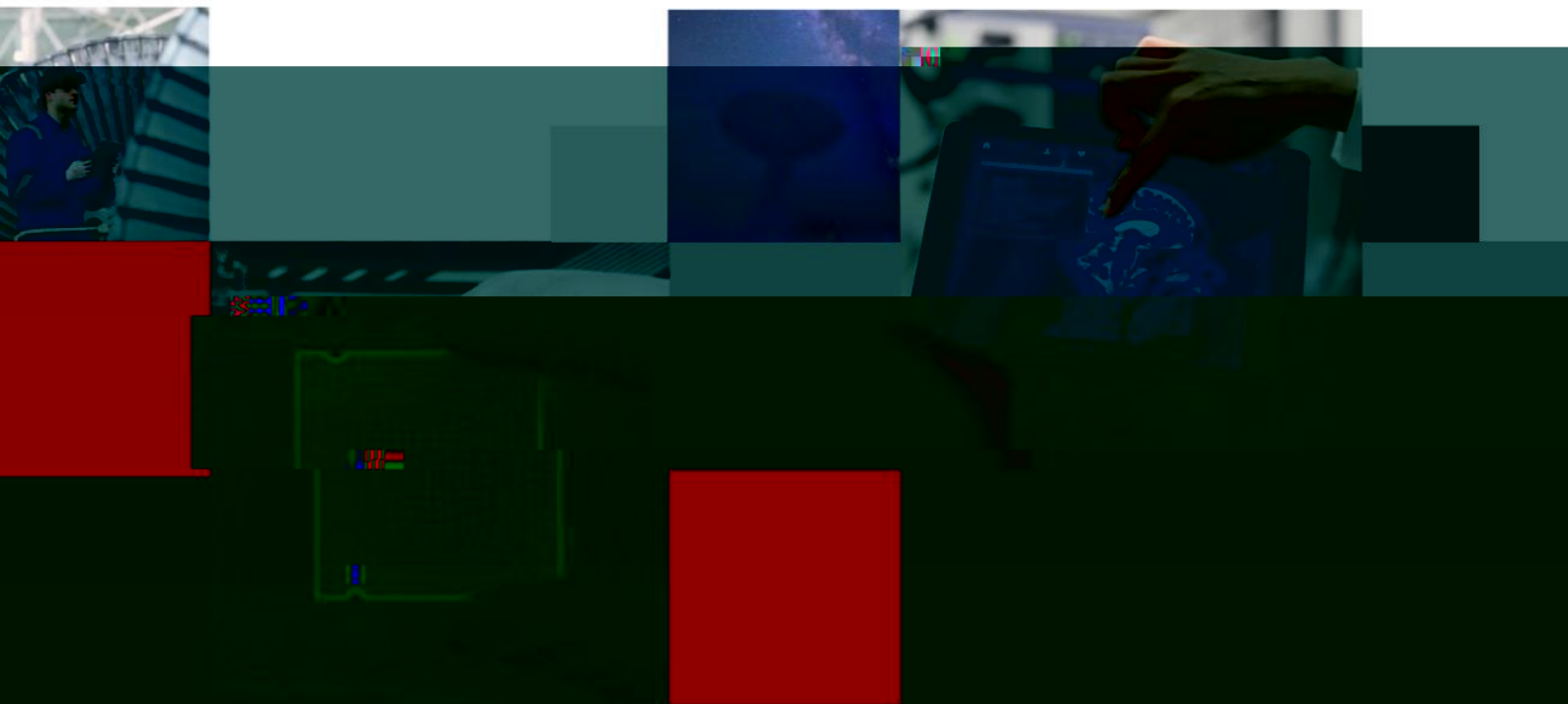


# EC800X QuecDuino EVB

C .. V    c B    C  
  . 2  
  V

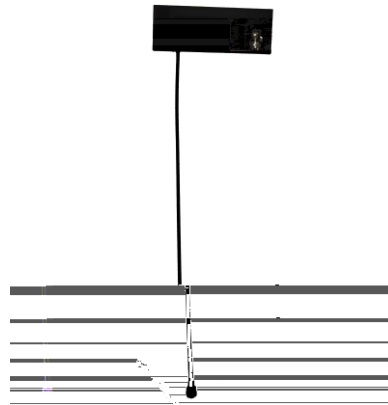
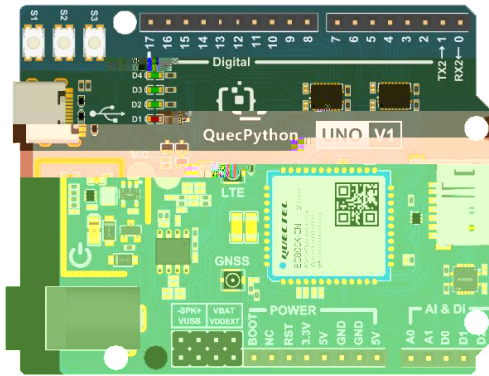


# 1

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)

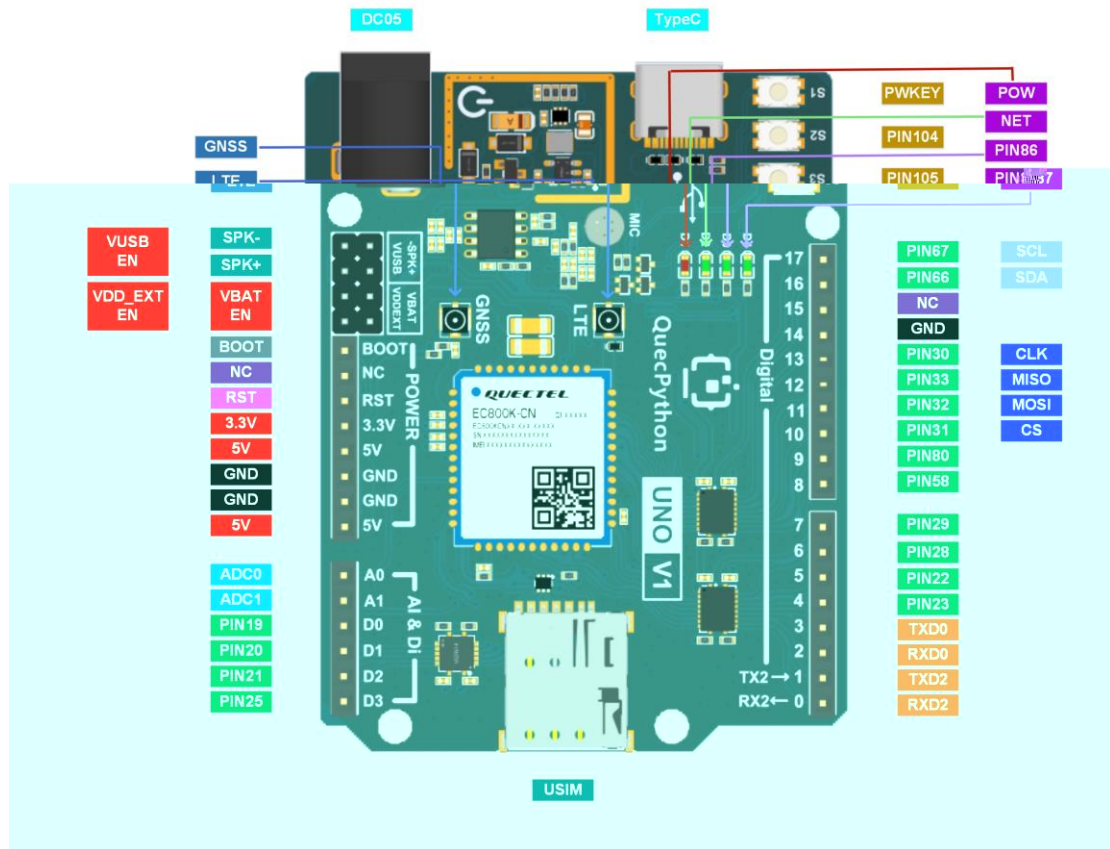
4x LED(D1-D4)

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       |



BOOT  
BOOT

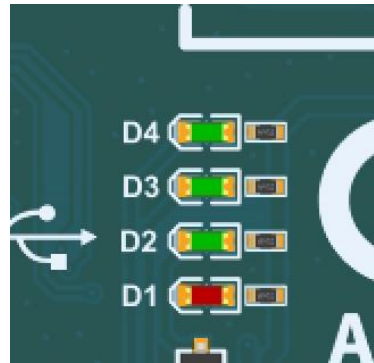
BOOT

BOOT GND

## 2.3

EVB 4

D1



5

D2

2

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

D3 D4

86 87

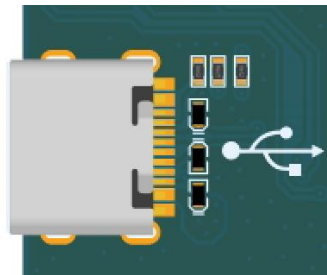
### 3 SIM



6 SIM

EVB NANO SIM USIM ETSI IMT-2000  
1.8 V 3.0 V USIM

### 4 USB



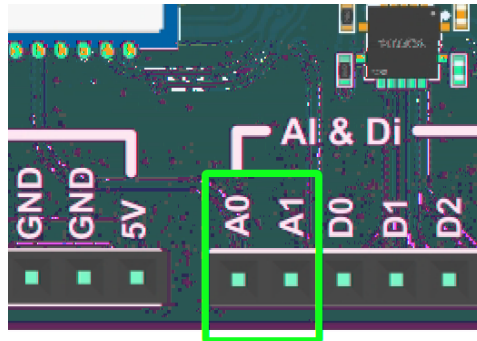
7 USB

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        |
|-----------|-------------|-----------|-----------|
| 1920~2170 | LTE-FDD B1  | 1920~1980 | 2110~2170 |
| 1710~1880 | LTE-FDD B3  | 1710~1785 | 1805~1880 |
| 824~894   | LTE-FDD B5  | 824~849   | 869~915   |
| 880~960   | LTE-FDD B8  | 880~915   | 925~975   |
| 2010~2025 | LTE-TDD B34 | 2010~2025 | 2010~2025 |
| 2570~2620 | LTE-TDD B38 | 2570~2620 | 2570~2620 |
| 1880~1920 | LTE-TDD B39 | 1880~1920 | 1880~1920 |
| 2300~2400 | LTE-TDD B40 | 2300~2400 | 2300~2400 |
| 2535~2675 | LTE-TDD B41 | 2535~2675 | 2535~2675 |

### 6.1.2

#### 7

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

### 6.1.3

#### 8

| 频段                   | 接收灵敏度 (典型值) (dBm) |    |         | 3GPP 要求<br>(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

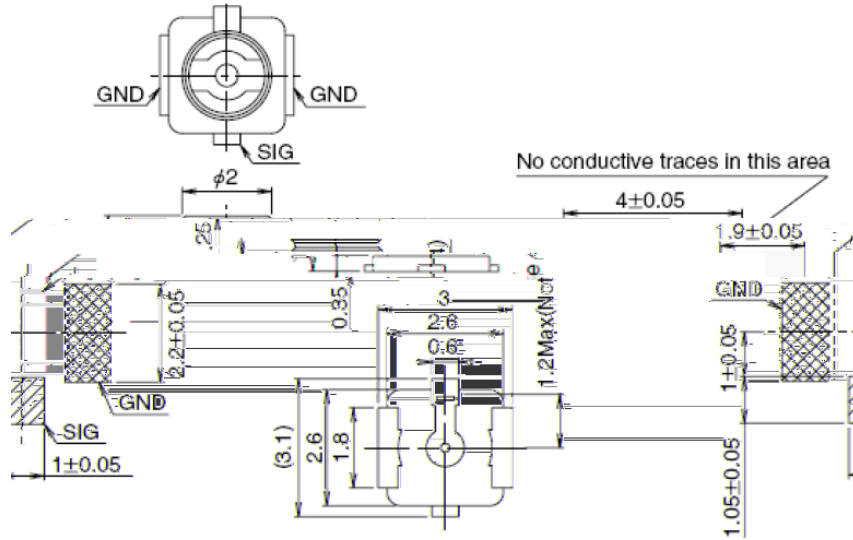
| 参数     | 条件         | 典型值              | 单位  |
|--------|------------|------------------|-----|
| 灵敏度    | 捕获         | -146             | dBm |
|        | 重捕         | -160             |     |
|        | 追踪         | -160             |     |
| 首次定位时间 | 冷启动 @ 空旷区域 | 28               | s   |
|        | 温启动 @ 空旷区域 | 27               |     |
|        | 热启动 @ 空旷区域 | 3.7 <sup>3</sup> |     |
| 定位精度   | CEP50      | ±3.0             |     |

#### 备注

|   |
|---|
| 1. 追踪灵敏度一维也可以保持对目标信号的跟踪和定位所需的最低信号电平。(持续定位至少2分钟) |
|---|

### 6.3

### EVB



天线连接器尺寸 (单位: 毫米)

9

mm

### U.FL-LP

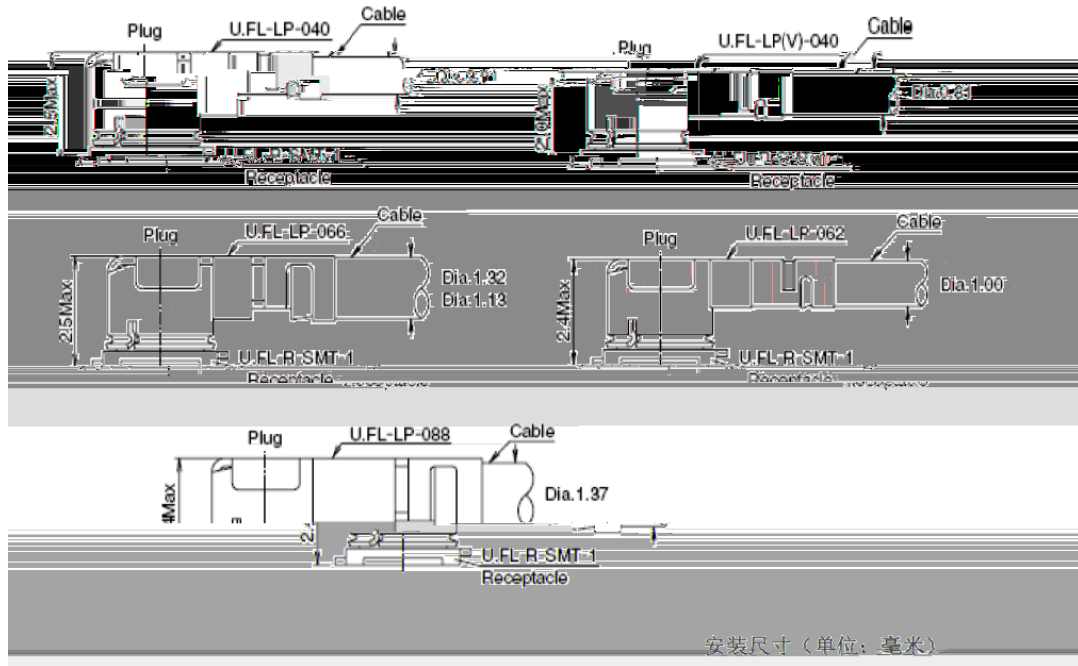
| Part No.     | U.FL-LP-040                | U.FL-LP-050                | U.FL-LP-060                | U.FL-LP-080                |
|--------------|----------------------------|----------------------------|----------------------------|----------------------------|
| Mated Height | 2.4mm Max.<br>(2.3mm Nom.) | 2.4mm Max.<br>(2.3mm Nom.) | 2.5mm Max.<br>(2.4mm Nom.) | 2.5mm Max.<br>(2.4mm Nom.) |
| Weight (mg)  | 46.5                       | 47.7                       | 53.7                       | 59.1                       |
| RoHS         | Y                          | Y                          | Y                          | Y                          |

Coaxial cable

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 |     | 4.5 | 5.0 | 5.25 | V |
|-------|-----|-----|-----|------|---|
| DC    |     | 4.5 | 12  | 16   | V |
| I     | LTE | -   | 1.5 | 2    | A |

## 7.3

13 ESD

| 5V GND | $\pm 8$ | $\pm 10$ |  | KV |
|--------|---------|----------|--|----|
| USB    | $\pm 8$ | $\pm 10$ |  | KV |

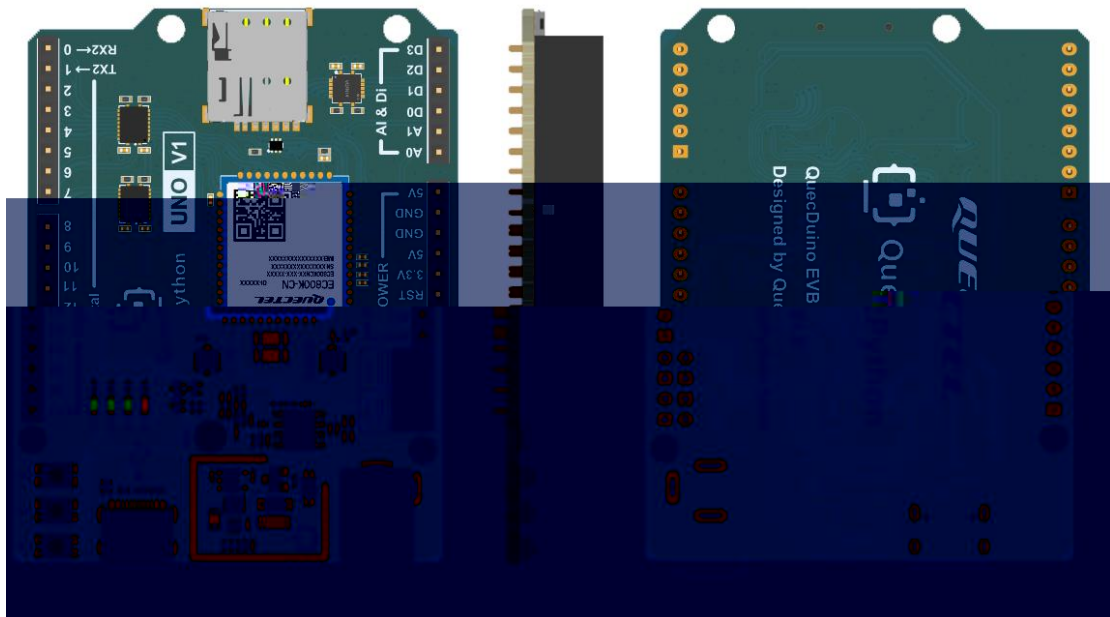
# 8

## 8.1



12 EVB

## 8.2

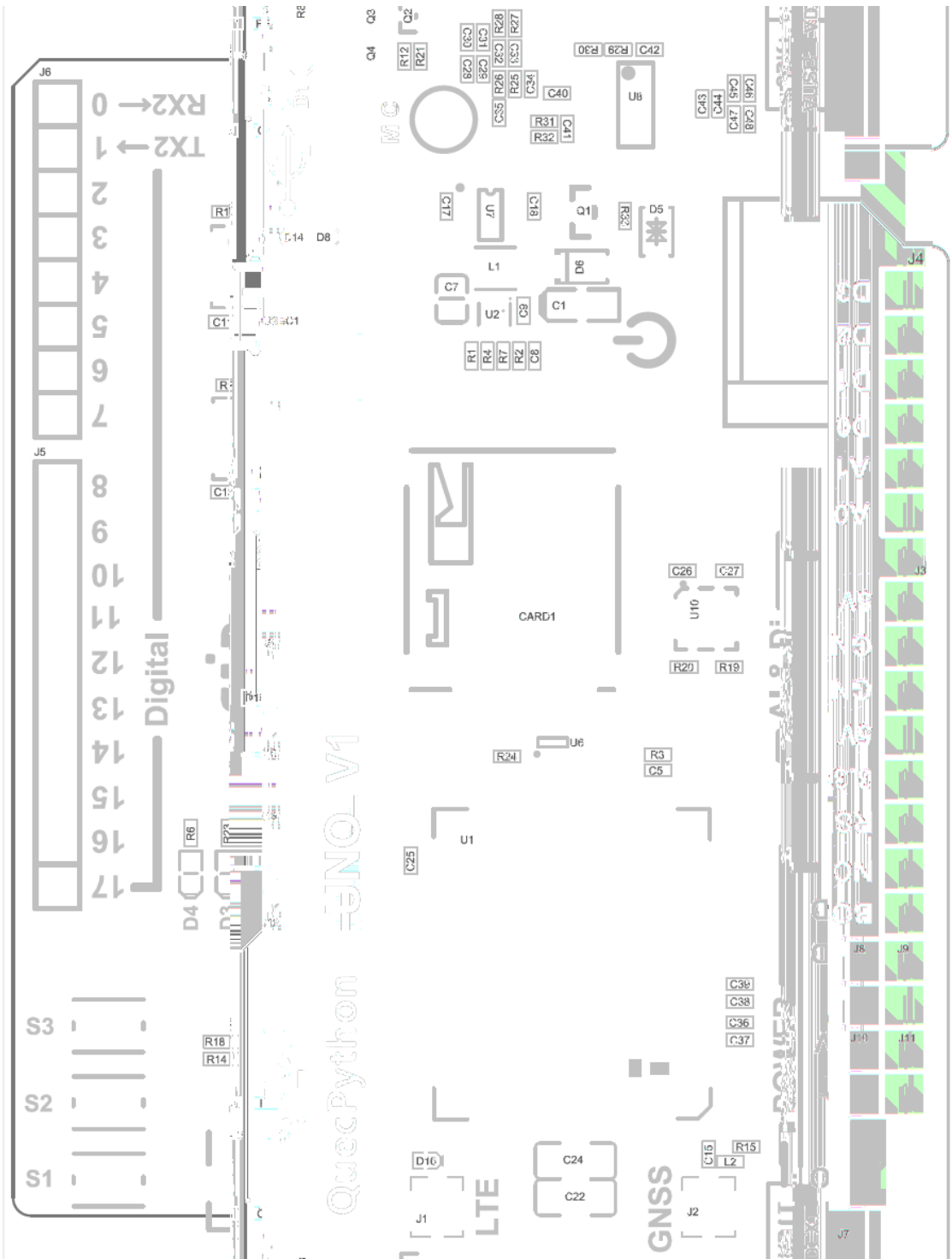


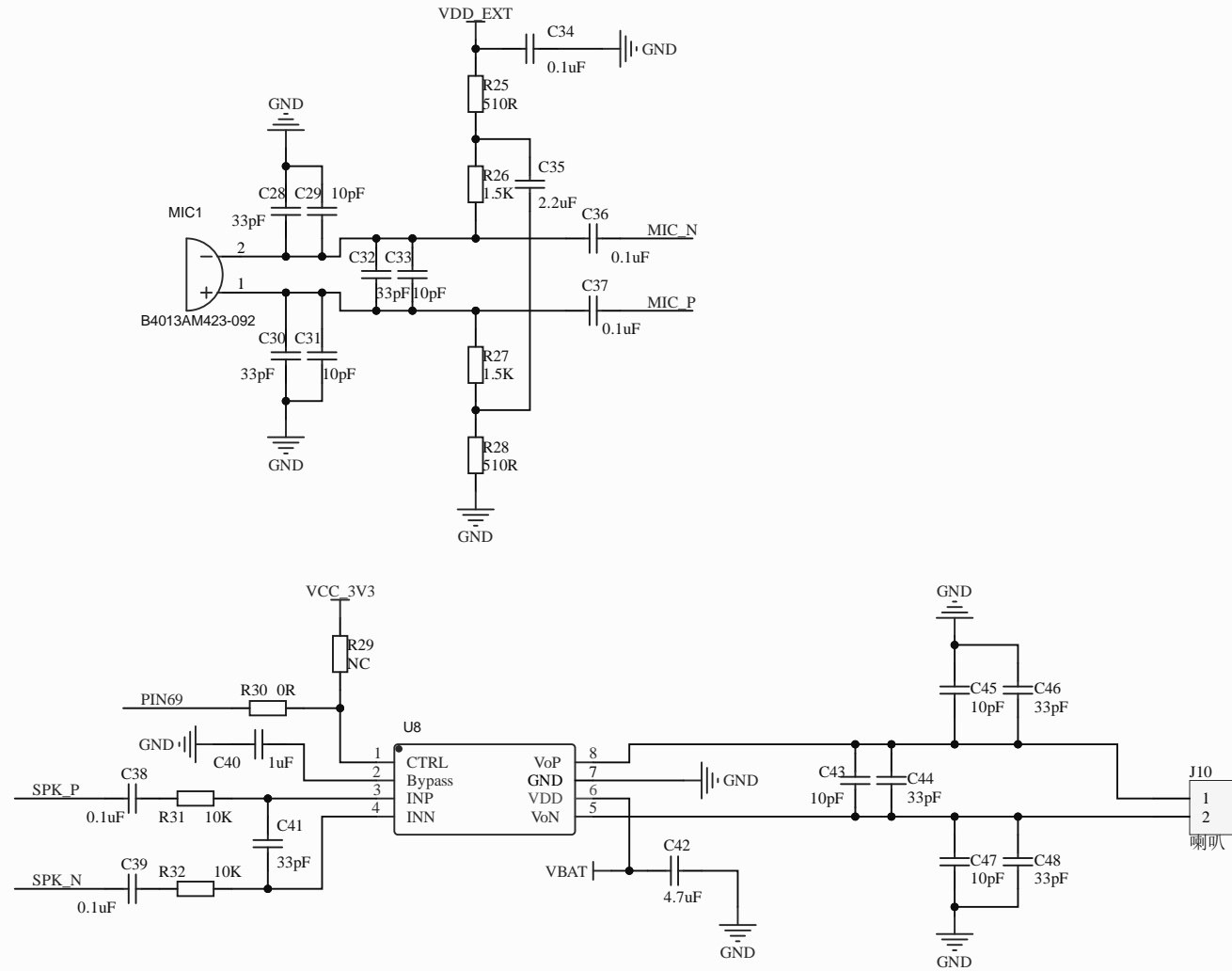
13 EVB

## 9

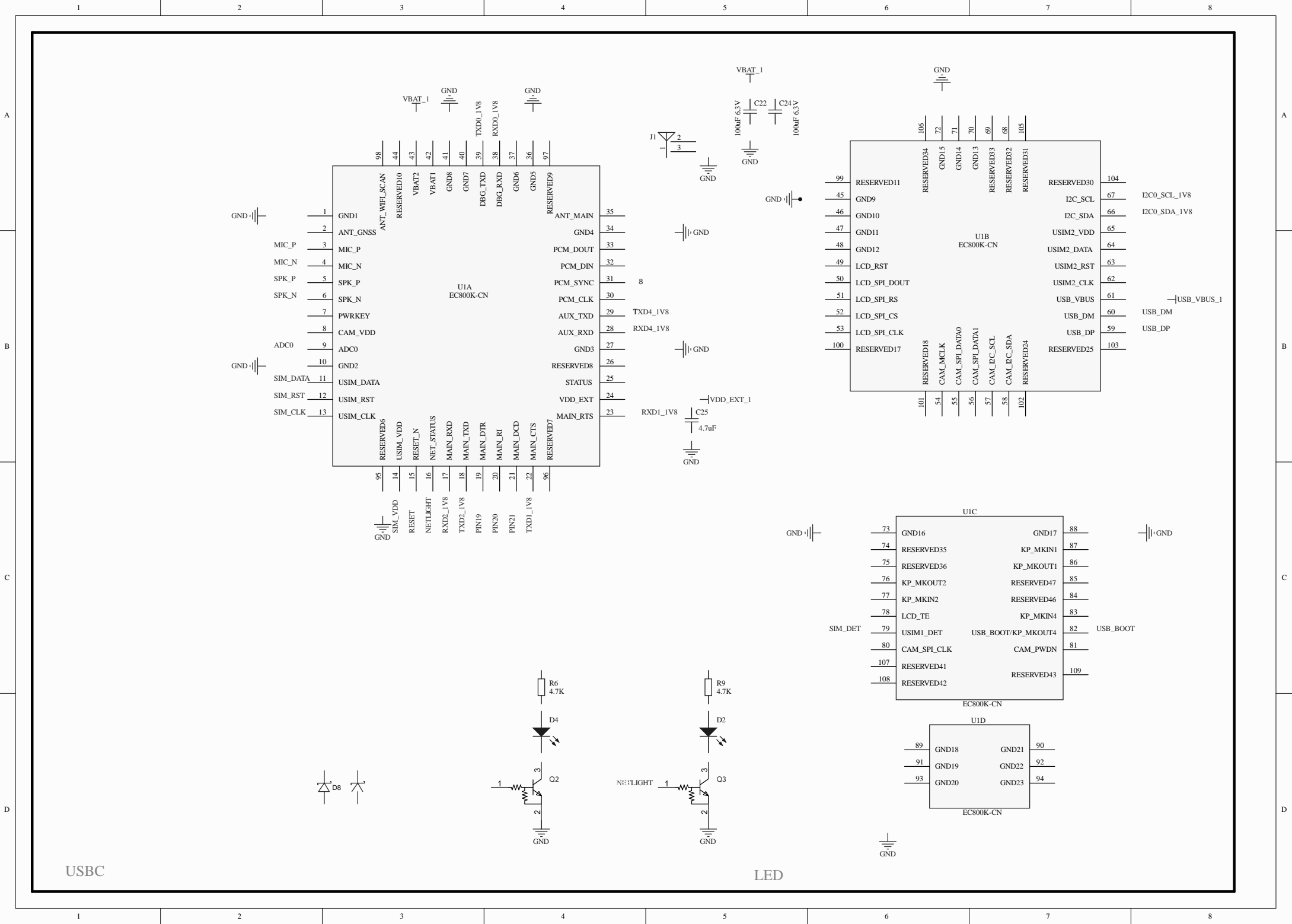
- 1
- 2

## 10 EVB



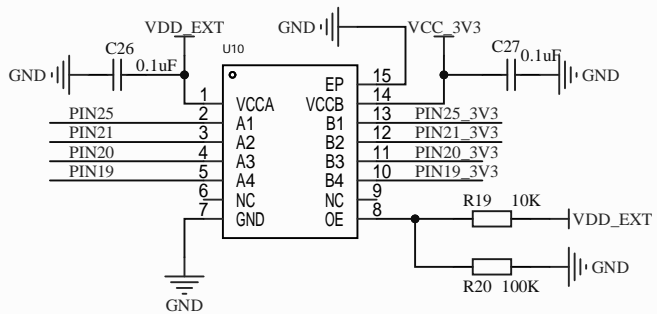
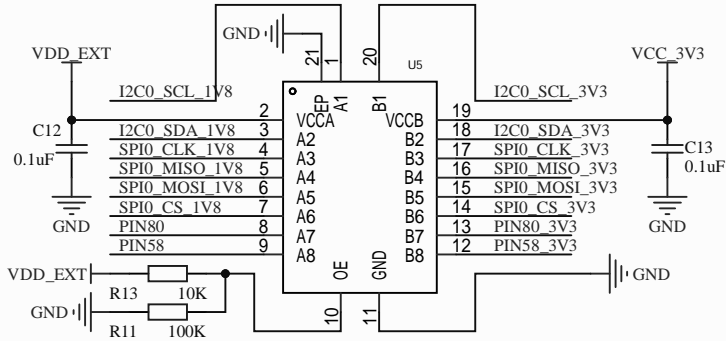
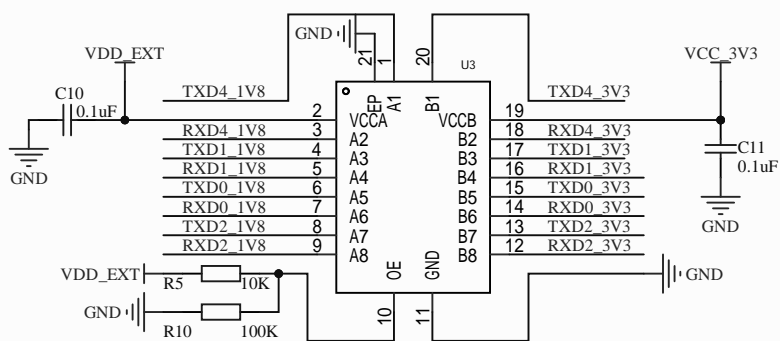


AUDIO

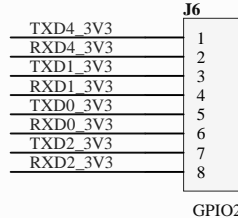
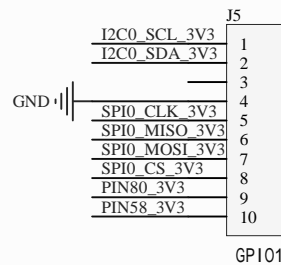
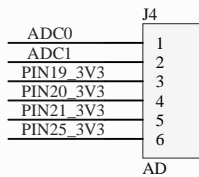
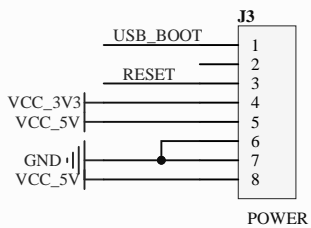


USBC

LED



### 电平转换



### 按键和排母

1

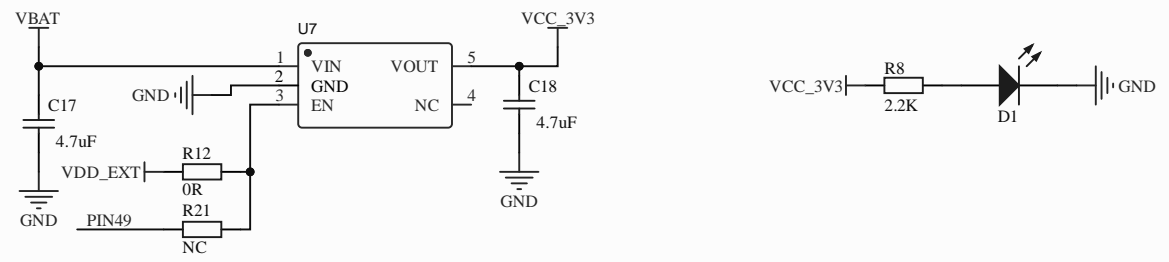
2

3

4

A

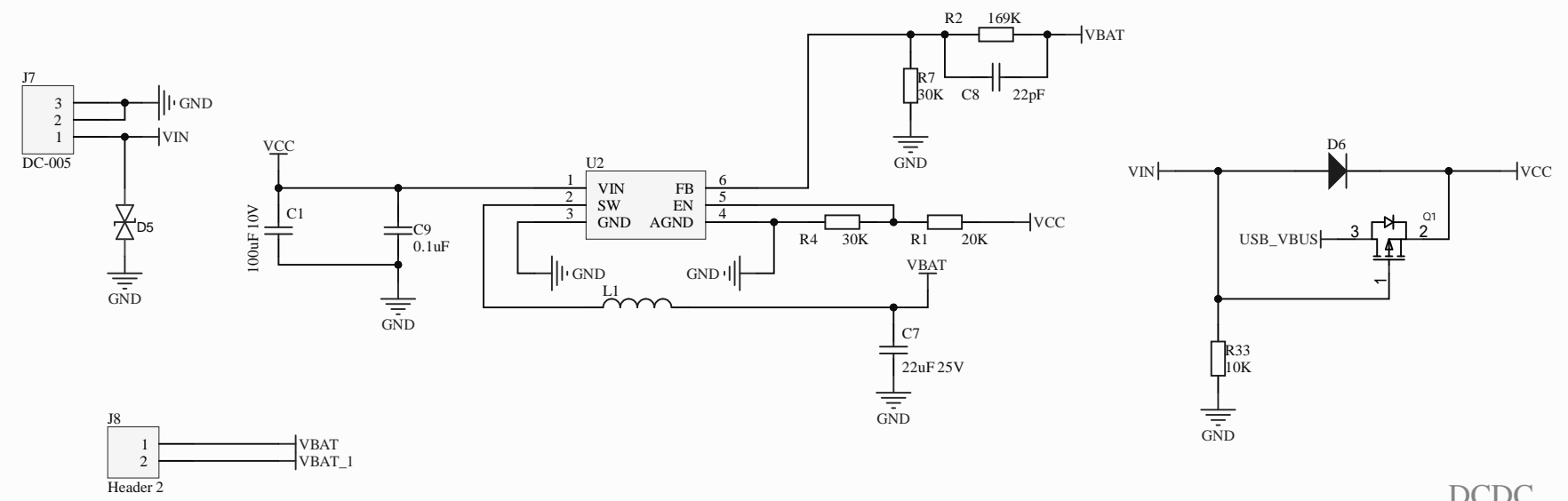
A



LDO

B

B



DCDC

C

C

D

D

1

2

3

4

1

2

3

4

5

6

A

A

B

B

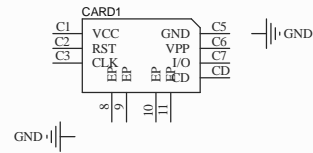
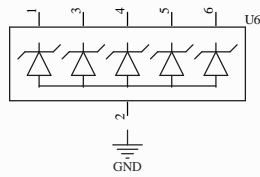
C

C

D

D

SIM\_VDD  
 SIM\_RST  
 SIM\_CLK  
 SIM\_DATA



USIM

1

2

3

4

5

6