REVISION	DESCRIPTION	DATE	APPROVED

Project Name:

Projeto de Circuitos Eletrônicos para IoT V1.0.0
Released 08/01/2026

Design Notes

Example of informational notes.

Example of cautionary design notes.

Example of critical design notes.

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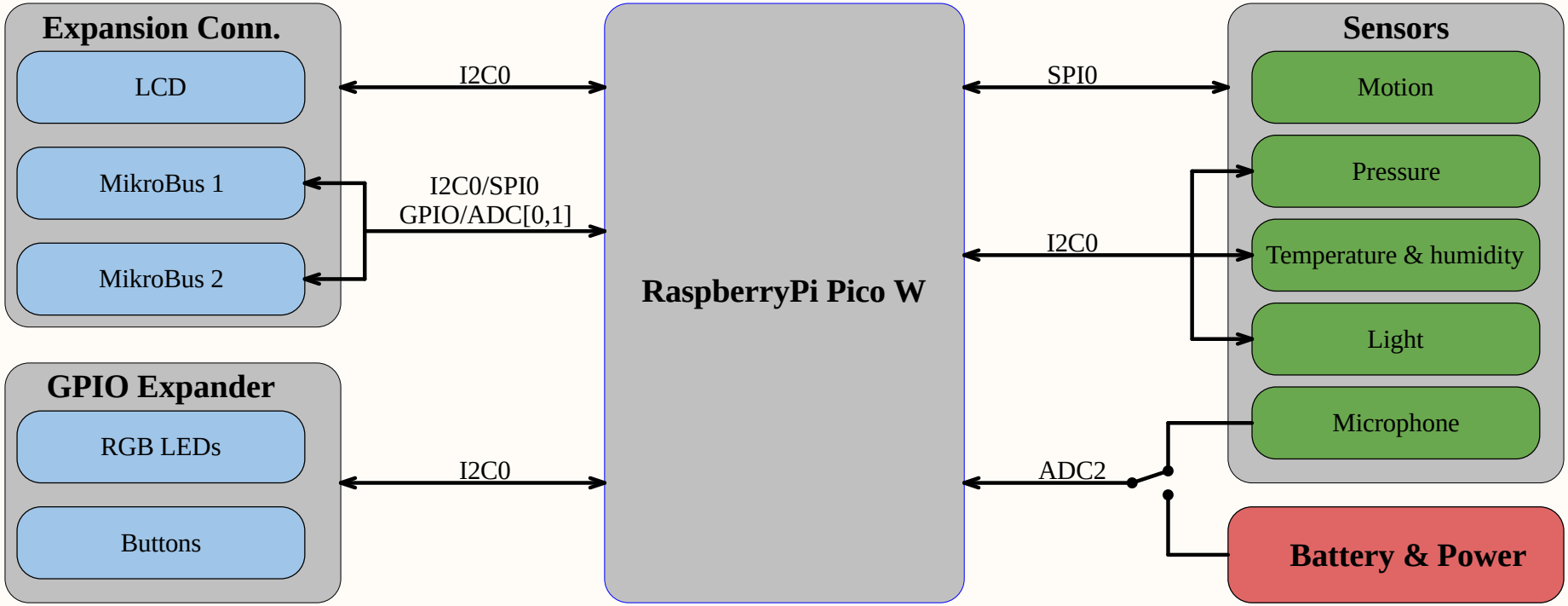
PROJECT	DemetrioGurgel - PCEIoT.PrjPcb
VERSION	V1.0.0
TITLE	[1] TableOfContents.SchDoc
SIZE	A3
SCALE	1:1
DOCUMENT NAME:	[1] TableOfContents.SchDoc
DOCUMENT REVISION:	Not in version control
PROJECT REVISION:	Not in version control
SHEET:	1 OF 9

REVISION	DESCRIPTION	DATE	APPROVED



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PROJECT: DemetrioGurgel - PCEIoT.PrjPcb	VERSION: V1.0.0
TITLE: [2] BlockDiagram.SchDoc	SIZE: A3 / SCALE: 1:1
DOCUMENT NAME: [2] BlockDiagram.SchDoc	SHEET: 2 OF 9
DOCUMENT REVISION: Not in version control	
PROJECT REVISION: Not in version control	

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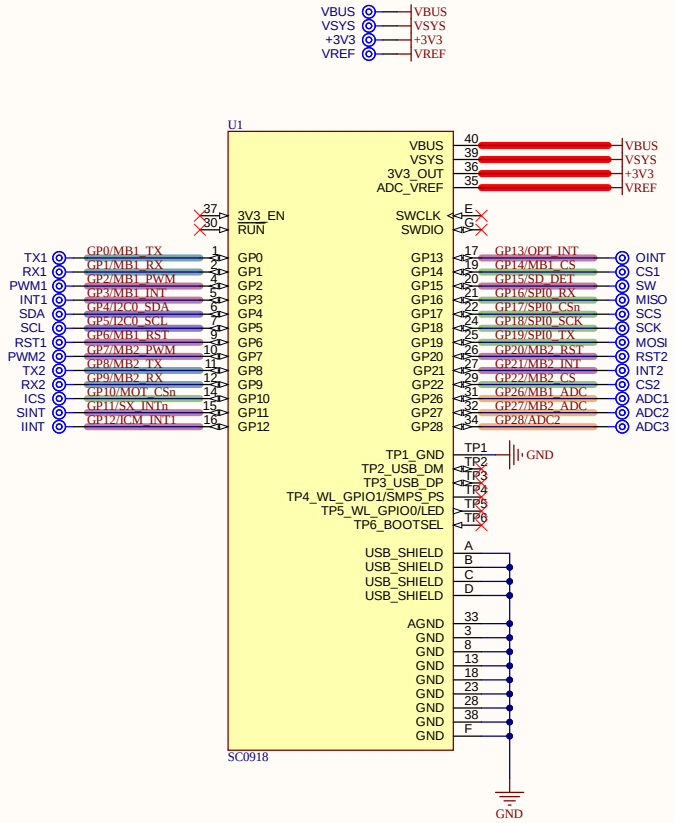
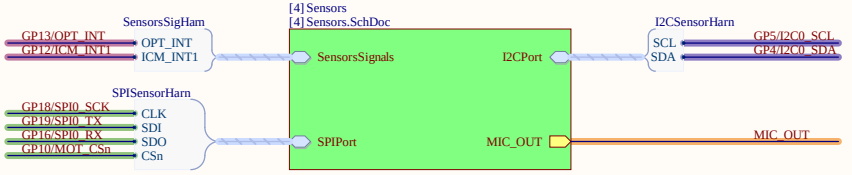
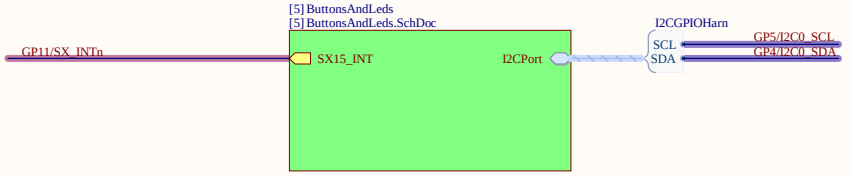
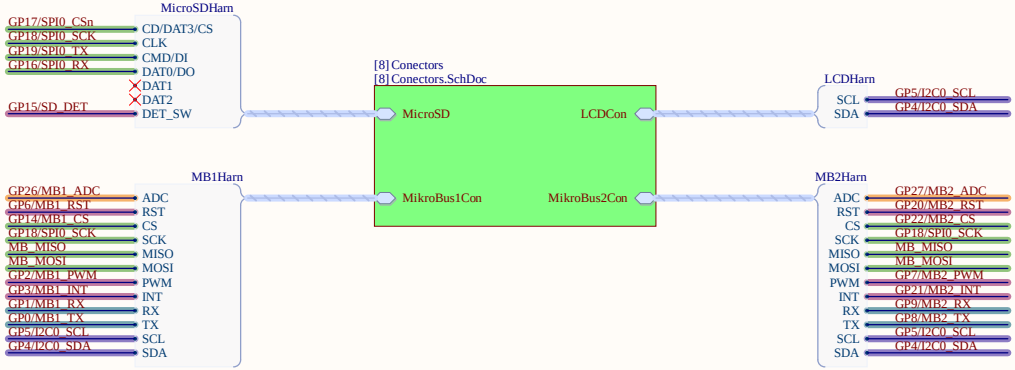






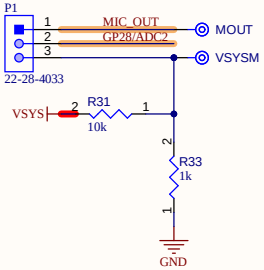


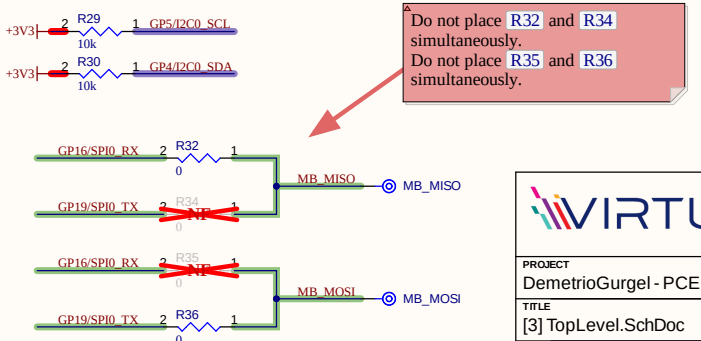
[1] TableOfContents
[1] TableOfContents.SchDoc

[2] BlockDiagram
[2] BlockDiagram.SchDoc

[7] PowerManagement
[7] PowerManagement.SchDoc

[9] Mechanical
[9] Mechanical.SchDoc





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SHEET:	3 OF 9
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PROJECT REVISION:	Not in version control

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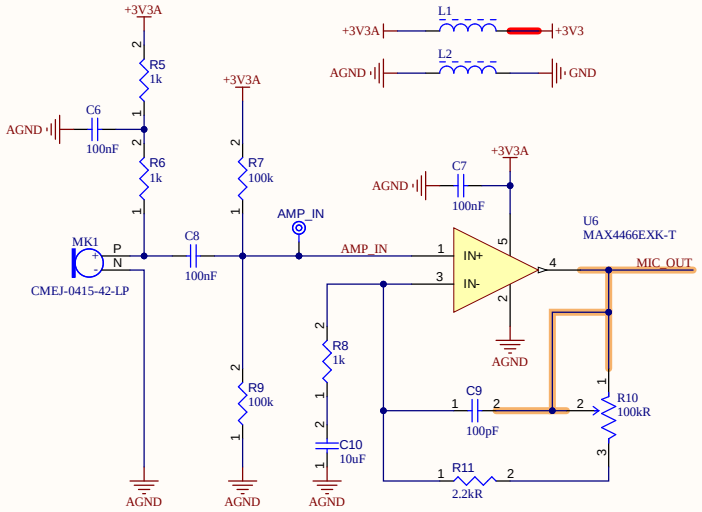
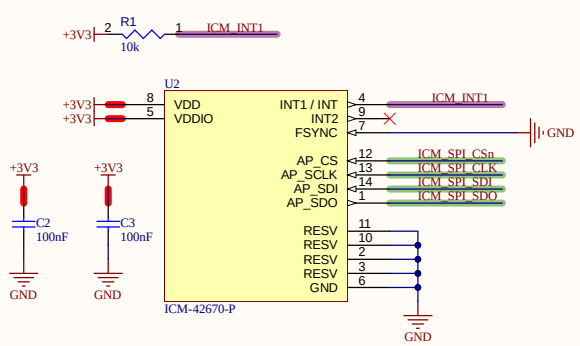
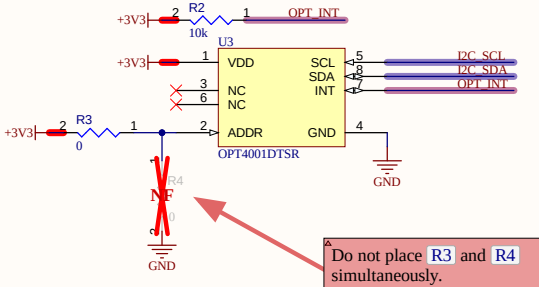


Adjust output level to prevent ADC saturation. Output value MIC_OUT must be between 0V and VREF (2.5V).

Mic. with gain control and amplifier



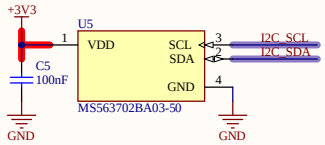
Accelerometer, Gyroscope, 6 Axis Sensor



Do not place R3 and R4 simultaneously.

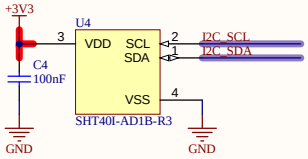
U3 I²C Addr:
R3 placed: 0x45
R4 placed: 0x44

Optical Ambient Sensor



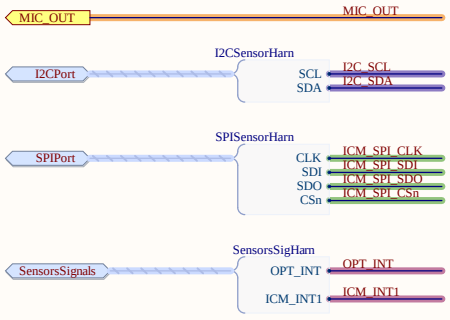
U5 I²C Addr: 0x76

Pressure Sensor 30kPa ~ 120kPa Absolute



U4 I²C Addr: 0x44

Humidity, Temperature 0 ~ 100% RH Sensor



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PROJECT	DemetrioGurgel - PCEIoT.PrjPcb
VERSION	V1.0.0
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SIZE	A3
SCALE	1:1
DOCUMENT NAME:	[4] Sensors.SchDoc
SHEET:	4 OF 9
DOCUMENT REVISION:	Not in version control
PROJECT REVISION:	Not in version control

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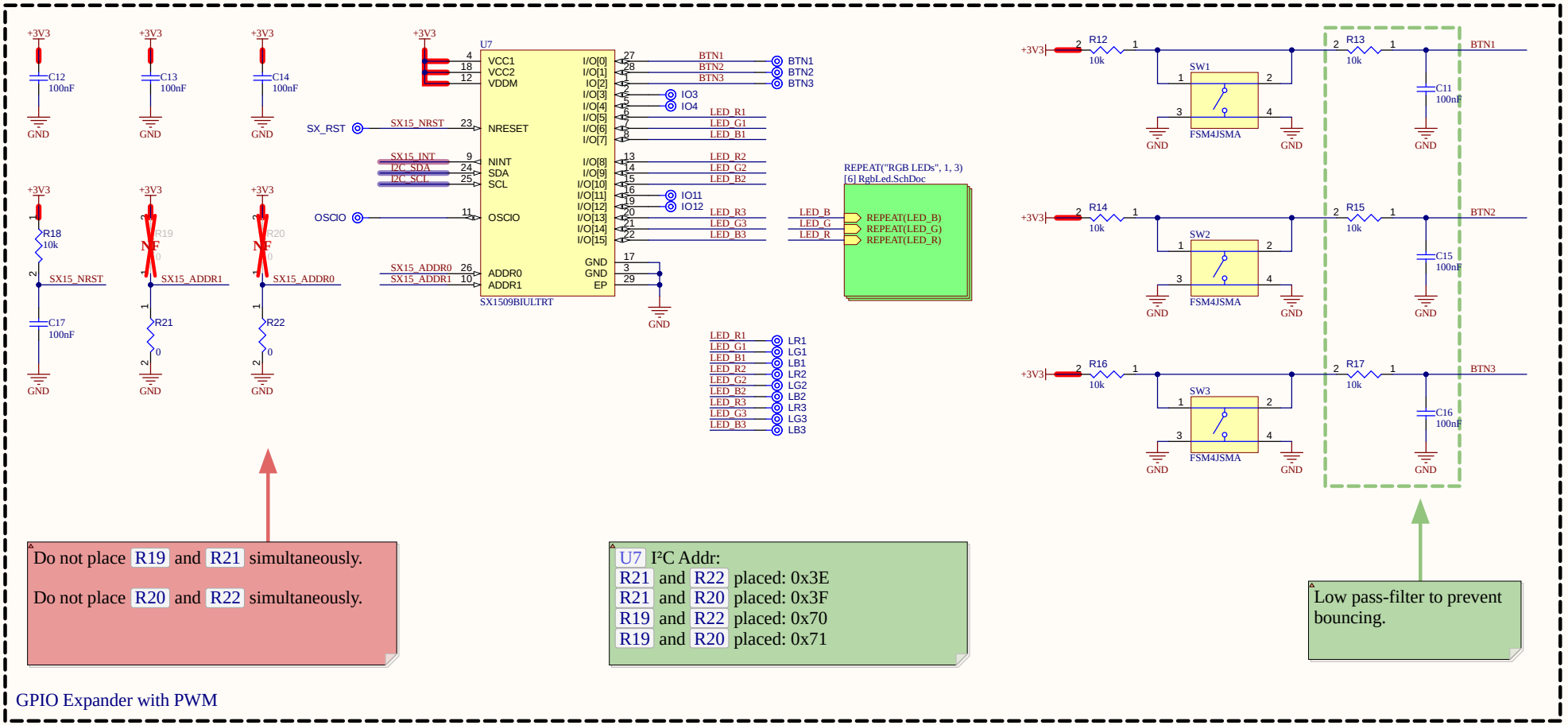

Do not place R19 and R21 simultaneously.

Do not place R20 and R22 simultaneously.

U7 I²C Addr:
R21 and R22 placed: 0x3E
R21 and R20 placed: 0x3F
R19 and R22 placed: 0x70
R19 and R20 placed: 0x71

Low pass-filter to prevent bouncing.

GPIO Expander with PWM

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PROJECT: DemetrioGurgel - PCEIoT.PrjPcb	VERSION: V1.0.0
TITLE: [5] ButtonsAndLeds.SchDoc	SIZE: A3 / SCALE: 1:1
DOCUMENT NAME: [5] ButtonsAndLeds.SchDoc	SHEET: 5 OF 9
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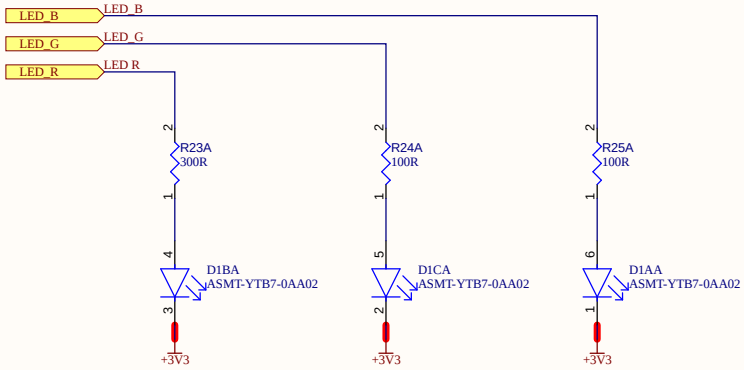
PROJECT REVISION: Not in version control	

REVISION	DESCRIPTION	DATE	APPROVED



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PROJECT: DemetrioGurgel - PCEIoT.PrjPcb	VERSION: V1.0.0
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DOCUMENT NAME: [6] RgbLed.SchDoc	SHEET: 6 OF 9
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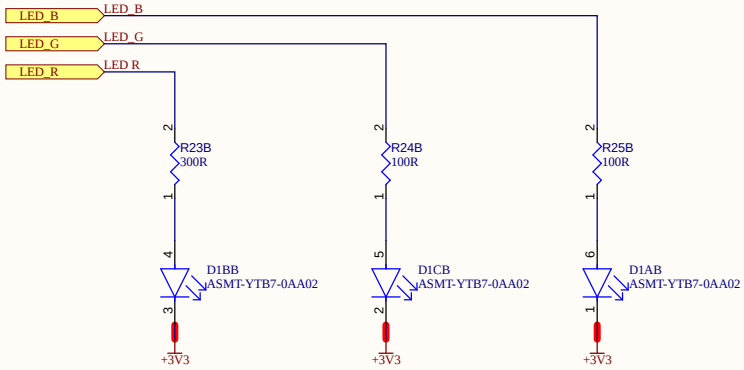
REVISION	DESCRIPTION	DATE	APPROVED



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PROJECT DemetrioGurgel - PCEIoT.PrjPcb	**VERSION** V1.0.0
TITLE [6] RgbLed.SchDoc	**SIZE** A3 / **SCALE** 1:1
DOCUMENT NAME: [6] RgbLed.SchDoc	**SHEET:** 6 OF 9
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PROJECT REVISION: Not in version control	

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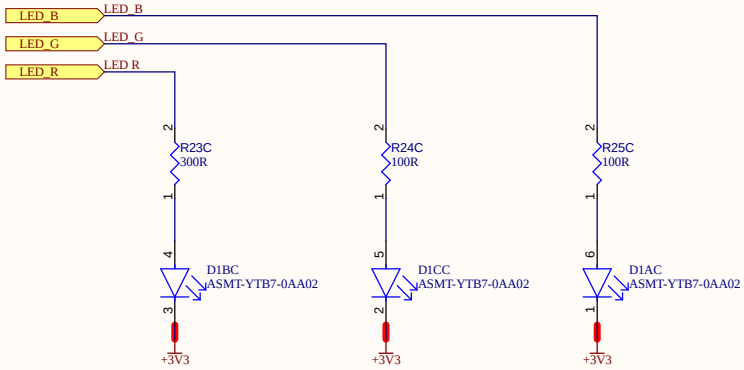

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DOCUMENT NAME: [6] RgbLed.SchDoc	**SHEET:** 6 OF 9
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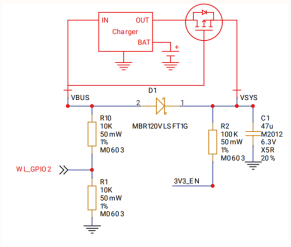
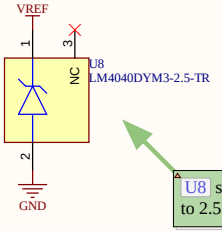
RPI Pico W Battery sugestion usage

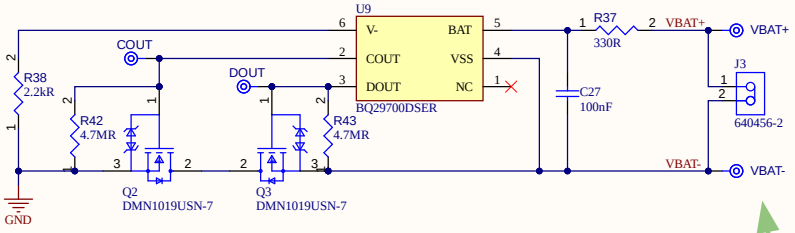


ADC reference voltage



U8 sets ADC reference voltage to 2.5 V.

Battery protection circuit

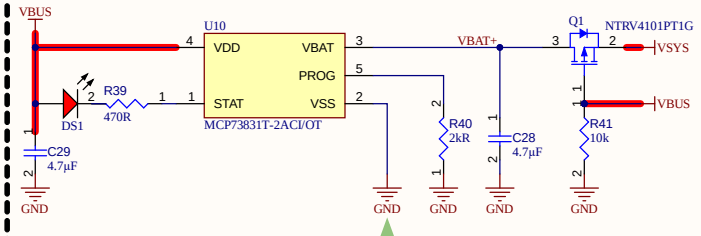


U9 cutoff protection values:

OVP: 4.275V
UVP: 2.8V

J3 is designed to connect a single cell li-ion battery.

Battery charger circuit



R40 sets fast charge current to 500mA.

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VERSION	V1.0.0
TITLE	[7] PowerManagement.SchDoc
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DOCUMENT NAME:	[7] PowerManagement.SchDoc
DOCUMENT REVISION:	Not in version control
PROJECT REVISION:	Not in version control
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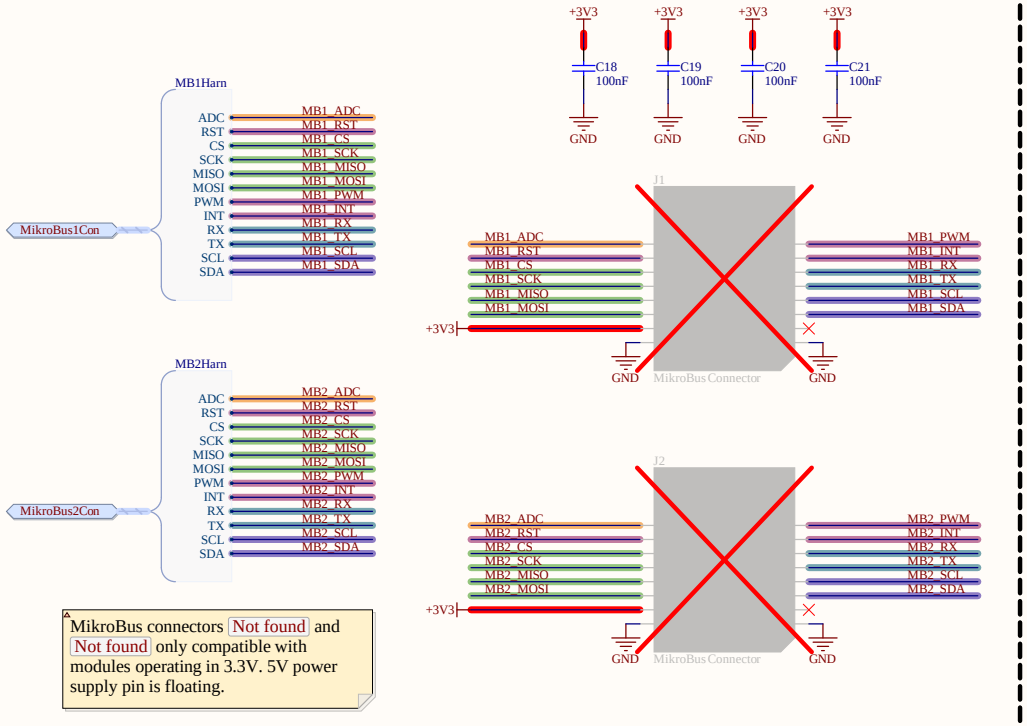


MikroBus connectors

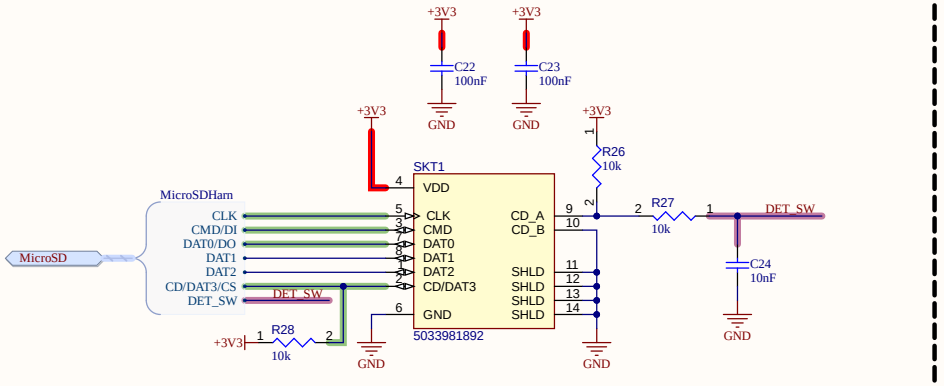
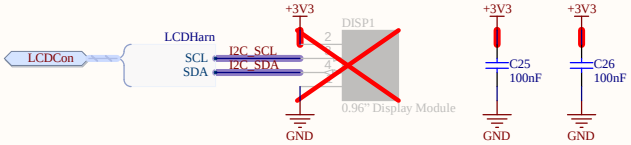


Table 2: microSD Card Pin Assignment

Pins	SD Mode			SPI Mode		
	Name	IO type [1]	Description	Name	IO Type	Description
1	DAT2	I/O /PP	Data Line[Bit2]	RSV		
2	CD/ DAT3	I/O/PP	Card Detect / Data Line[Bit3]	CS	I	Chip Select (neg true)
3	CMD	PP	Command/Response	DI	I	Data In
4	V_{dd}	S	Supply Voltage	V_{dd}	S	Supply Voltage
5	CLK	I	Clock	SCLK	I	Clock
6	V_{SS}	S	Supply voltage ground	V_{SS}	S	Supply voltage ground
7	DAT0	I/O /PP	Data Line[Bit0]	DO	O/PP	Data Out
8	DAT1	I/O /PP	Data Line[Bit1]	RSV	-	Reserved (*)

1) S: Power Supply, I: Input, O: Output, I/O: Bi-Directional, PP: IO Using Push-Pull Drivers
(*) These signals should be pulled up by the host side with 10-100K ohm resistance in SPI Mode. Do not use NC pins.

Micro SDCard Connector



External LCD Connector

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TITLE: [8] Conectors.SchDoc	SIZE: A3 / SCALE: 1:1
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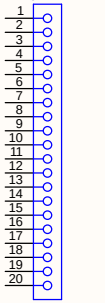
J4



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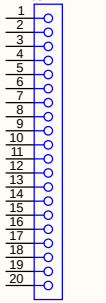
J5



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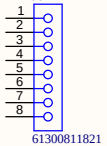

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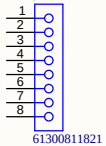
J7



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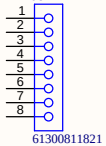
J8



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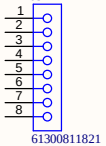
J9



61300811821

M1

709670110

M2

709670110

M3

970080354

M4

970080354

M5

MPMS 003 0005 PH

M6

MPMS 003 0005 PH

M7

709670110

M8

709670110

M9

970080354

M10

970080354

M11

MPMS 003 0005 PH

M12

MPMS 003 0005 PH

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