



Velouria LED Controller

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NOTES

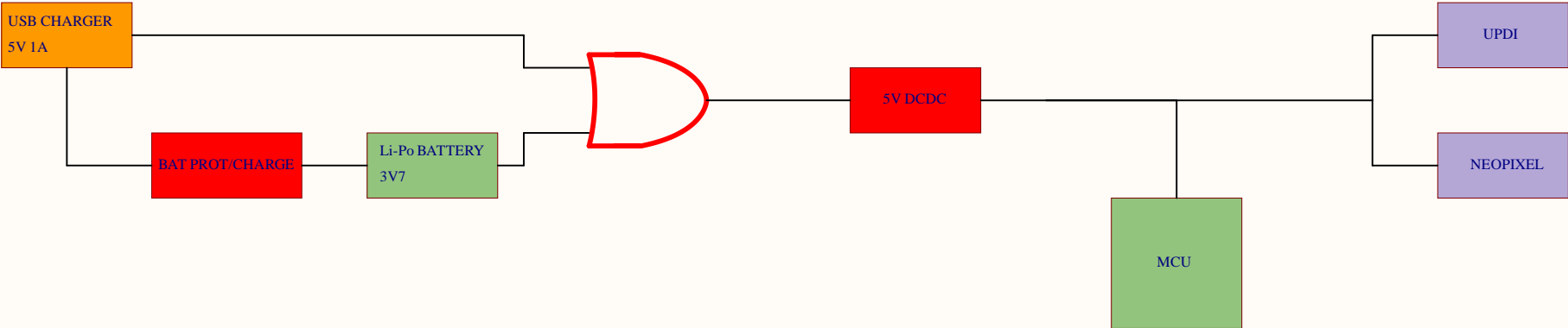
- Net Colours: Orange - USB/BAT Power Voltages, Green - Battery Ground
- Block diagram (3) shows battery/USB power connections. All IO to MCU on MCU sheet (4).
- Checks after Rev A fab (prototype):
 - DCDC_IN voltages for both charged battery and USB power
 - Confirm shield connection okay
 - Test max. DC/DC current output
 - Confirm battery protection IC grounding scheme okay

ADDITIONAL DOCUMENTATION

- PCB: 2023002 A Soutra Velouria LED Controller_PCB.PcbDoc
- ERC: 2023002 A Soutra Velouria LED Controller_ERC_A_1,2,3,4,5
- DRC: Design Rule Check - 2023002 A Soutra Velouria LEC Controller_PCB.drc
- BoM: 2023002 A Soutra Velouria LED Controller_BoM.pdf
- Draft: 2023002 A Soutra Velouria LED Controller_DRAFT1.PCBDwf
2023002 A Soutra Velouria LED Controller_DRAFT2.PCBDwf
- OutJob: 2023002 A Soutra Velouria LED Controller_OJ.OutJob

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Title:	Velouria LED Controller	Engineer:	S. Thomas
Project:	2023 A Soutra Velouria LED Controller	Approval:	S.Thomas
Sch Rev:	A	Date:	01/09/2023
File Name:	Title Page.SchDoc	Sheet	1 of 6
Size:	A4	Libraries:	ST_Library.DbLib
		Scale:	1:1

Power Tree

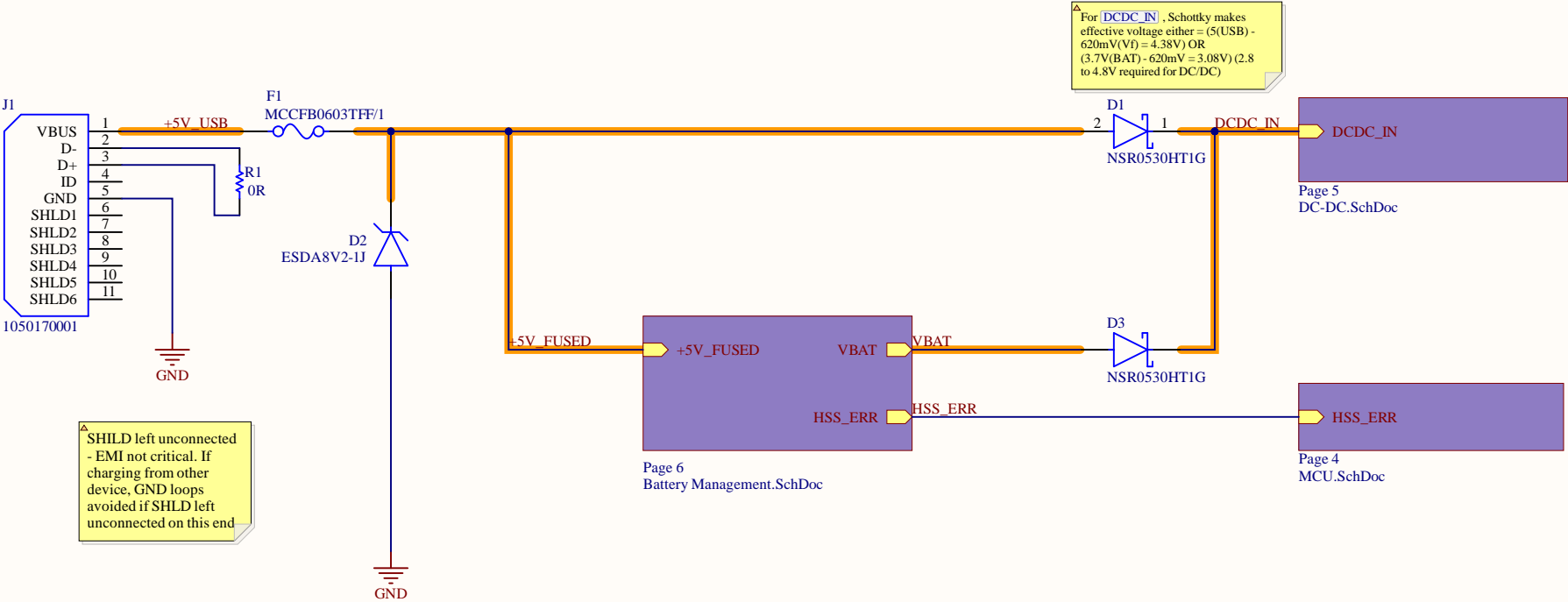


LEGEND

- Input Connector
- Power Conversion
- Powered Device/Sub-Circuit
- Output Connector


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File Name:	Power Tree.SchDoc	Sheet	2 of 6
Size:	A4	Libraries:	ST_Library.DbLib

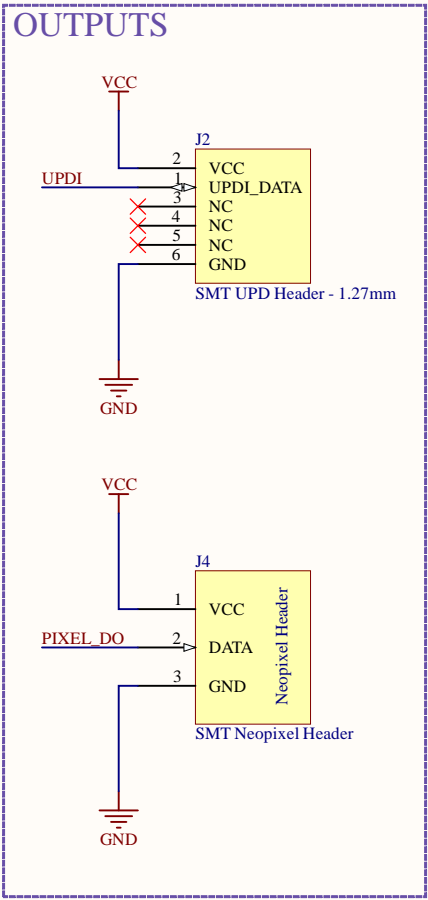
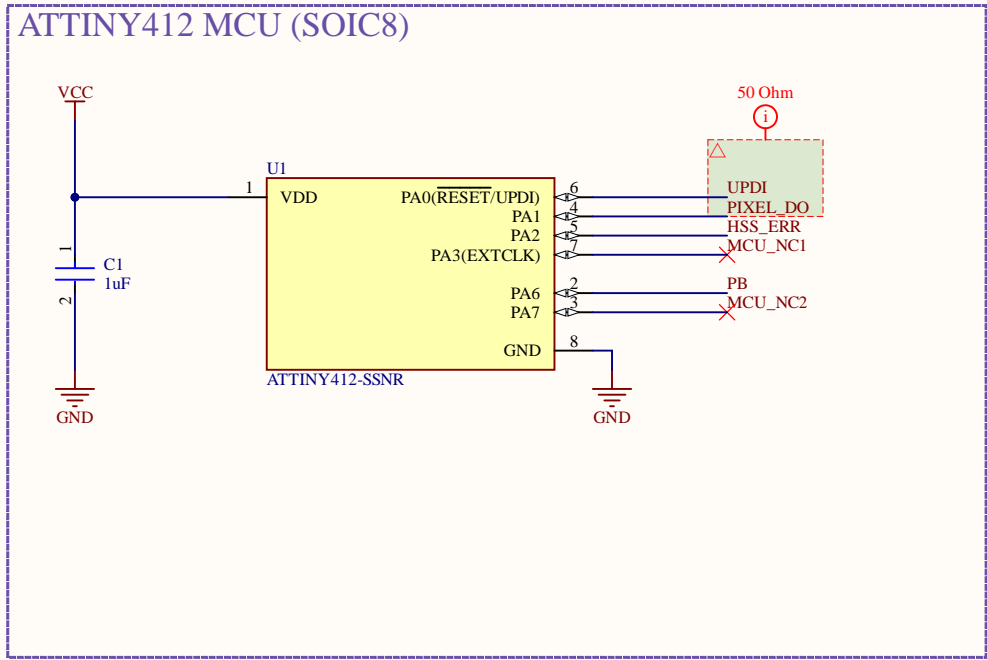
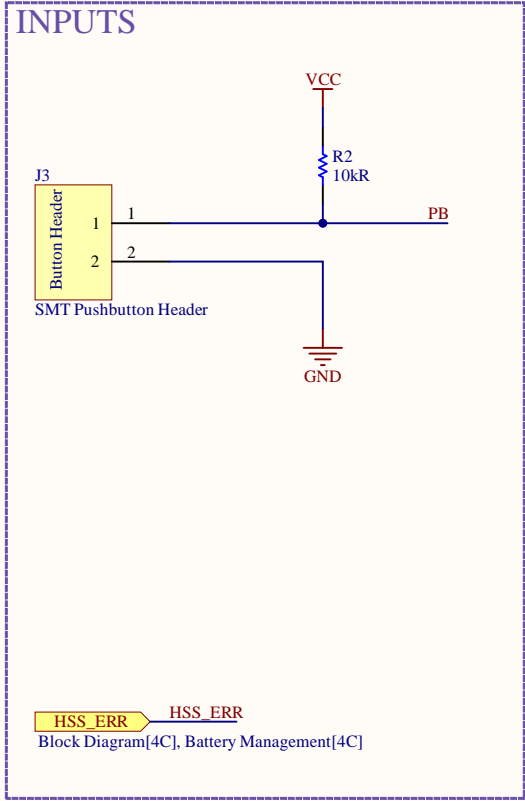
Block Diagram




For **DCDC_IN** , Schottky makes effective voltage either = (5(USB) - 620mV(Vf) = 4.38V) OR (3.7V(BAT) - 620mV = 3.08V) (2.8 to 4.8V required for DC/DC)

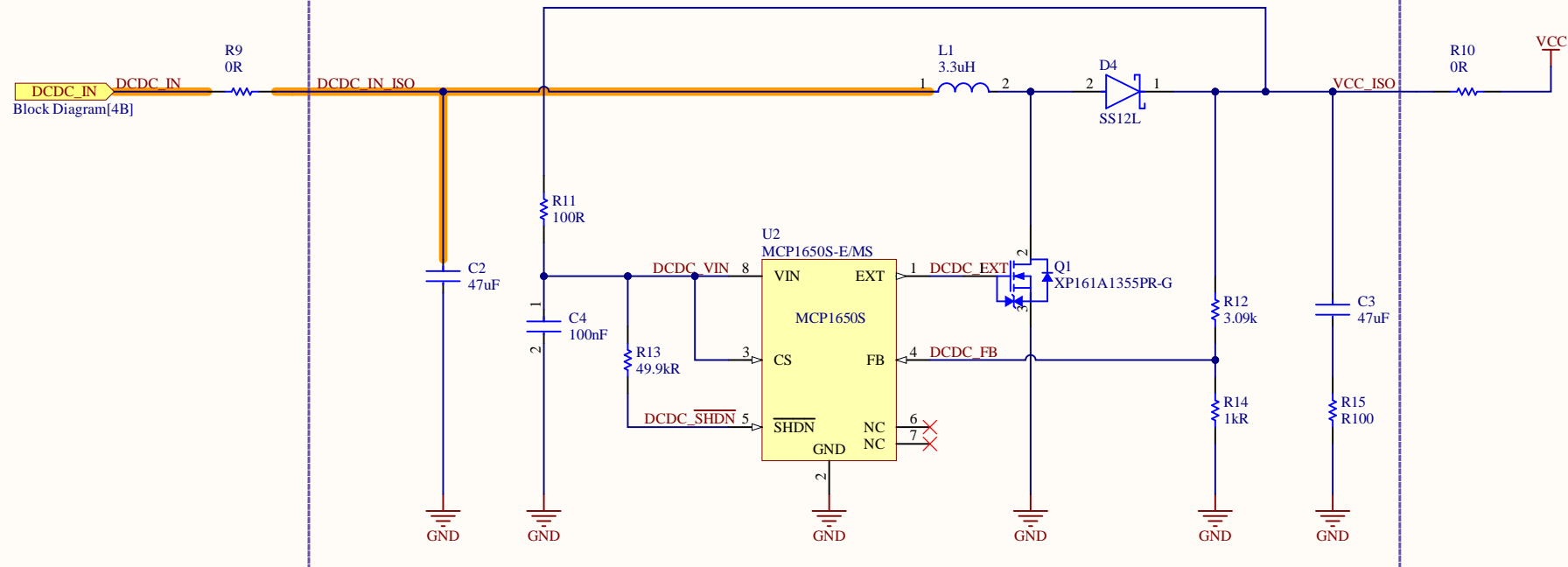
SHILD left unconnected - EMI not critical. If charging from other device, GND loops avoided if SHLD left unconnected on this end

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Sch Rev: A	Date:	01/09/2023	Date: 30/11/2023
File Name:	Block Diagram.SchDoc	Sheet 3 of 6	Libraries: ST_Library.DbLib
Size: A4	Scale: 1:1		



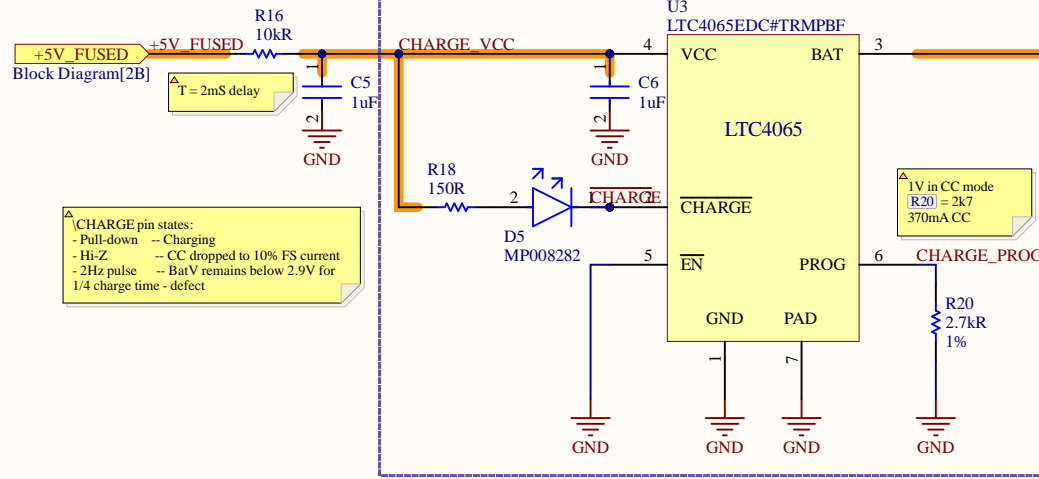
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File Name: MCU.SchDoc		Libraries: ST_Library.DbLib	
Size: A4		Sheet 4 of 6	
Scale: 1:1			

DC/DC Boost Converter (+2V8 to +4V8 IN, +5V 1A OUT)

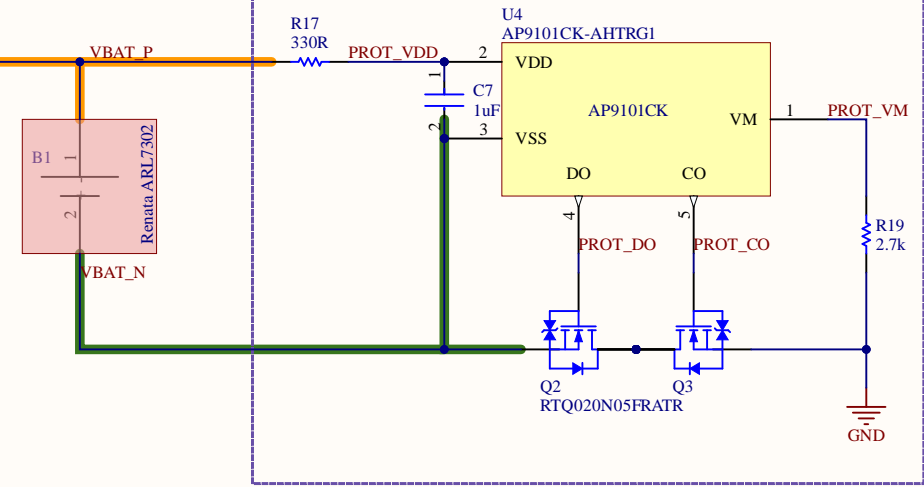


NOTE: Reference circuit from MCP1650S DS

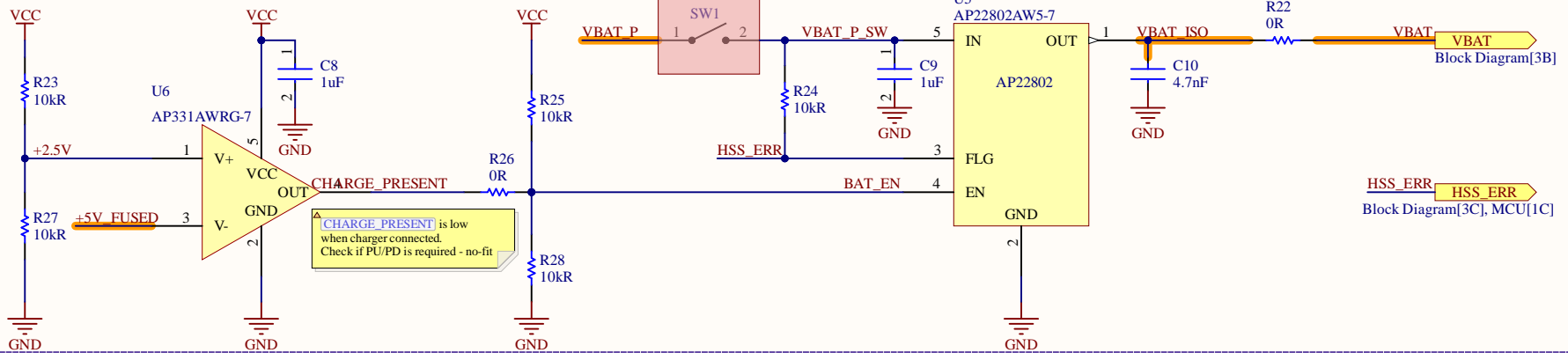
Battery Charger



Battery Protection



USB Connect/Disconnect Switch



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Project: 2023 A Soutra Velouria LED Controller
Sch Rev: A Date: 01/09/2023
File Name: Battery Management.SchDocSheet 6 of 6
Size: A4 Scale: 1:1

Engineer: S. Thomas
Approval: S. Thomas
Date: 30/11/2023
Libraries: ST_Library.DbLib