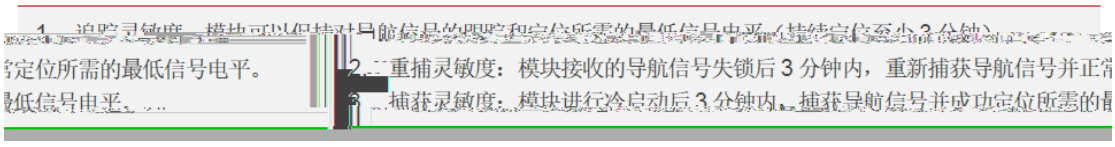
| | | |
|---|---|---|
| GPS | 1575.42 ±1.023 (L1) | MHz |
| BDS | 1561.098 ±2.046 (B1I) | |
| Galileo | 1575.42 ±2.046 (E1) | |
| GLONASS | 1597.5~1605.8 (L1) | |

### 6.2.2 GNSS

10 GNSS

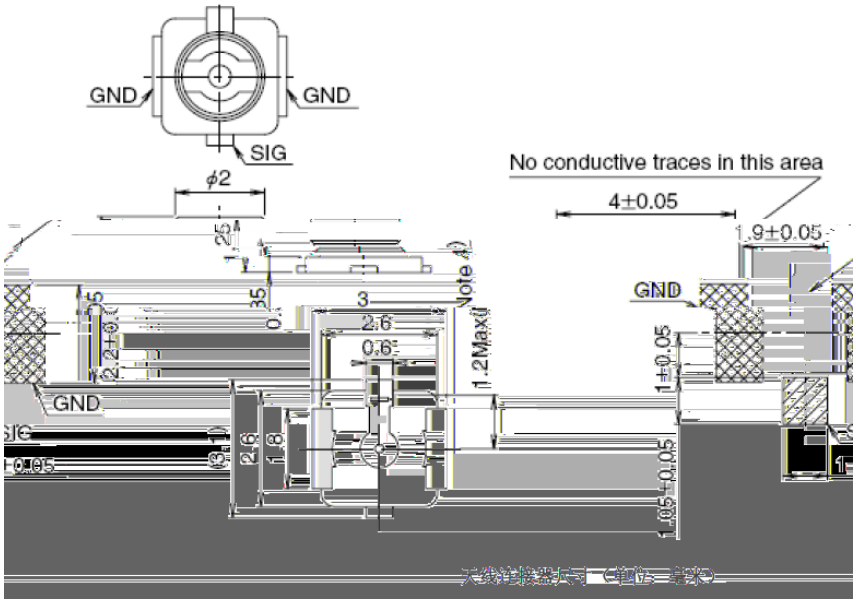
| 参数 | 条件 | 典型值 | 单位 |
|---|---|---|---|
| 灵敏度 | 捕获 | -146 | dBm |
| | 重捕 | -160 | |
| | 追踪 | -160 | |
| 首次定位时间 | 冷启动 @ 空旷区域 | 28 | s |
| | 温启动 @ 空旷区域 | 27 | |
| | 热启动 @ 空旷区域 | 3.7 3 | |
| [illegible] | 定位精度 | CEP-50 | 2 |

**备注**



## 6.3

EVB



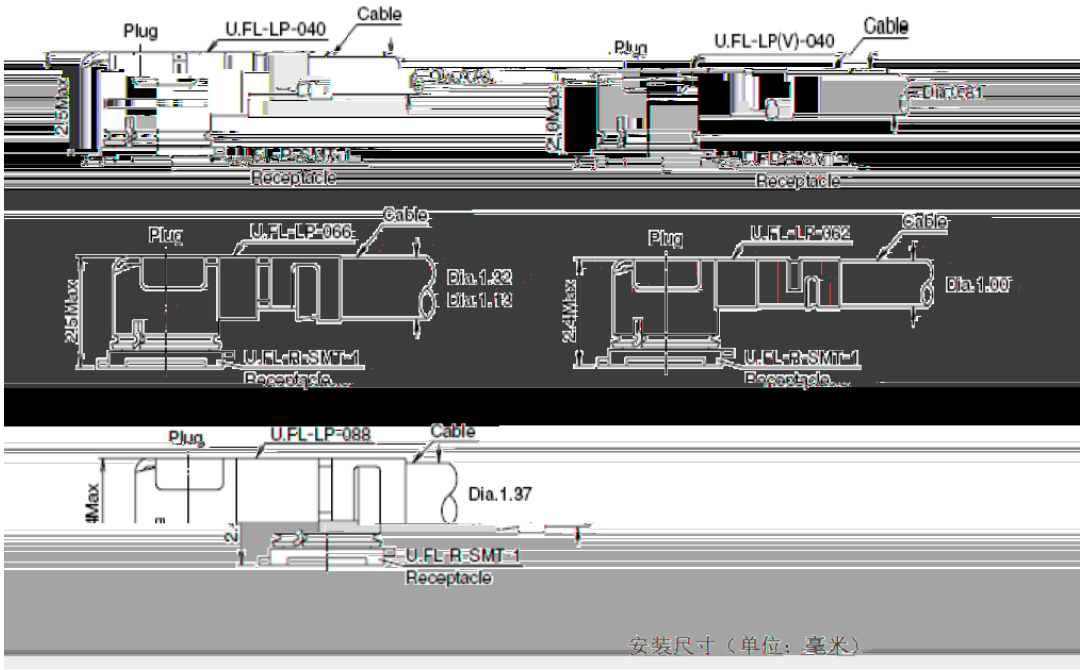

9 mm

U.FL-LP

| Part No. | U.FL-LP-040 | U.FL-LP-066 | U.FL-LP(V)-040 | U.FL-LP-062 | U.FL-LP-088 |
|---|---|---|---|---|---|
| Mated Height | 2.5mm Max. (2.4mm Nom.) | 2.5mm Max. (2.4mm Nom.) | 2.0mm Max. (1.9mm Nom.) | 2.4mm Max. (2.3mm Nom.) | 2.4mm Max. (2.3mm Nom.) |
| Applicable cable | Dia. 0.81mm Coaxial cable | Dia. 1.13mm and Dia. 1.32mm Coaxial cable | Dia. 0.81mm Coaxial cable | Coaxial cable | Coaxial cable |
| Weight (mg) | 53.7 | 59.1 | 34.8 | 45.5 | 71.7 |
| RoHS | YES | | | | |

U. FL-LP 连接线系列

10 mm




11 mm

IPEX Https://www.i-pex.com

# 7

## 7.1

11

| | | | |
|---|---|---|---|
| TypeC | -0.3 | 6 | V |
| DC | -0.3 | 16 | V |
| 3.3V | -0.3 | 3.4 | V |
| | -0.3 | 3.4 | V |
| ADC0 | - | 1.2 | V |
| ADC1 | - | 1.2 | V |
| 5V | - | 2 | A |

## 7.2

12

| | | | |
|---|---|---|---|
| | | | |
| TypeC | | | |
| DC | | 4.5 | 12 |
| I | LTE | - | 1.5 |

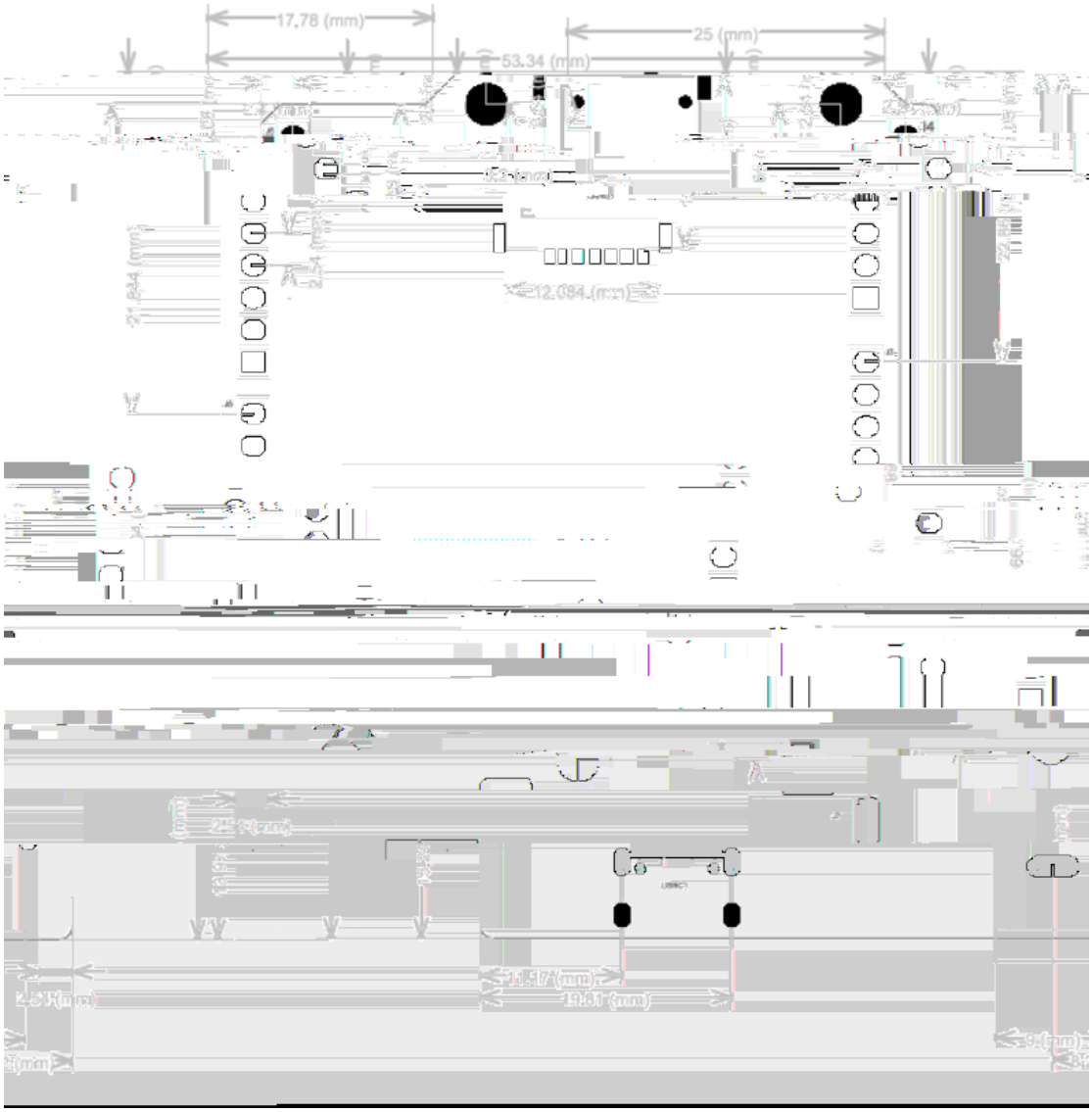
## 7.3

13 ESD

| | | | |
|---|---|---|---|
| | | | |

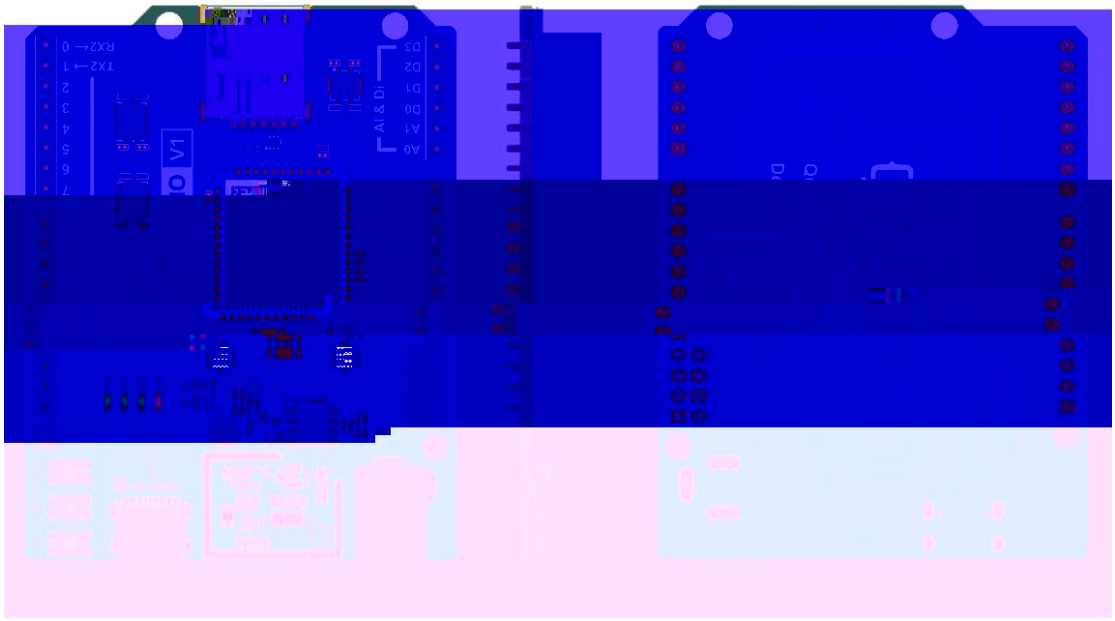
# 8

## 8.1




12 EVB

## 8.2

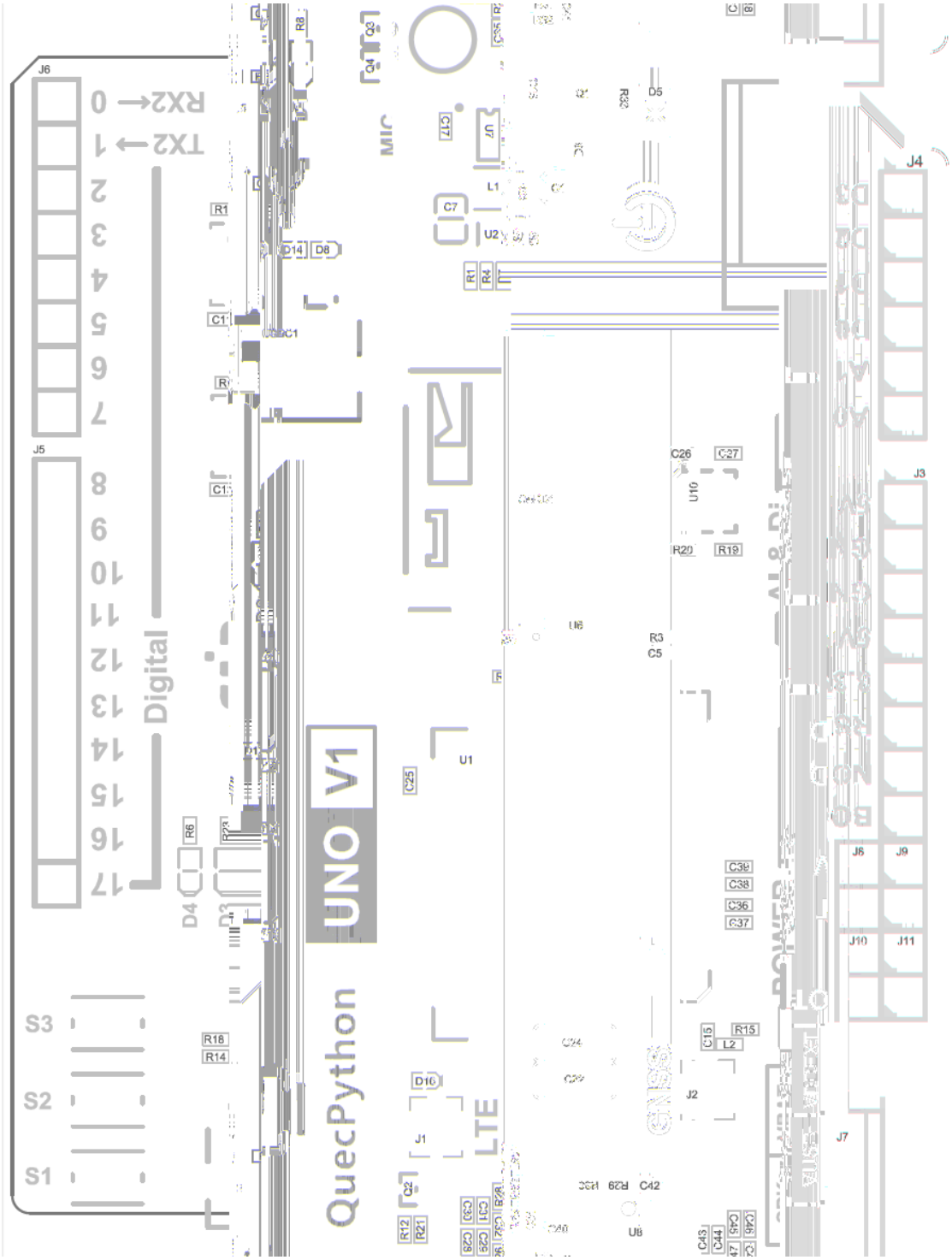


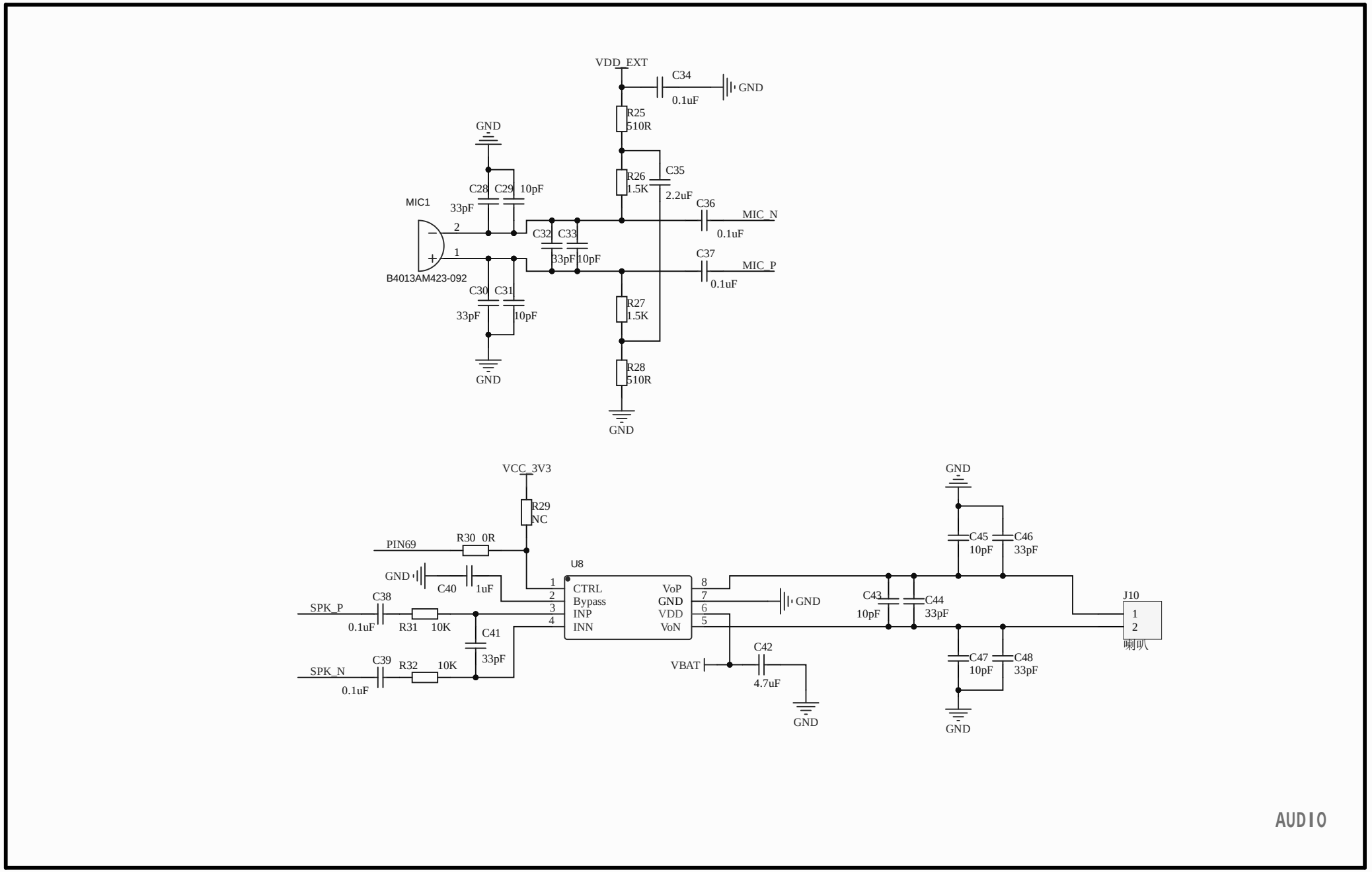
13 EVB

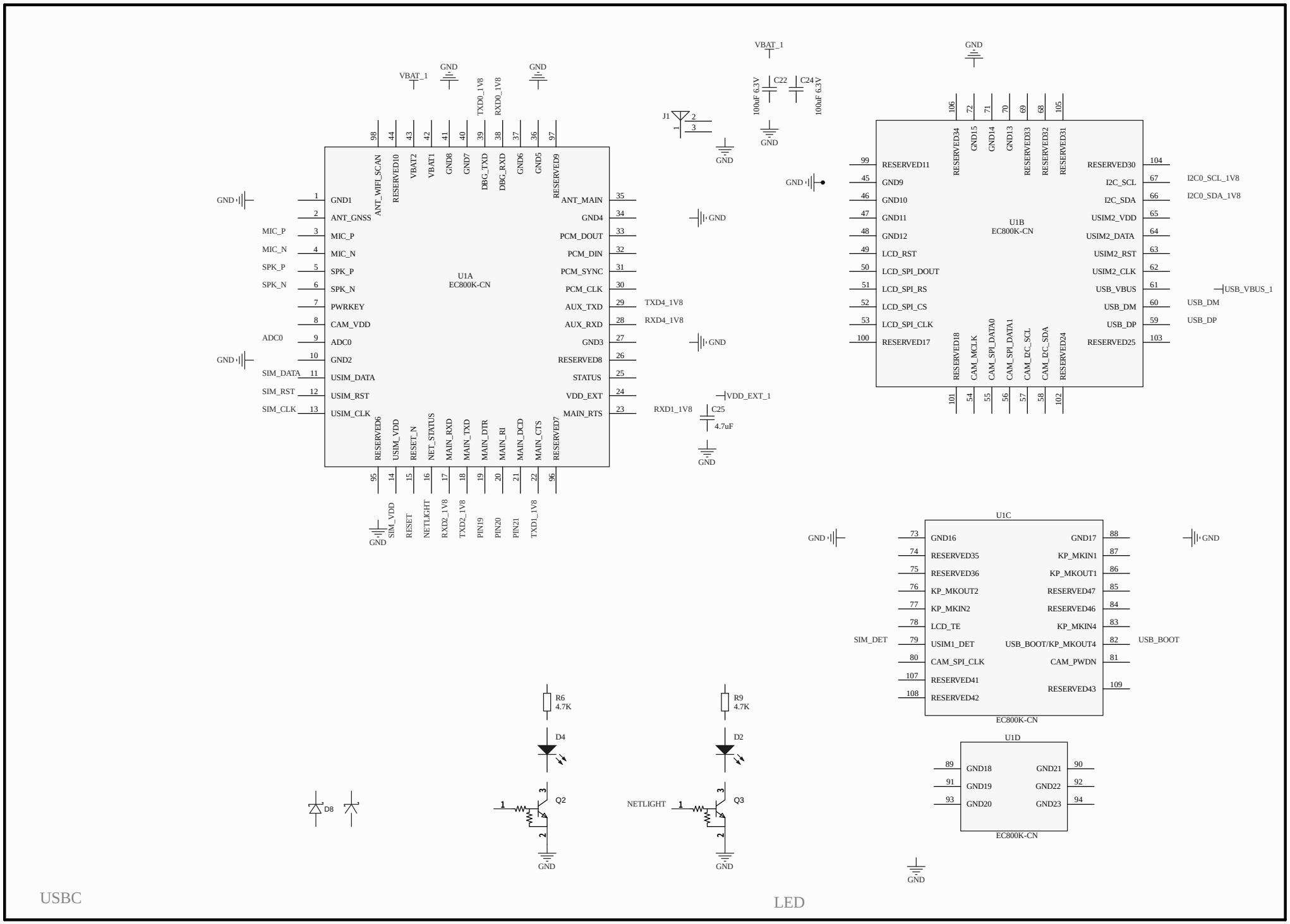
# 9

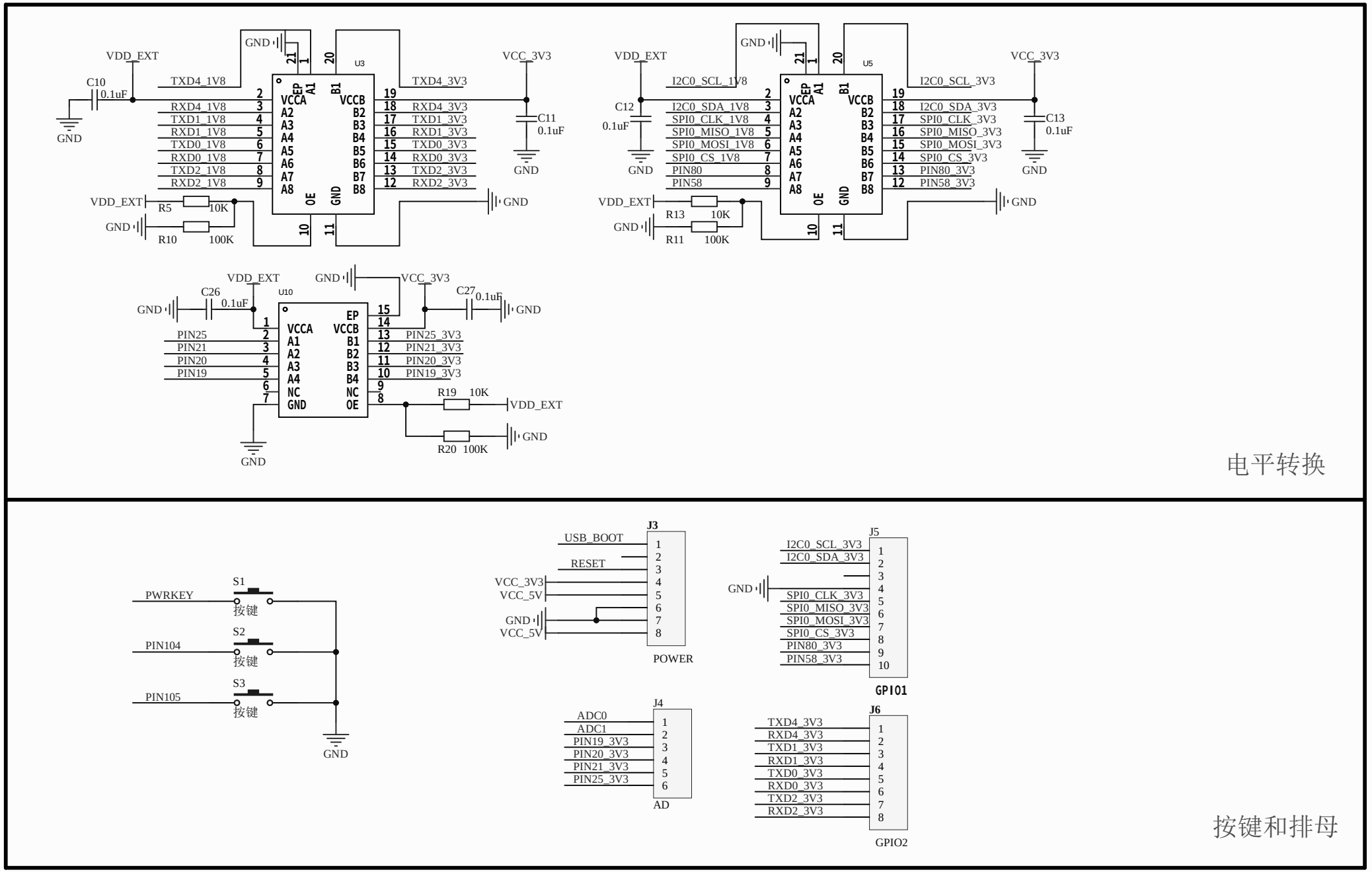
1
2

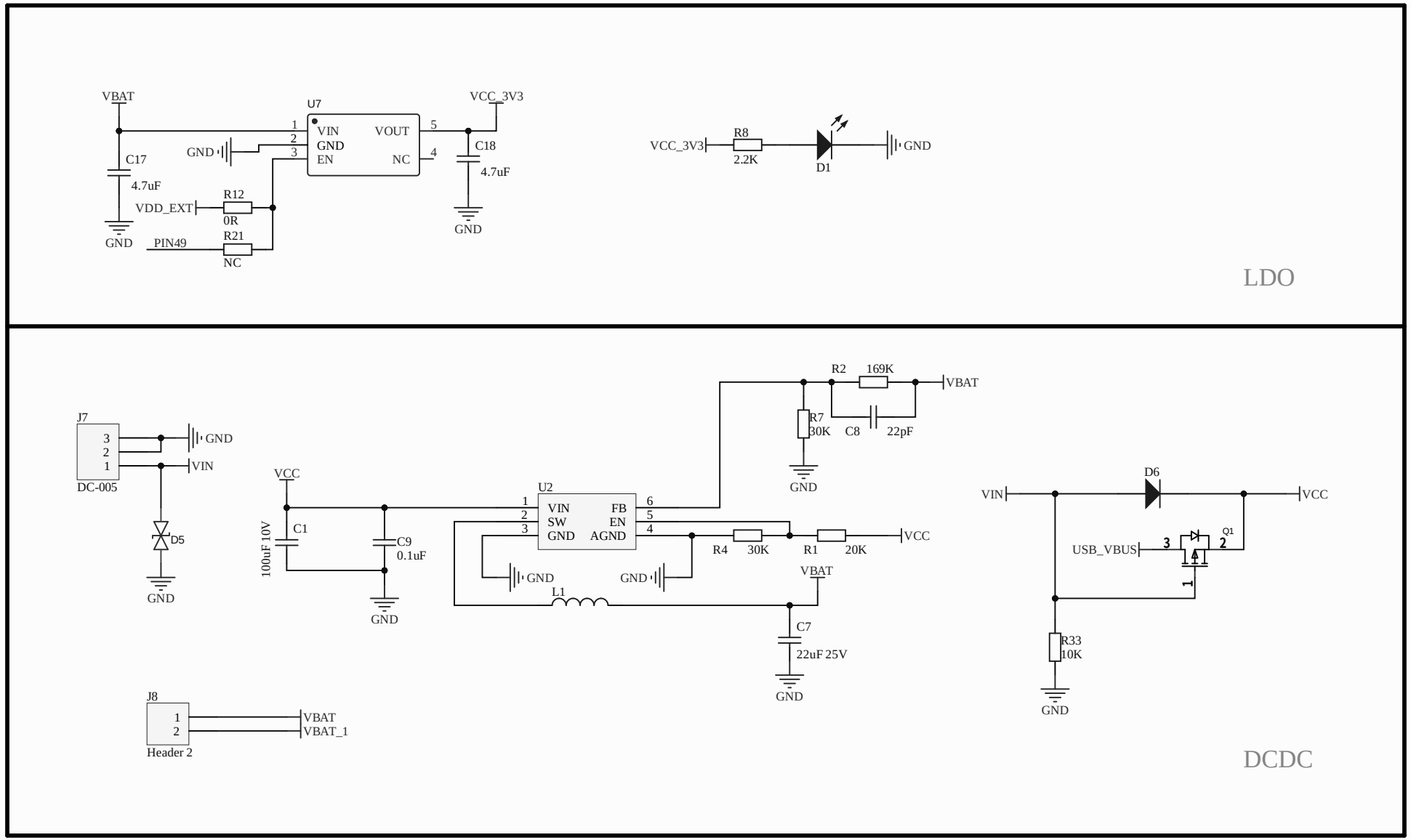
# 10 EVB


QuecPython
UNO V1
LTE
Digital
POWER
J6
J5
J4
J3
J2
J1
J7
J8
J9
J10
J11
S1
S2
S3
RX2→ 0
TX2← 1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17


VDD_EXT
C34
0.1uF
GND
R25
510R
GND
C28
C29
10pF
MIC1
33pF
2
1
B4013AM423-092
R26
1.5K
C35
2.2uF
C36
MIC_N
0.1uF
C32
C33
33pF
10pF
C37
MIC_P
0.1uF
C30
C31
33pF
10pF
R27
1.5K
GND
R28
510R
GND
VCC_3V3
R29
NC
PIN69
R30
0R
GND
C40
1uF
U8
1
2
3
4
CTRL
Bypass
INP
INN
VoP
GND
VDD
VoN
8
7
6
5
SPK_P
C38
0.1uF
R31
10K
C41
33pF
SPK_N
C39
0.1uF
R32
10K
VBAT
C42
4.7uF
GND
GND
C43
10pF
C44
33pF
GND
C45
10pF
C46
33pF
C47
10pF
C48
33pF
GND
J10
1
2
喇叭
AUDIO


U1A
EC800K-CN
GND1
ANT_GNSS
MIC_P
MIC_N
SPK_P
SPK_N
PWRKEY
CAM_VDD
ADC0
GND2
USIM_DATA
USIM_RST
USIM_CLK
ANT_WIFI_SCAN
RESERVED10
VBAT2
VBAT1
GND8
GND7
DBG_TXD
DBG_RXD
GND6
GND5
RESERVED9
ANT_MAIN
GND4
PCM_DOUT
PCM_DIN
PCM_SYNC
PCM_CLK
AUX_TXD
AUX_RXD
GND3
RESERVED8
STATUS
VDD_EXT
MAIN_RTS
RESERVED6
USIM_VDD
RESET_N
NET_STATUS
MAIN_RXD
MAIN_TXD
MAIN_DTR
MAIN_RI
MAIN_DCD
MAIN_CTS
RESERVED7
SIM_VDD
RESET
NETLIGHT
RXD2_1V8
TXD2_1V8
PIN19
PIN20
PIN21
TXD1_1V8
TXD0_1V8
RXD0_1V8
TXD4_1V8
RXD4_1V8
RXD1_1V8
VBAT_1
VDD_EXT_1
C22
C24
C25
100uF 6.3V
4.7uF
J1
U1B
EC800K-CN
RESERVED11
GND9
GND10
GND11
GND12
LCD_RST
LCD_SPI_DOUT
LCD_SPI_RS
LCD_SPI_CS
LCD_SPI_CLK
RESERVED17
RESERVED34
GND15
GND14
GND13
RESERVED33
RESERVED32
RESERVED31
RESERVED30
I2C_SCL
I2C_SDA
USIM2_VDD
USIM2_DATA
USIM2_RST
USIM2_CLK
USB_VBUS
USB_DM
USB_DP
RESERVED25
RESERVED18
CAM_MCLK
CAM_SPI_DATA0
CAM_SPI_DATA1
CAM_I2C_SCL
CAM_I2C_SDA
RESERVED24
I2C0_SCL_1V8
I2C0_SDA_1V8
USB_VBUS_1
USB_DM
USB_DP
U1C
EC800K-CN
GND16
RESERVED35
RESERVED36
KP_MKOUT2
KP_MKIN2
LCD_TE
USIM1_DET
CAM_SPI_CLK
RESERVED41
RESERVED42
GND17
KP_MKIN1
KP_MKOUT1
RESERVED47
RESERVED46
KP_MKIN4
USB_BOOT/KP_MKOUT4
CAM_PWDN
RESERVED43
SIM_DET
USB_BOOT
U1D
EC800K-CN
GND18
GND19
GND20
GND21
GND22
GND23
R6
4.7K
R9
4.7K
D4
D2
D8
Q2
Q3
NETLIGHT
USBC
LED


U3
VDD_EXT
GND
C10
0.1uF
TXD4_1V8
RXD4_1V8
TXD1_1V8
RXD1_1V8
TXD0_1V8
RXD0_1V8
TXD2_1V8
RXD2_1V8
VCCA
VCCB
OE
TXD4_3V3
RXD4_3V3
TXD1_3V3
RXD1_3V3
TXD0_3V3
RXD0_3V3
TXD2_3V3
RXD2_3V3
VCC_3V3
C11
0.1uF
R5
10K
R10
100K
U5
I2C0_SCL_1V8
I2C0_SDA_1V8
SPI0_CLK_1V8
SPI0_MISO_1V8
SPI0_MOSI_1V8
SPI0_CS_1V8
PIN80
PIN58
I2C0_SCL_3V3
I2C0_SDA_3V3
SPI0_CLK_3V3
SPI0_MISO_3V3
SPI0_MOSI_3V3
SPI0_CS_3V3
PIN80_3V3
PIN58_3V3
C12
C13
R13
10K
R11
100K
U10
C26
C27
PIN25
PIN21
PIN20
PIN19
PIN25_3V3
PIN21_3V3
PIN20_3V3
PIN19_3V3
R19
10K
R20
100K
电平转换
S1
S2
S3
PWRKEY
PIN104
PIN105
按键
J3
USB_BOOT
RESET
VCC_3V3
VCC_5V
POWER
J5
GPIO1
J4
ADC0
ADC1
AD
J6
GPIO2
按键和排母


VBAT
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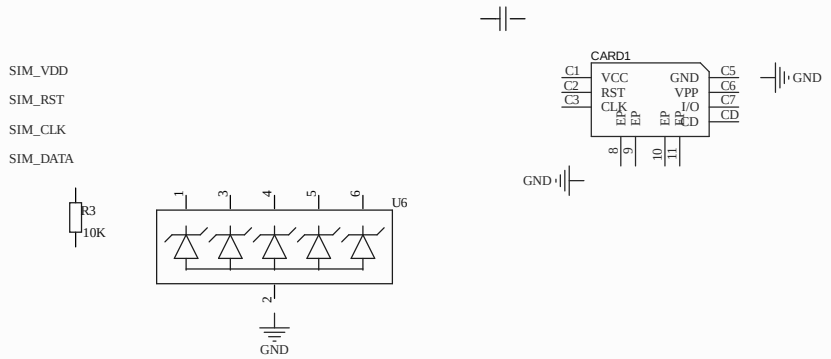
VCC_3V3
VIN
VOUT
GND
EN
NC
C17
4.7uF
GND
C18
4.7uF
GND
R12
0R
VDD_EXT
R21
NC
PIN49
VCC_3V3
R8
2.2K
D1
GND
LDO
J7
DC-005
GND
VIN
D5
GND
VCC
100uF 10V
C1
C9
0.1uF
GND
U2
VIN
SW
GND
FB
EN
AGND
R2
169K
VBAT
R7
30K
C8
22pF
GND
R4
30K
R1
20K
VCC
GND
GND
L1
VBAT
C7
22uF 25V
GND
J8
Header 2
VBAT
VBAT_1
D6
VIN
VCC
USB_VBUS
Q1
R33
10K
GND
DCDC


SIM_VDD
SIM_RST
SIM_CLK
SIM_DATA
R3
10K
U6
1
3
4
5
6
2
GND
CARD1
C1
C2
C3
VCC
RST
CLK
GND
VPP
I/O
CD
C5
C6
C7
CD
EP
EP
EP
EP
8
9
10
11
GND
GND

USIM