REVISION	DESCRIPTION	DATE	APPROVED

Project Name:

Projeto de Circuitos Eletrônicos para IoT V1.0.0

Released 23/03/2025

Design Notes

Example of informational notes.

Example of cautionary design notes.

Example of critical design notes.

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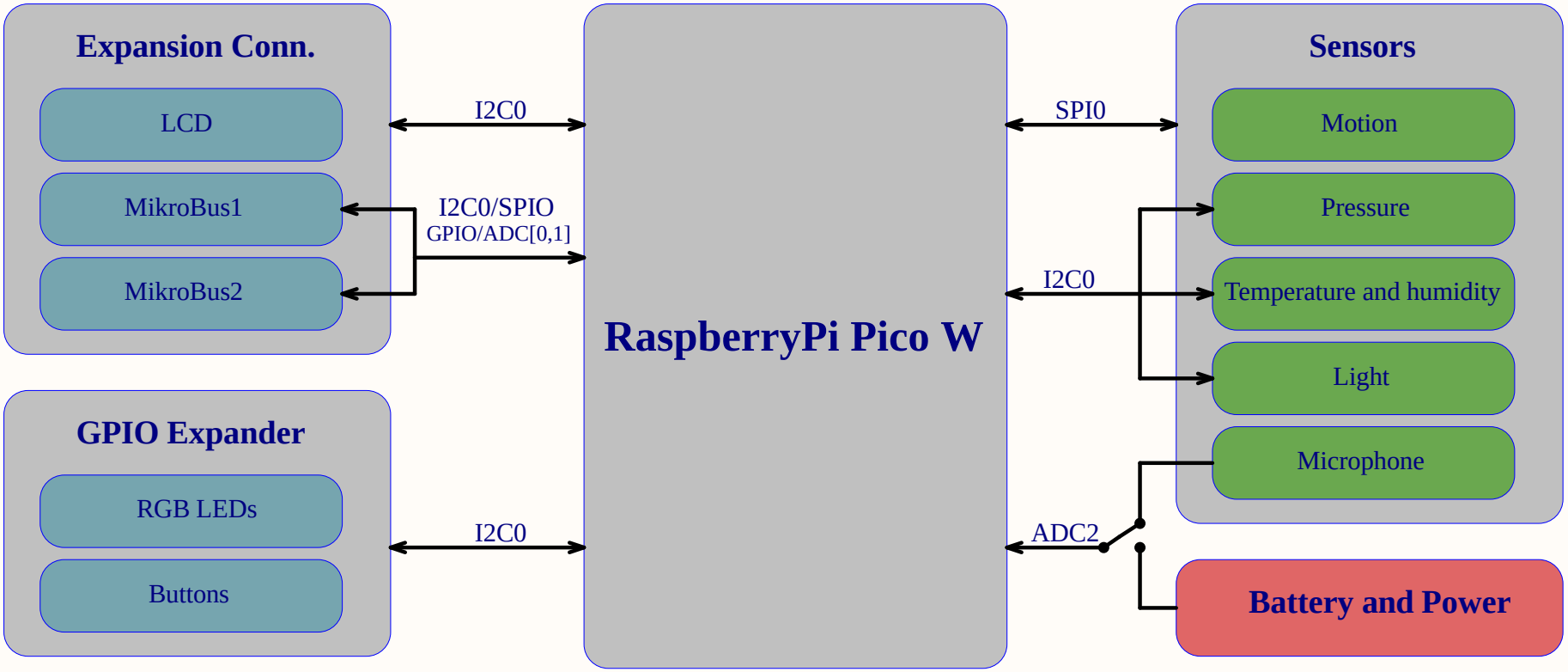
PROJECT: PCEIoT	VERSION: V1.0.0
TITLE: [1] TableOfContents.SchDoc	SIZE: A3 / SCALE: 1:1
DOCUMENT NAME: [1] TableOfContents.SchDoc	SHEET: 1 OF 9
DOCUMENT REVISION: Not in Version Control	
PROJECT REVISION: Not in Version Control	

REVISION	DESCRIPTION	DATE	APPROVED



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PROJECT: PCEIoT	VERSION: V1.0.0
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DOCUMENT REVISION: Not in Version Control	
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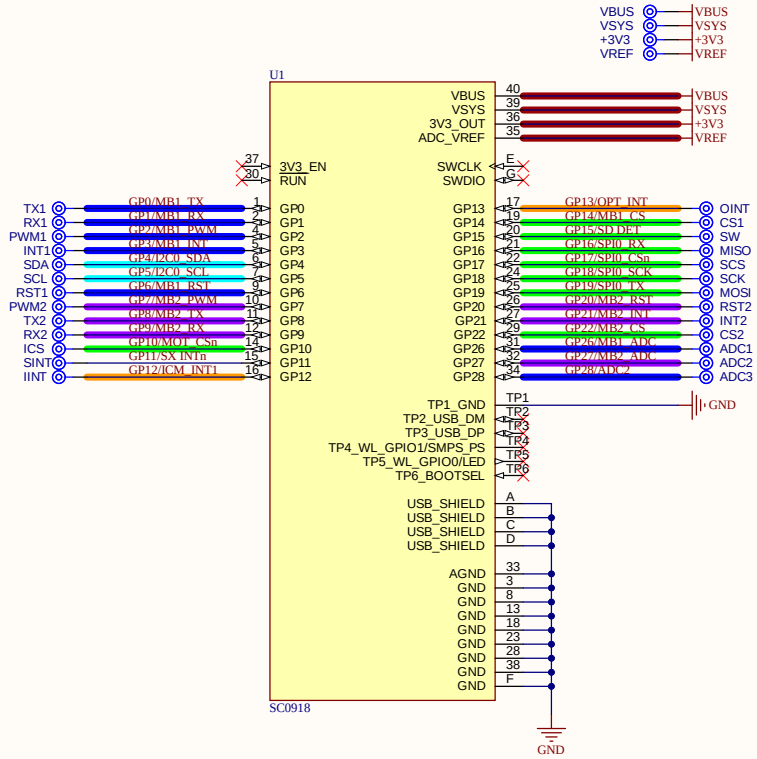

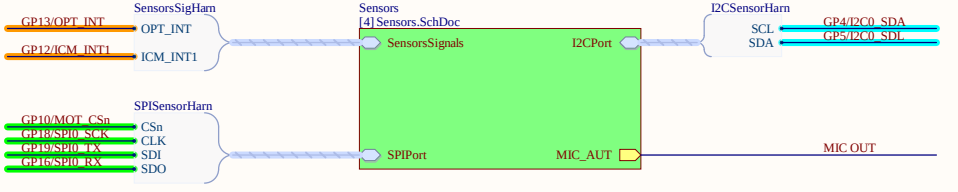

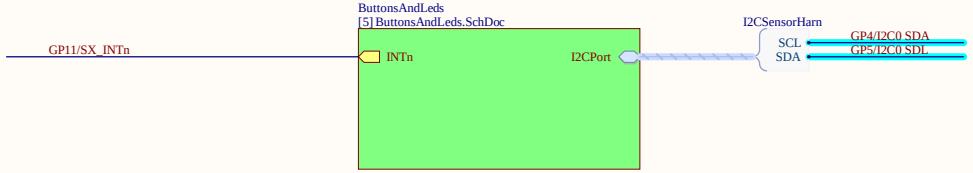

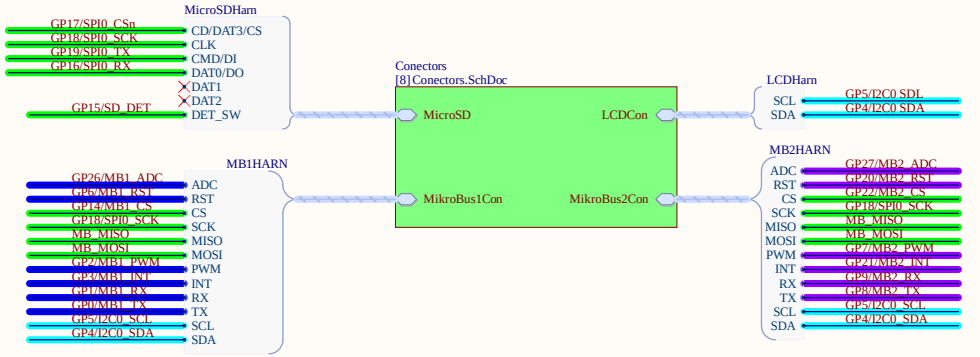

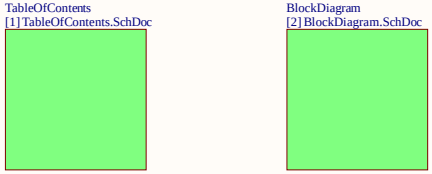

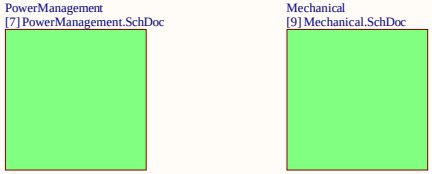

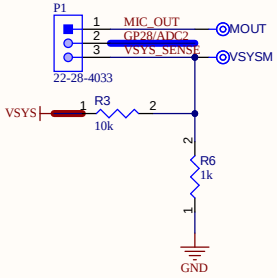

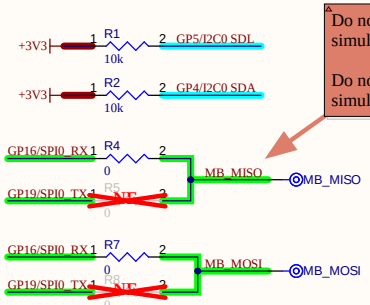

Do not place R4 and R5 simultaneously.

Do not place R7 and R8 simultaneously

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VERSION	V1.0.0
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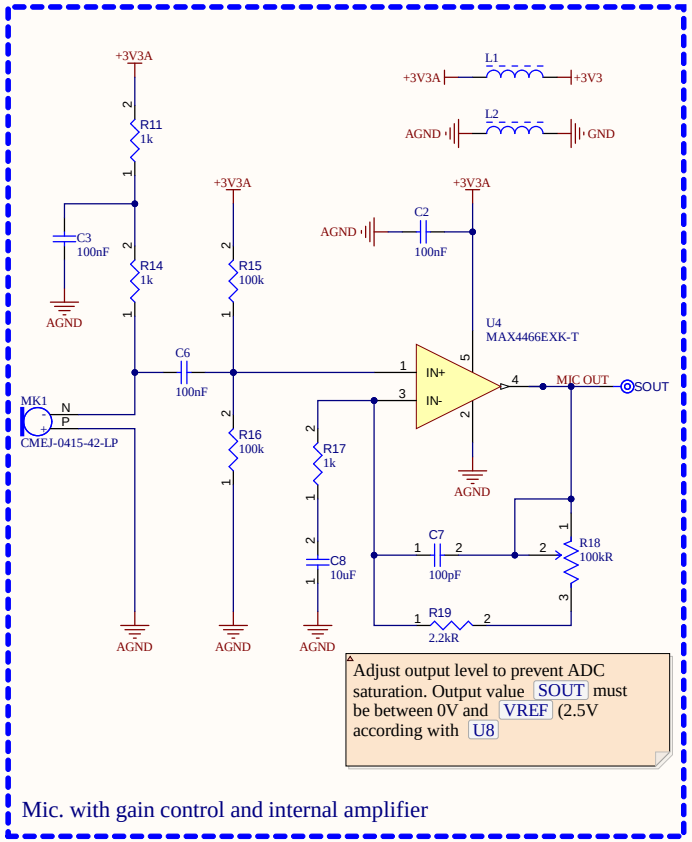

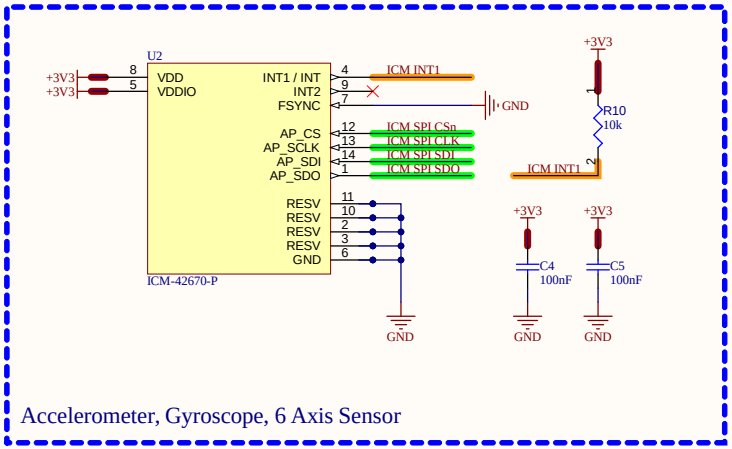

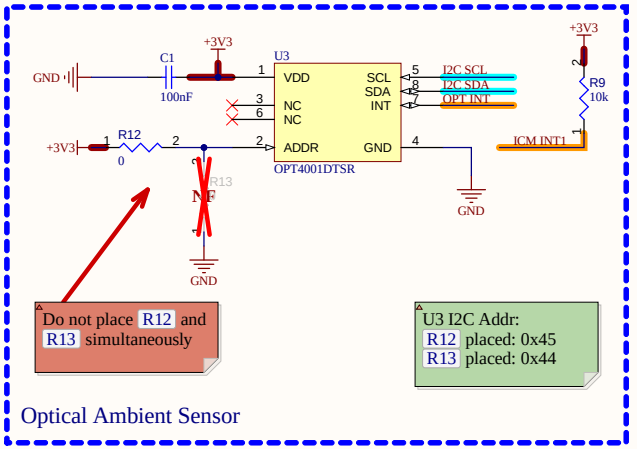

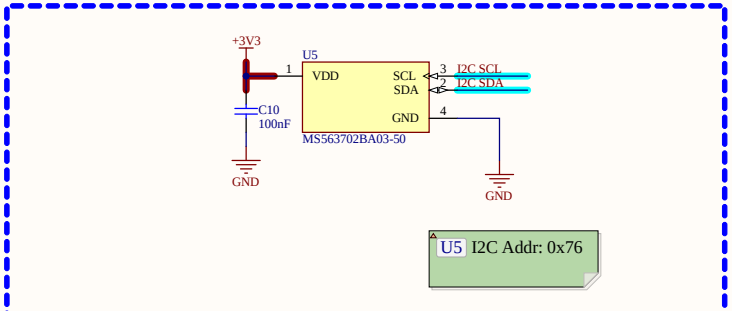

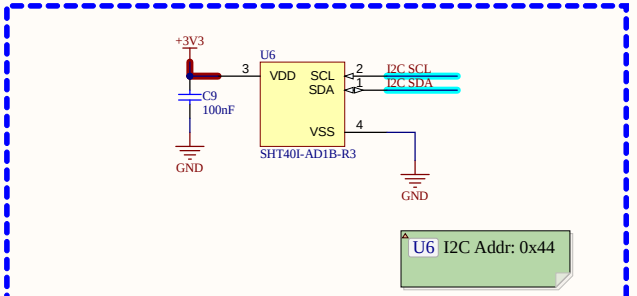

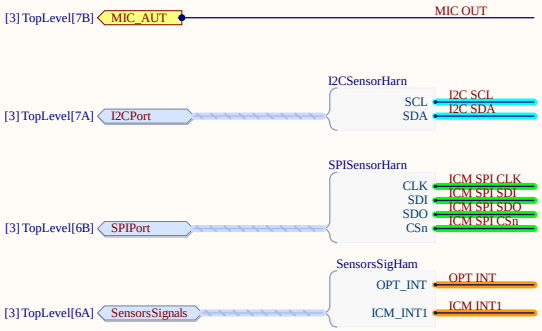

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PROJECT	PCEIoT
VERSION	V1.0.0
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SIZE	A3
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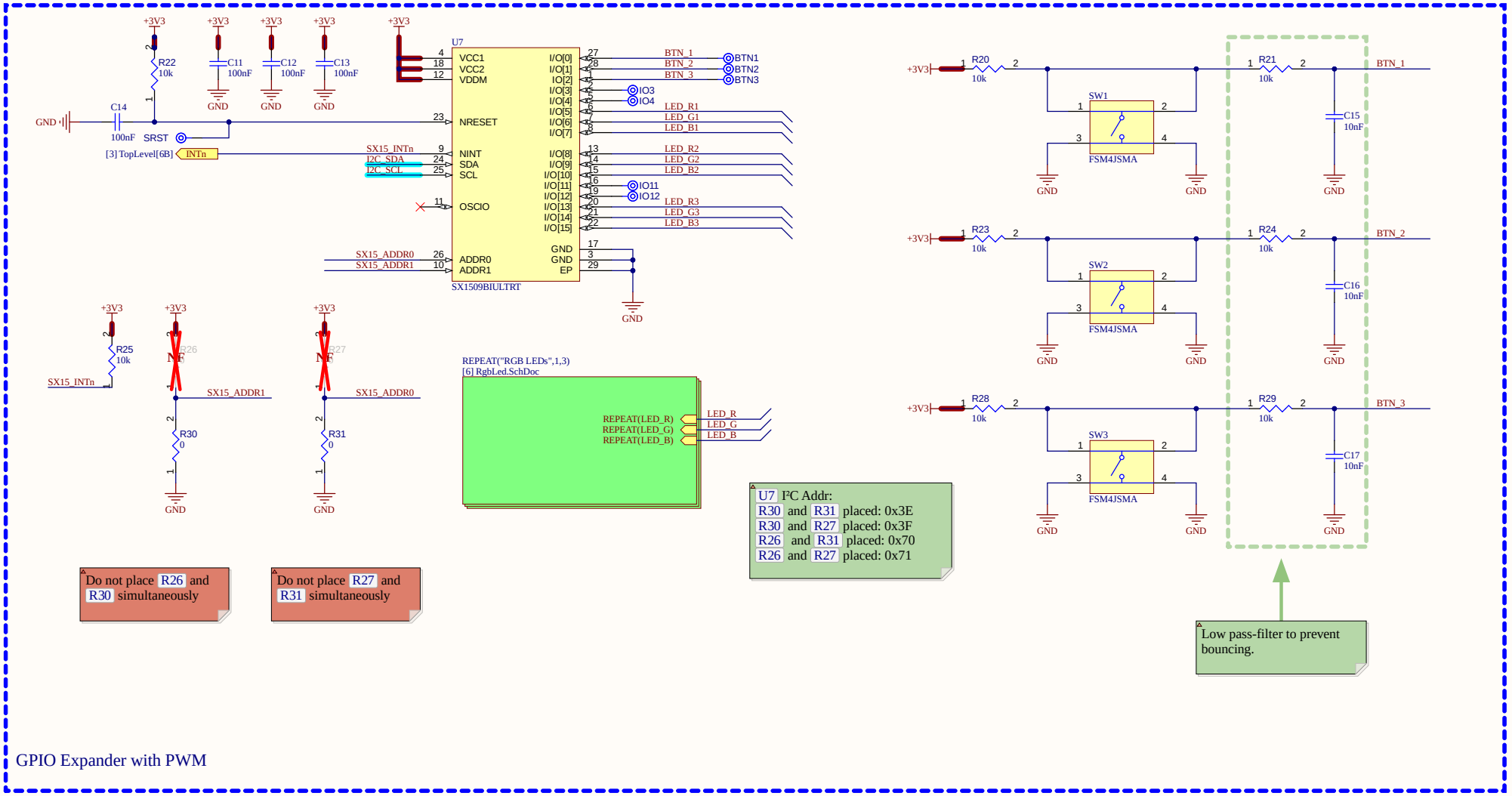
PROJECT REVISION:	Not in Version Control
SHEET:	4 OF 9

REVISION	DESCRIPTION	DATE	APPROVED



Do not place R26 and R30 simultaneously

Do not place R27 and R31 simultaneously

U7 I²C Addr:
R30 and R31 placed: 0x3E
R30 and R27 placed: 0x3F
R26 and R31 placed: 0x70
R26 and R27 placed: 0x71

Low pass-filter to prevent bouncing.

GPIO Expander with PWM

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PROJECT	PCEIoT
VERSION	V1.0.0
TITLE	[5] ButtonsAndLeds.SchDoc
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SCALE	1:1
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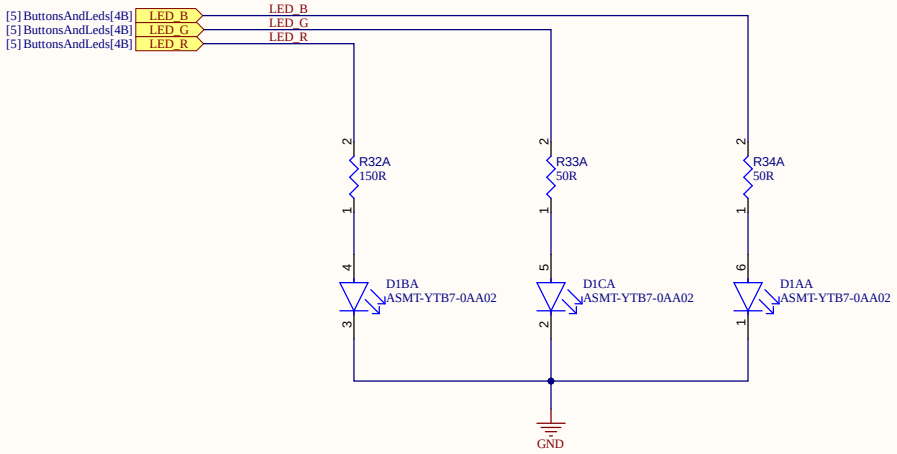
PROJECT REVISION:	Not in Version Control
SHEET:	5 OF 9

REVISION	DESCRIPTION	DATE	APPROVED



R32, R33 and R34 calculated based on voltage drops for each LED for a same current amount of 10mA.

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PROJECT: PCEIoT	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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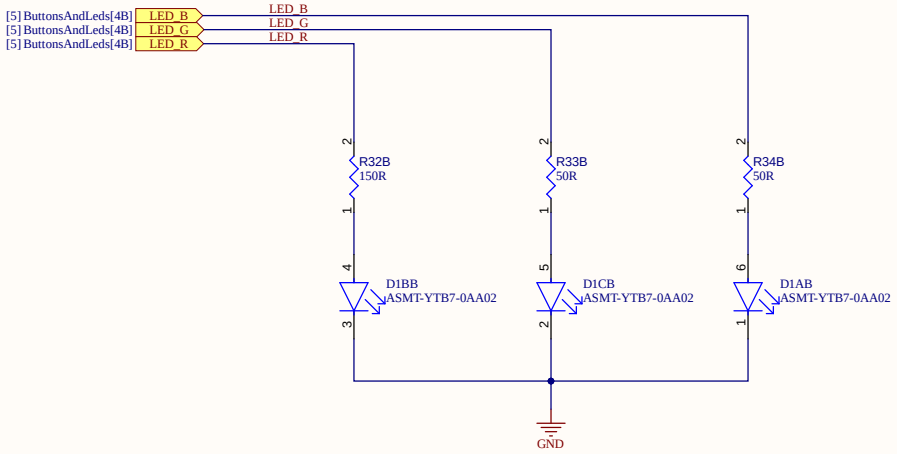

R32, R33 and R34 calculated based on voltage drops for each LED for a same current amount of 10mA.

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PROJECT: PCEIoT	VERSION: V1.0.0
TITLE: [6] RgbLed.SchDoc	SIZE: A3 / SCALE: 1:1
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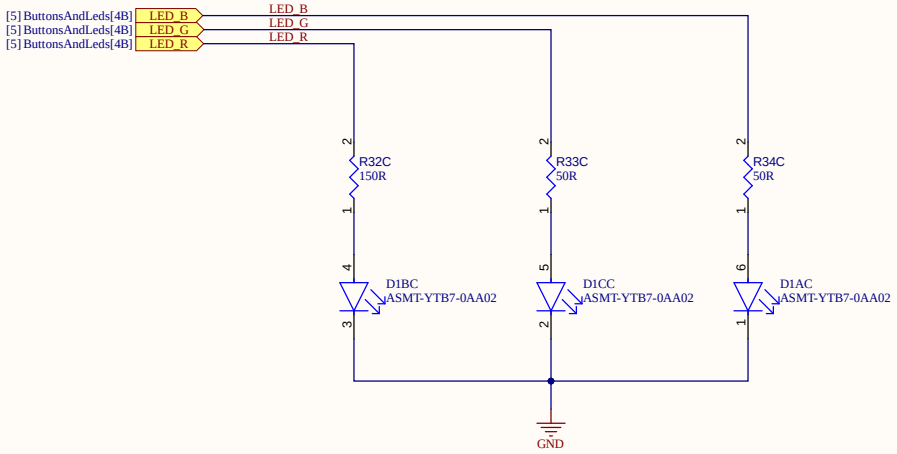

R32, R33 and R34 calculated based on voltage drops for each LED for a same current amount of 10mA.

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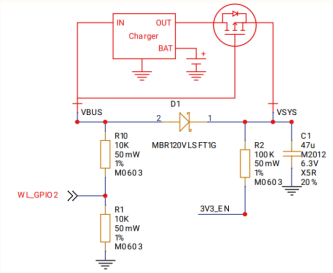
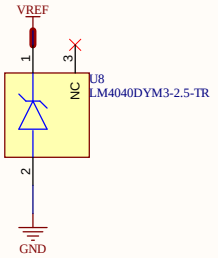
RPI Pico W Battery Suggestion usage



RPI Pico W Battery Suggestion usage

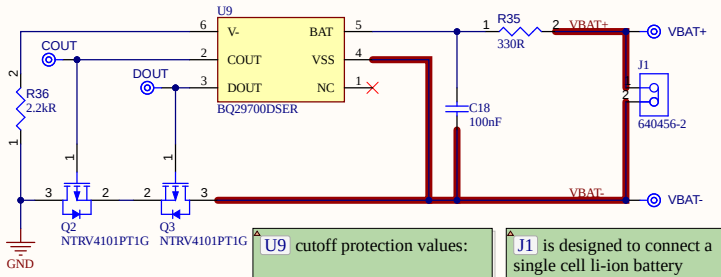
ADC reference voltage



U8 sets ADC reference voltage to 2.5 V.

ADC reference voltage

Battery protection circuit



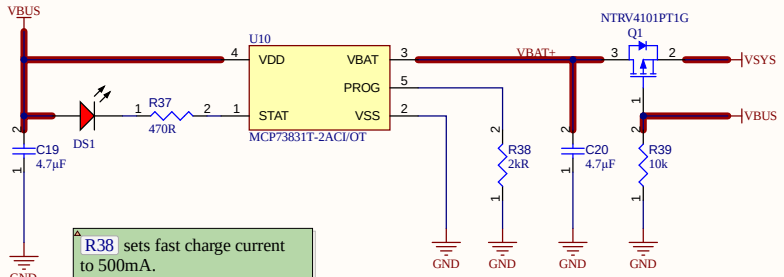
U9 cutoff protection values:

OVP: 4.275V
UVP: 2.8V

J1 is designed to connect a single cell li-ion battery

Battery protection circuit

Battery charger circuit



R38 sets fast charge current to 500mA.

Battery charger circuit

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PROJECT: PCEIoT	VERSION: V1.0.0
TITLE: [7] PowerManagement.SchDoc	SIZE: A3 / SCALE: 1:1
DOCUMENT NAME: [7] PowerManagement.SchDoc	SHEET: 7 OF 9
DOCUMENT REVISION: Not in Version Control	
PROJECT REVISION: Not in Version Control	

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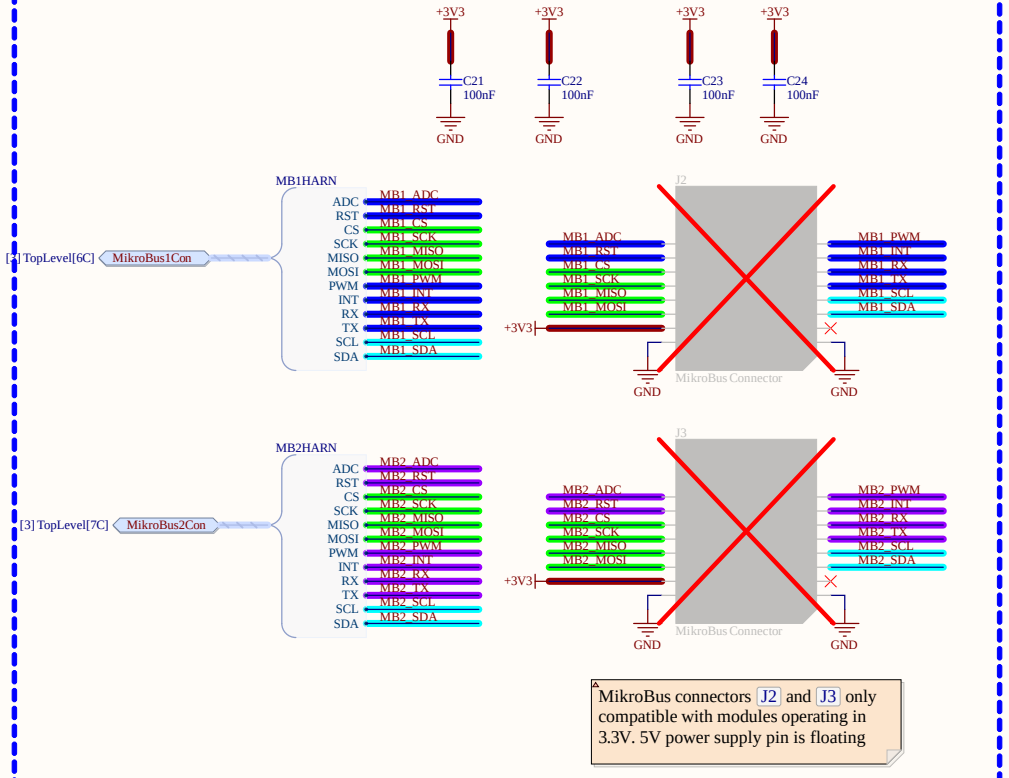


MikroBus connectors

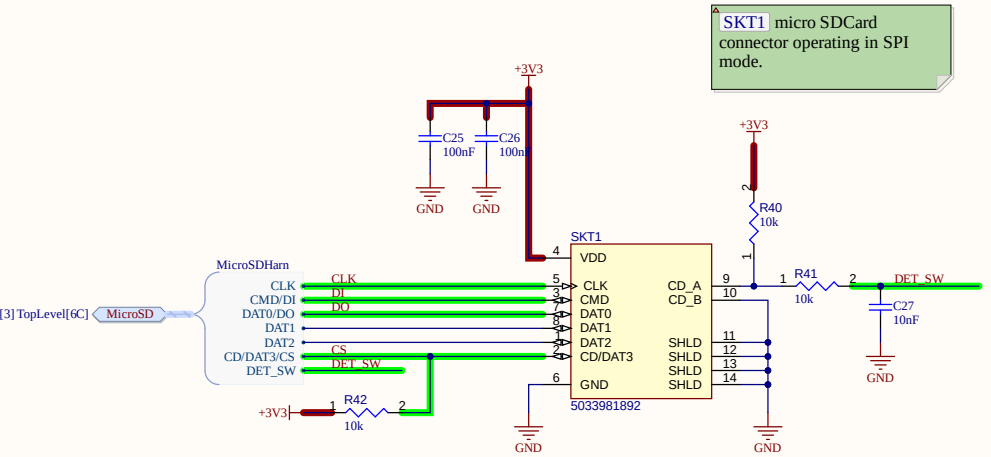
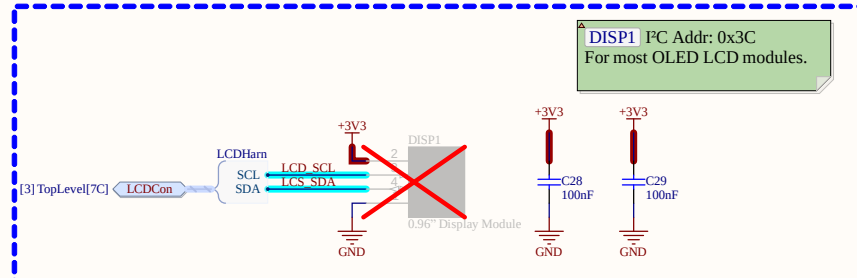


Table 2: microSD Card Pin Assignment

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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PROJECT	PCEIoT
VERSION	V1.0.0
TITLE	[8] Conectors.SchDoc
SIZE	A3
SCALE	1:1
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DOCUMENT REVISION:	Not in Version Control
PROJECT REVISION:	Not in Version Control
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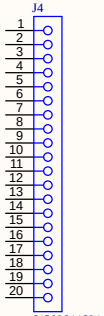
REVISION	DESCRIPTION	DATE	APPROVED

J4



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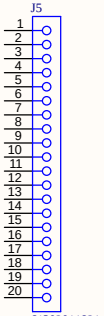
J5



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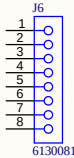
J6



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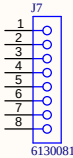
J7



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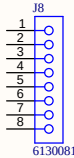
J8



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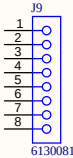
J9



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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