# Board Name

## Variant: DRAFT

# 2026-02-11
# Rev V1



## To Do:

Make block diagram

Add extra bright LED for visibility through body tube?

Add/confirm Atmo Sensors

Add/confirm Position Sensors

## TOP VIEW

3D render of your PCB here (Top View)

## BOTTOM VIEW

3D render of your PCB here (Bottom View)

## NOTES

Add a comment here

Not fitted components are marked as ✗

DRAFT - Very early stage of schematic, ignore details.
PRELIMINARY - Close to final schematic.
CHECKED - There shouldn't be any mistakes. Contact the engineer if you find any.
RELEASED - A board with this schematic has been sent to production.

DRAFT

## DESIGN CONSIDERATIONS

DESIGN NOTE: Example text for informational design notes.

DESIGN NOTE: Example text for debug notes.

DESIGN NOTE: Example text for cautionary design notes.

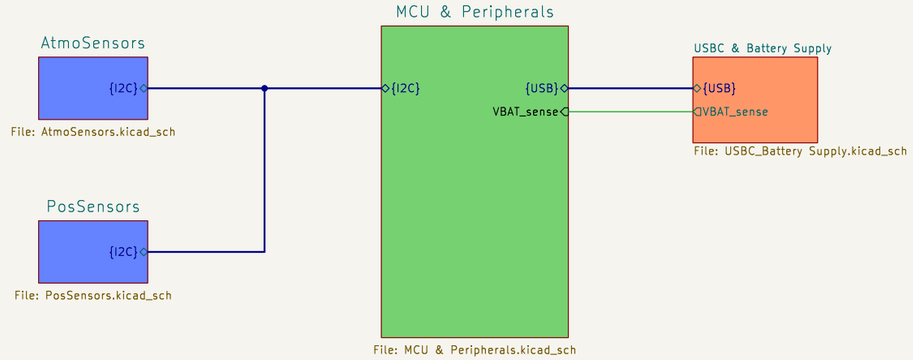
**DESIGN NOTE: Example text for critical design notes.**

**LAYOUT NOTE: Example text for critical layout guidelines.**

| | | | | |
|---|---|---|---|---|
| Comments: GRID - mil (1.27mm, 2.54mm) | Company: Southampton University Spaceflight Society | | Variant: DRAFT | |
| | Board Name: Board Name | | Project Name: SUSF CanSat 25/26 | |
| Sheet Title: Cover Page | File Name: CanSat_SensorSuite.kicad_sch | Designer: Ethan Wilson, ..., .... | Date: 2026-01-04 | Revision: V1 |
| Sheet Path: / | | Reviewer: ... | Size: A3 | Sheet: 1 of 7 |

| | | | | |
|---|---|---|---|---|
| | Comments: | Company: | | Variant: DRAFT |
| | | Board Name: **Board Name** | | Project Name: **SUSF CanSat 25/26** |
| | Sheet Title: | File Name: Block Diagram.kicad_sch | Designer: Ethan Wilson, ..., .... | Date: / Revision: |
| | | Sheet Path: /Block Diagram/ | Reviewer: ... | Size: **A4** / Sheet: **2** of **7** |

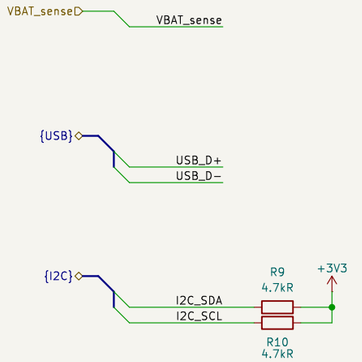
# [3] Sensor Suite Board Overview



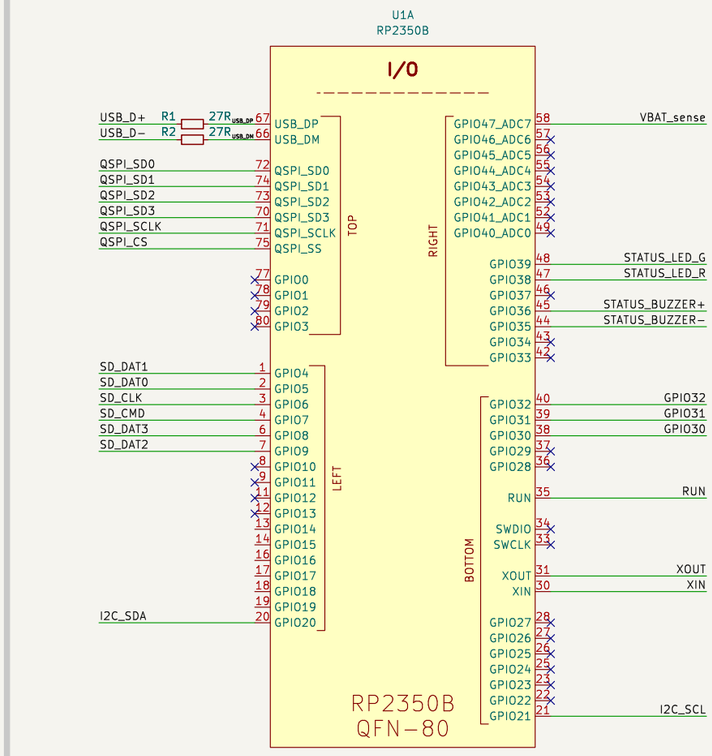


| | | | | |
|---|---|---|---|---|
| Comments: GRID - mil (1.27mm, 2.54mm) | Company: **Southampton University Spaceflight Society** | | Variant: DRAFT | |
| | Board Name: **Board Name** | | Project Name: **SUSF CanSat 25/26** | |
| Sheet Title: Sensor Suite Board Overview | File Name: Sensor Board Schematic.kicad_sch | Designer: Ethan Wilson, ..., .... | Date: 2026-01-04 | Revision: V1 |
| Sheet Path: /Sensor Board Schematic/ | | Reviewer: ... | Size: **A3** | Sheet: **3** of **7** |

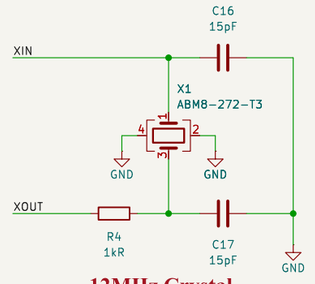
# [4] MCU & Peripherals



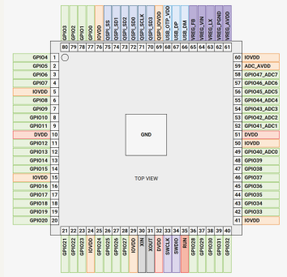

Sheet Input & Outputs



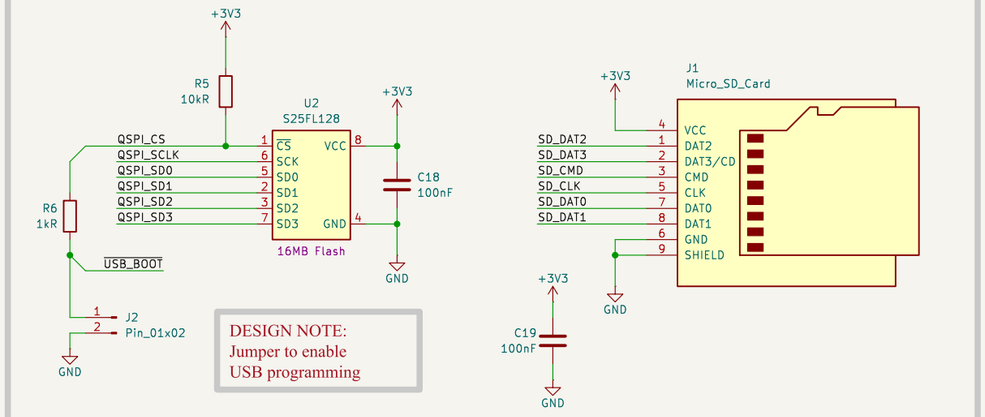

Sheet Input & Outputs



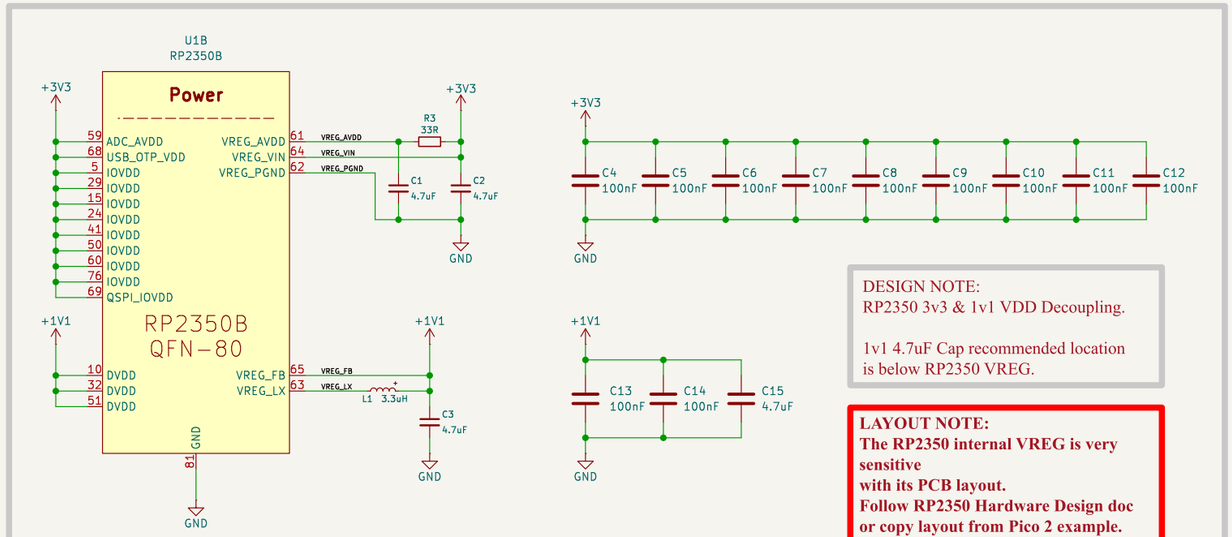

12MHz Crystal



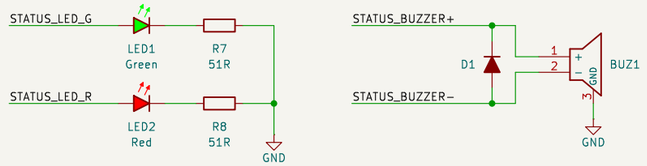

RP2350 Pin Location Reference



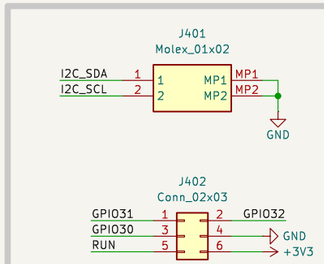

Memory




RP2350 Power



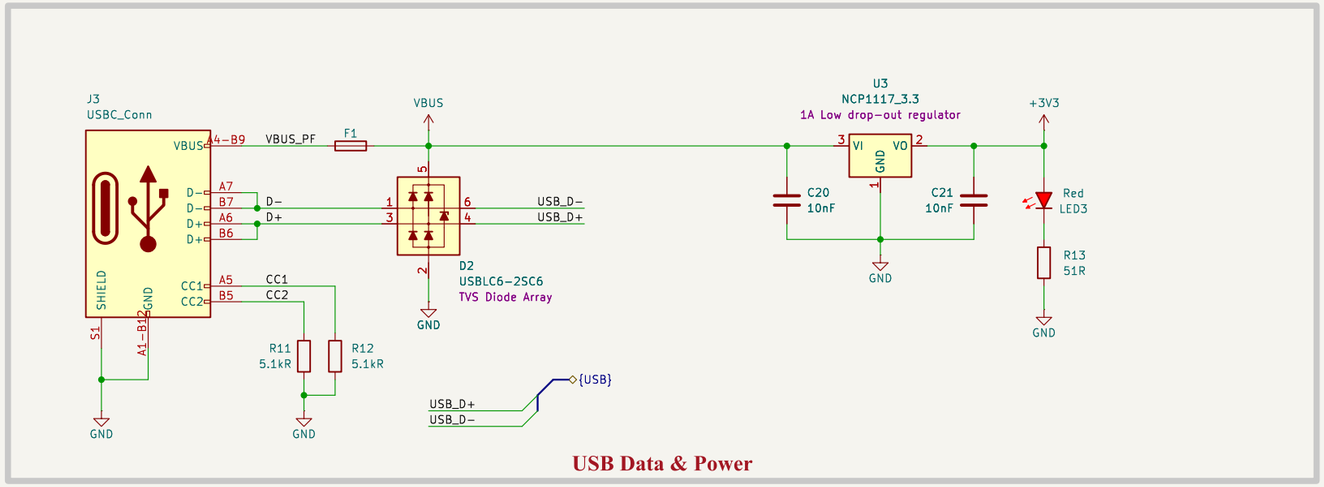

Status Indication



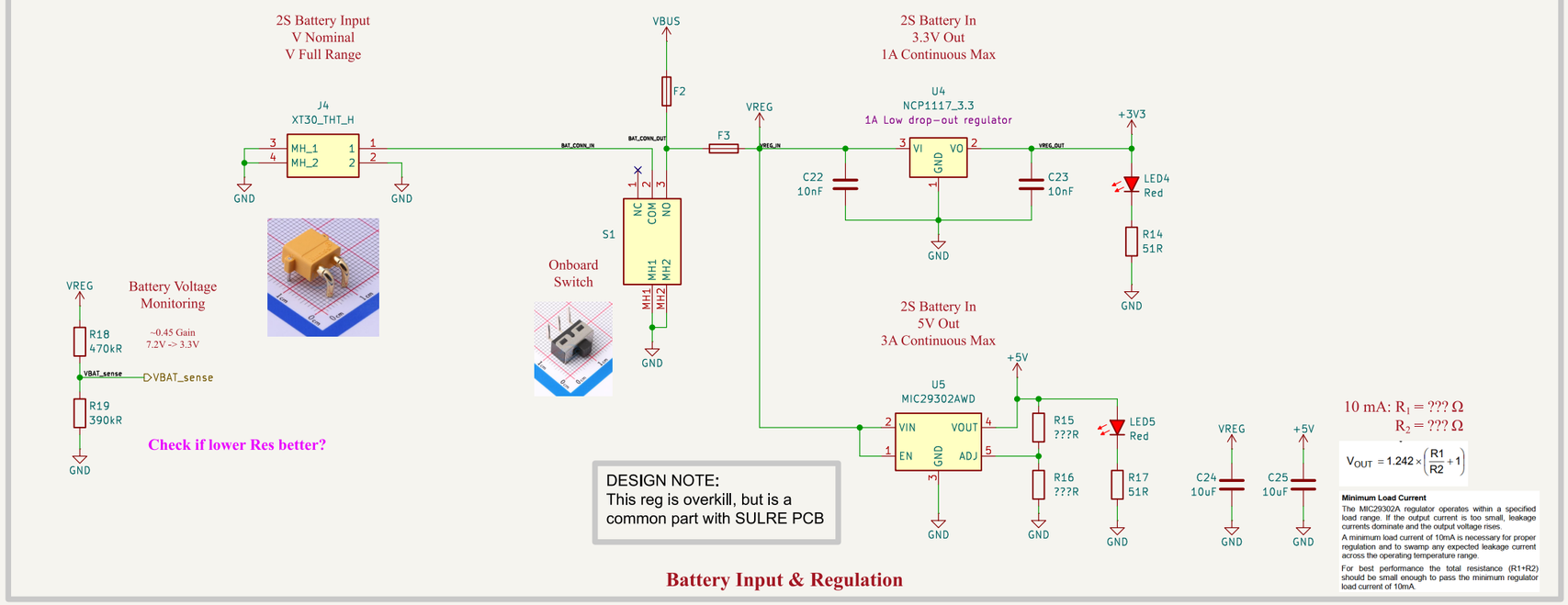

Extra Outputs

| | | | | |
|---|---|---|---|---|
| Comments: GRID - mil (1.27mm, 2.54mm) | Company: **Southampton University Spaceflight Society** | | Variant: DRAFT | |
| | Board Name: **Board Name** | | Project Name: **SUSF CanSat 25/26** | |
| Sheet Title: MCU & Peripherals | File Name: MCU & Peripherals.kicad_sch | Designer: Ethan Wilson, ..., .... | Date: 2026-01-04 | Revision: V1 |
| Sheet Path: /Sensor Board Schematic/MCU & Peripherals/ | | Reviewer: ... | Size: **A3** | Sheet: **4** of **7** |

# [5] USBC & Battery




**USB Data & Power**




**Battery Input & Regulation**

| | | | | |
|---|---|---|---|---|
| | Comments: GRID - mil (1.27mm, 2.54mm) | Company: **Southampton University Spaceflight Society** | | Variant: DRAFT |
| | | Board Name: **Board Name** | | Project Name: **SUSF CanSat 25/26** |
| | Sheet Title: USBC & Battery | File Name: USBC_Battery Supply.kicad_sch | Designer: Ethan Wilson, ..., .... | Date: 2026-01-04 / Revision: V1 |
| | Sheet Path: /Sensor Board Schematic/USBC & Battery Supply/ | | Reviewer: ... | Size: **A3** / Sheet: **5** of **7** |

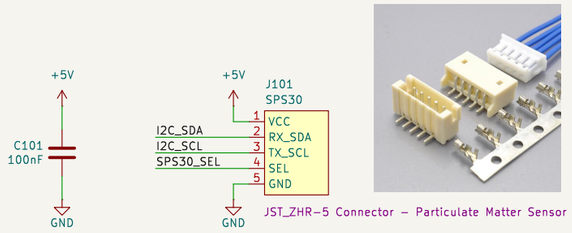
# [6] Atmospheric Sensors

## SPS30

Particulate Matter Sensor, 0 to 1000 µg/m3

Particle Sizes – PM0.5, PM1, PM2.5, PM4, PM10

Connector MPN – JST S5B-ZR – THT Side Entry




SPS30

Particulate Matter Sensor, 0 to 1000 µg/m3, Laser, I2C, UART, Calibrated, 4.5 to 5.5 V Supply

Image is for illustrative purposes only. Please refer to product description.

| | |
|---|---|
| Manufacturer | SENSIRION |
| Manufacturer Part No | SPS30 |
| Order Code | 3804199 |
| Your Part Number | Enter your par |
| Technical Datasheet | Data Sheet |

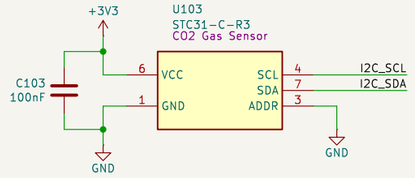
3D Model

## STC31-C-R3

Gas Sensor Module, CO2

CO2 Concentration in Air

I2C Address – 0x29




STC31-C-R3

Gas Detection Sensor, I2C Output, SMD, Carbon Dioxide, 30.5 ppm, ±0.2%, STC31-C Series

Image is for illustrative purposes only. Please refer to product description.

| | |
|---|---|
| Manufacturer | SENSIRION |
| Manufacturer Part No | STC31-C-R3 |
| Order Code | 4468672 |
| Product Range | STC31-C Series |
| Your Part Number | Enter your part number |
| Technical Datasheet | Data Sheet |

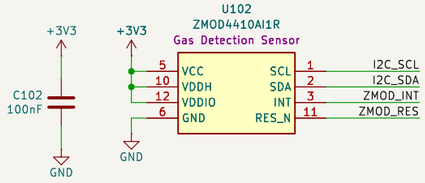
PCB Symbol, Footprint & 3D Model

## ZMOD4410AI1R

Gas Sensor Module, TVOC

Total Volatile Organic Compounds

Pollution from industry, vehicles etc




ZMOD4410AI1R

Gas Sensor Module, TVOC and Indoor Air Quality, 1.7 V to 3.6 V, LGA-12, -40 °C to 65 °C

Image is for illustrative purposes only. Please refer to product description.

| | |
|---|---|
| Manufacturer | RENESAS |
| Manufacturer Part No | ZMOD4410AI1R |
| Order Code | 3869679 |
| Product Range | ZMOD4410 Series |
| Your Part Number | Enter your part nu |
| Technical Datasheet | Data Sheet |

PCB Symbol, Footprint & 3D Model

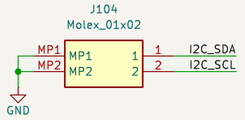
UltraLi

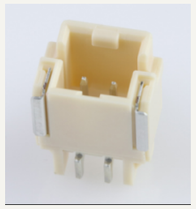
**DISCONTINUED ON FARNELL**
**FIND ALTERNATIVE**


## SRAD Photonics Payload

7-Channel Photodiode Array

IR (1000nm) to UVC (230nm)



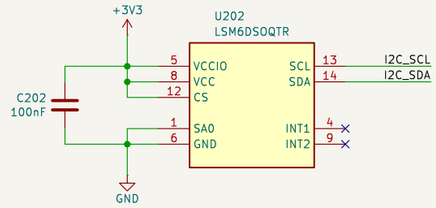



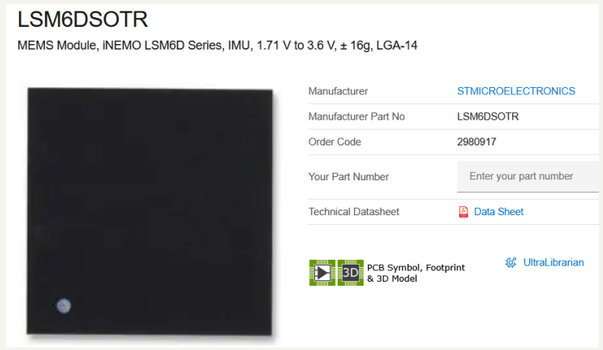
| | | | | |
|---|---|---|---|---|
| Comments: GRID - mil (1.27mm, 2.54mm) | Company: Southampton University Spaceflight Society | | Variant: DRAFT | |
| | Board Name: Board Name | | Project Name: SUSF CanSat 25/26 | |
| Sheet Title: Atmospheric Sensors | File Name: AtmoSensors.kicad_sch | Designer: Ethan Wilson, ..., .... | Date: 2026-01-04 | Revision: V1 |
| Sheet Path: /Sensor Board Schematic/AtmoSensors/ | | Reviewer: ... | Size: A3 | Sheet: 6 of 7 |

# [8] Positioning Sensors

IMU

LSM6DSOQTR

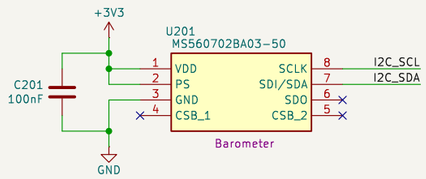




Barometer

MS5607





| | | | | |
|---|---|---|---|---|
| Comments: GRID - mil (1.27mm, 2.54mm) | Company: **Southampton University Spaceflight Society** | | Variant: DRAFT | |
| | Board Name: **Board Name** | | Project Name: **SUSF CanSat 25/26** | |
| Sheet Title: Positioning Sensors | File Name: PosSensors.kicad_sch | Designer: Ethan Wilson, ..., .... | Date: 2026-01-04 | Revision: V1 |
| Sheet Path: /Sensor Board Schematic/PosSensors/ | | Reviewer: ... | Size: **A3** | Sheet: **8** of **7** |