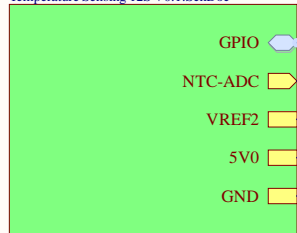
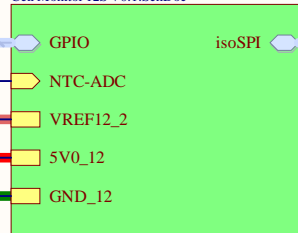


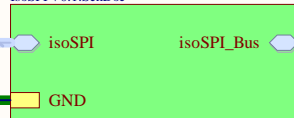
Temperature Sensing 12S RHS
Temperature Sensing 12S V0.1.SchDoc



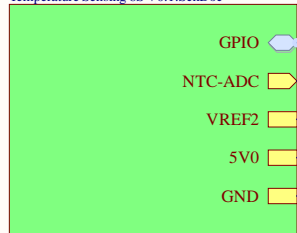
Cell Monitor 12S
Cell Monitor 12S V0.1.SchDoc



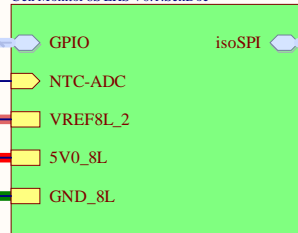
IsoSPI 12S
IsoSPI V0.1.SchDoc



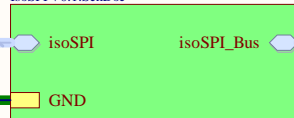
Temperature Sensing 8S LHS
Temperature Sensing 8S V0.1.SchDoc



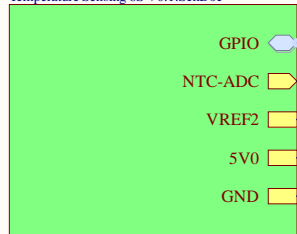
Cell Monitor 8S LHS
Cell Monitor 8S LHS V0.1.SchDoc



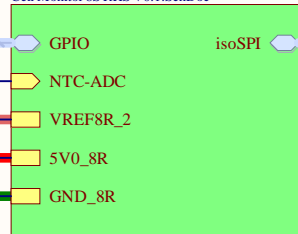
IsoSPI 8S LHS
IsoSPI V0.1.SchDoc



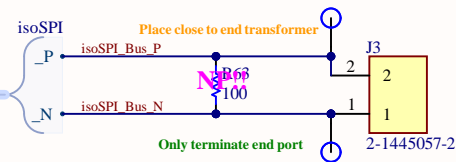
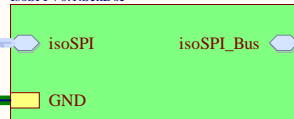
Temperature Sensing 8S RHS
Temperature Sensing 8S V0.1.SchDoc



Cell Monitor 8S RHS
Cell Monitor 8S RHS V0.1.SchDoc



IsoSPI 8S RHS
IsoSPI V0.1.SchDoc



ISOLATED-COMMS

MH1 MH2 MH3 MH4 MH5 MH6

Mounting Holes



Tractive Voltage



Graphics

Title
BMS Slave V0.1.SchDoc

Author
William J

Version
V0.1

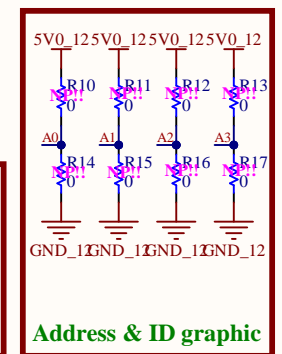
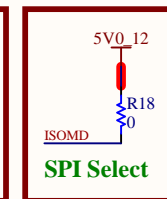
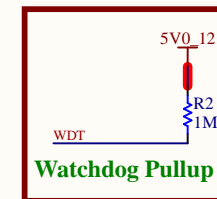
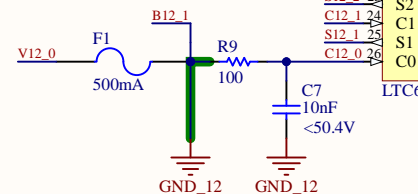
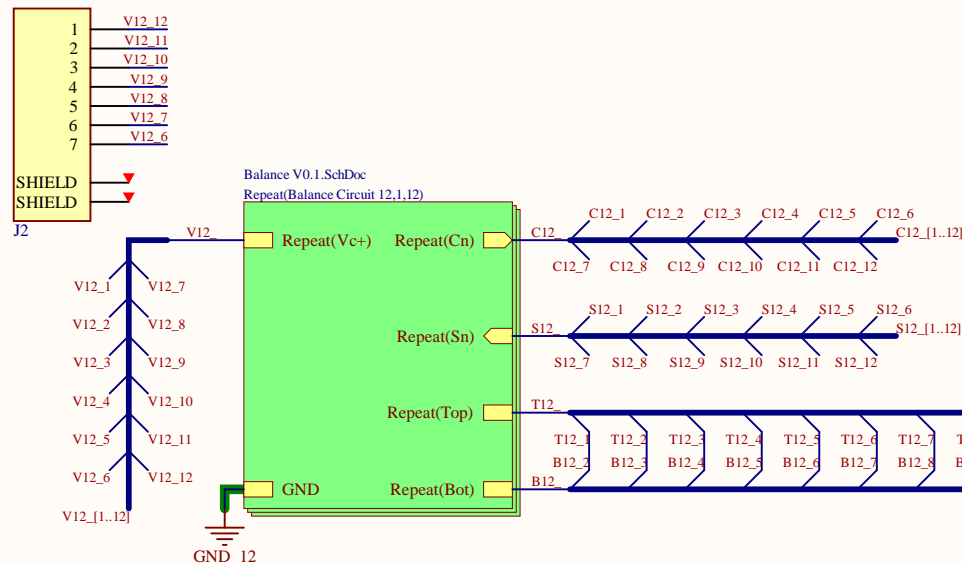
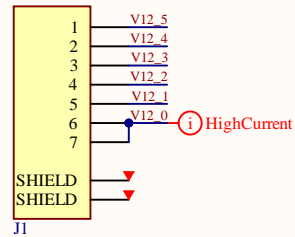
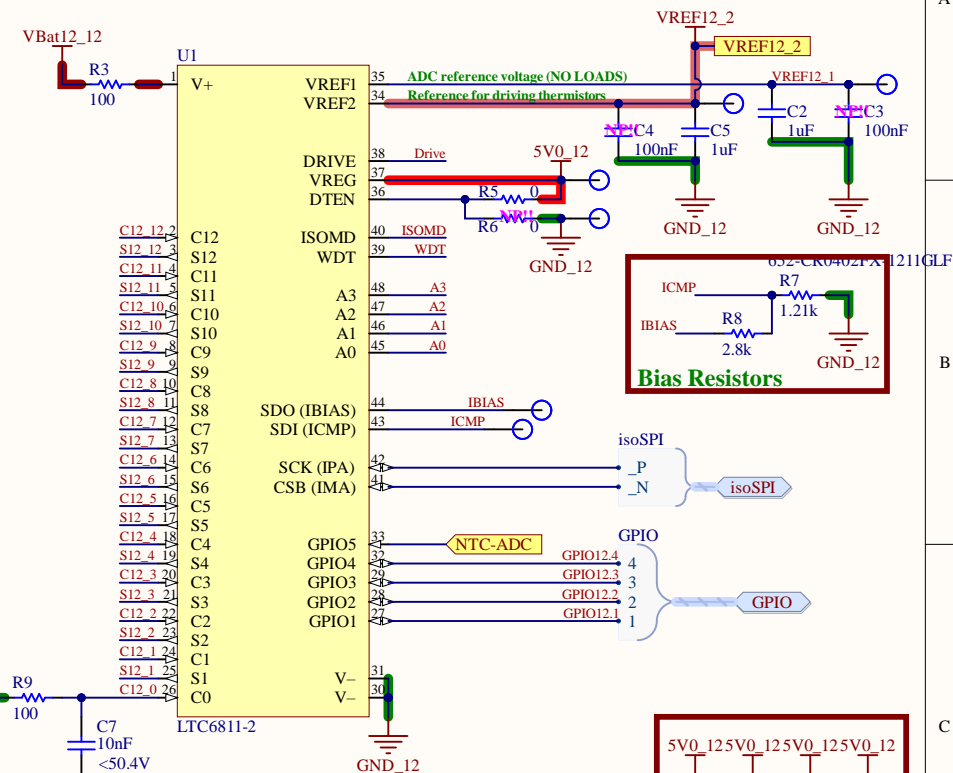
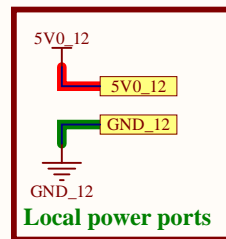
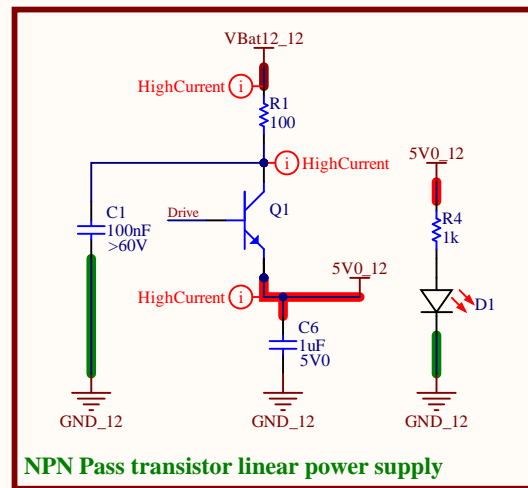
Date 3/04/2022


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Project

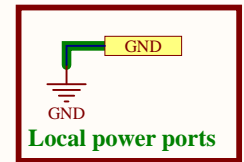
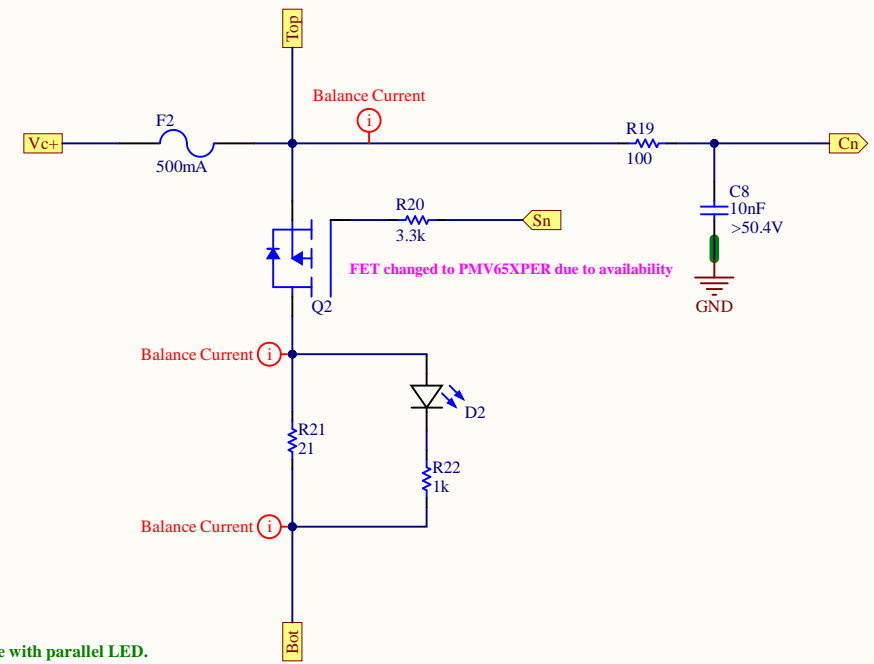
BMS Slave V0.1.PrjPcb




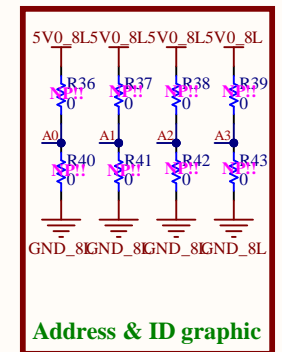
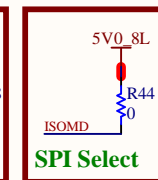
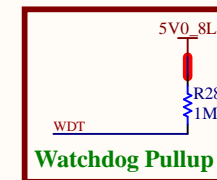
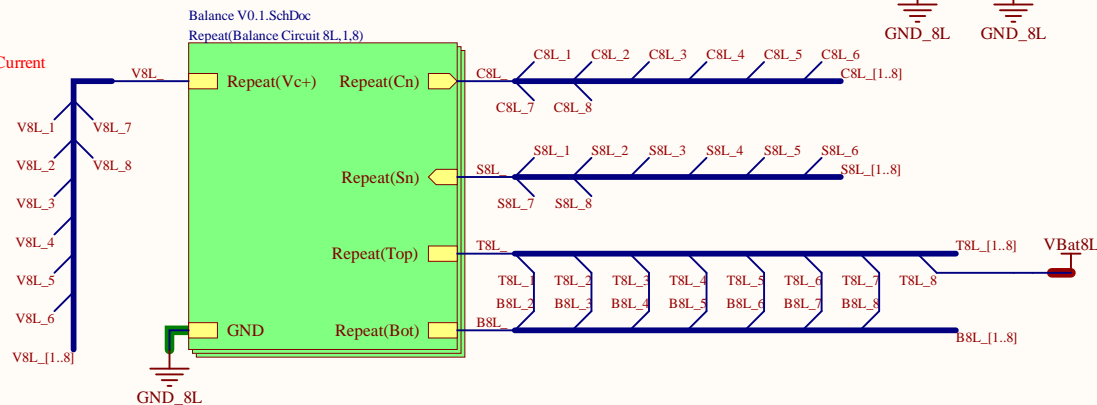
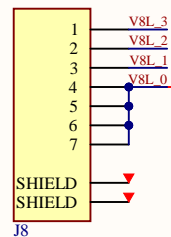
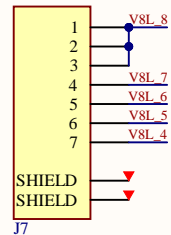
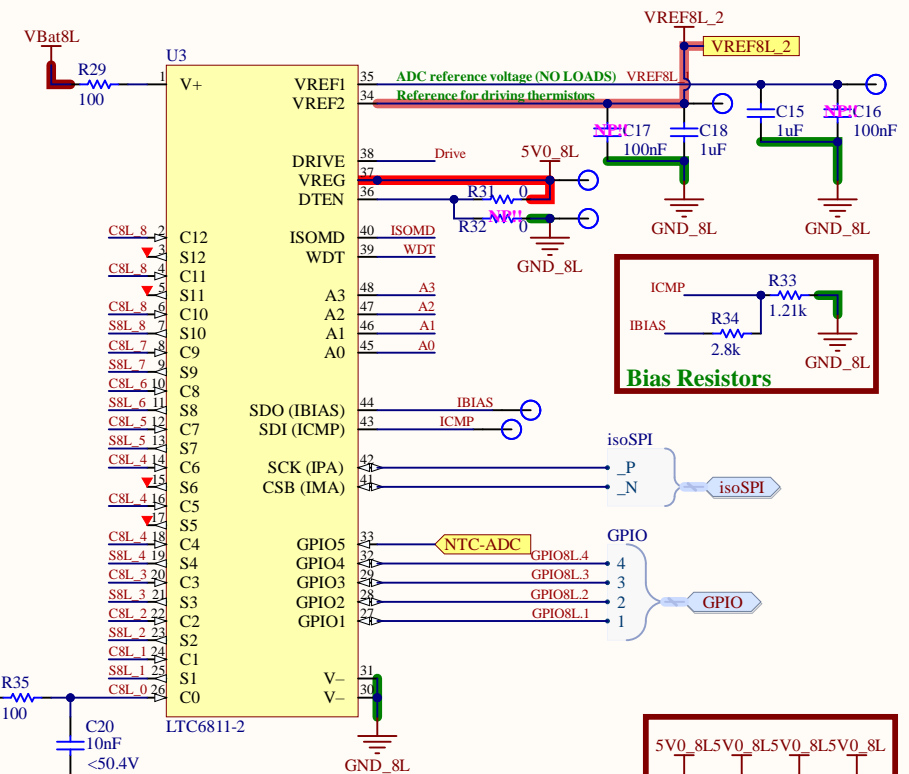
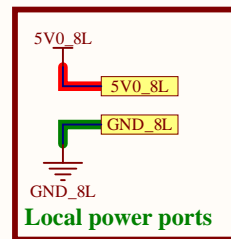
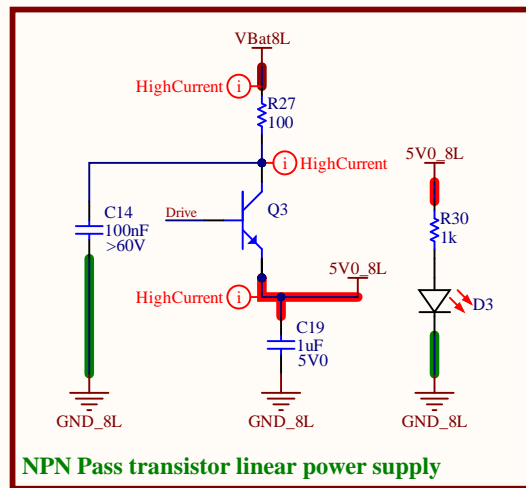
Title Cell Monitor 12S V0.1.SchDoc			D
Author William J	Version V0.1		
Date 3/04/2022			
Sheet 2 of 9			

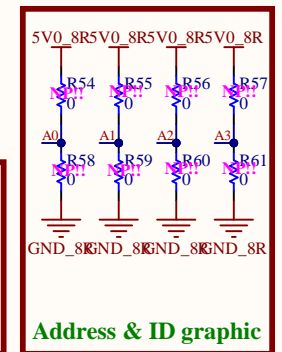
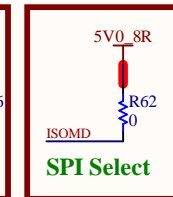
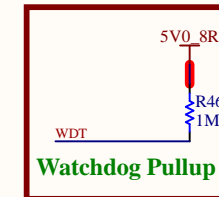
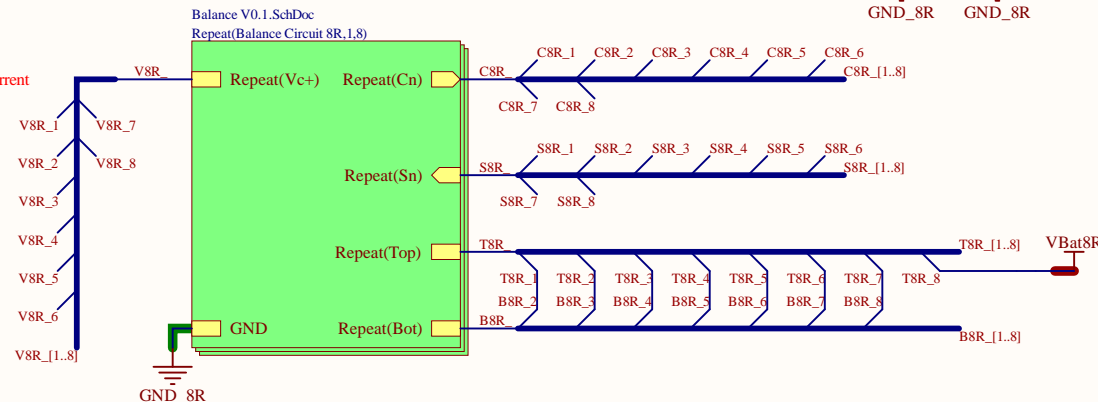
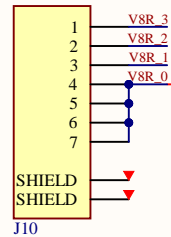
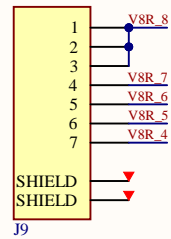
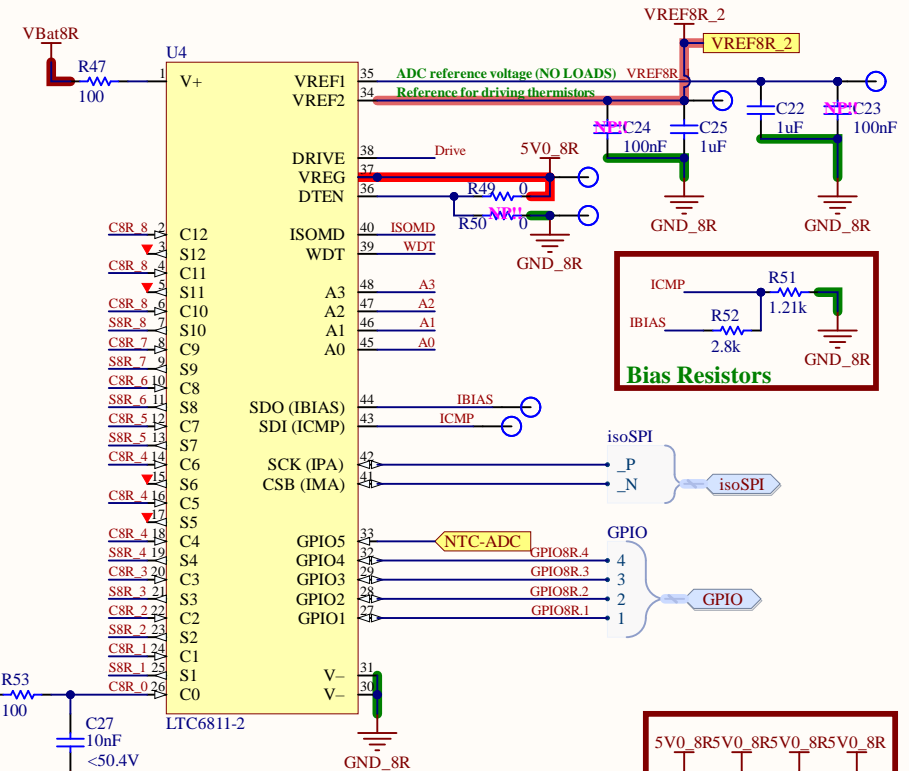
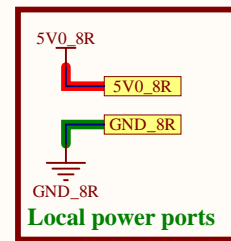
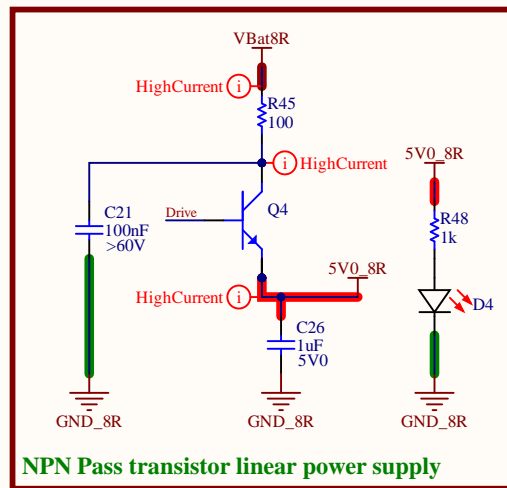
Vc+ is connected to FPC connector (direct to cell)
 Cn is connected to BMS IC for cell measurement
 Sn is connected to BMS IC for FET switching
 Bot is connected to cell belows Top

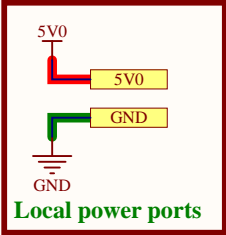
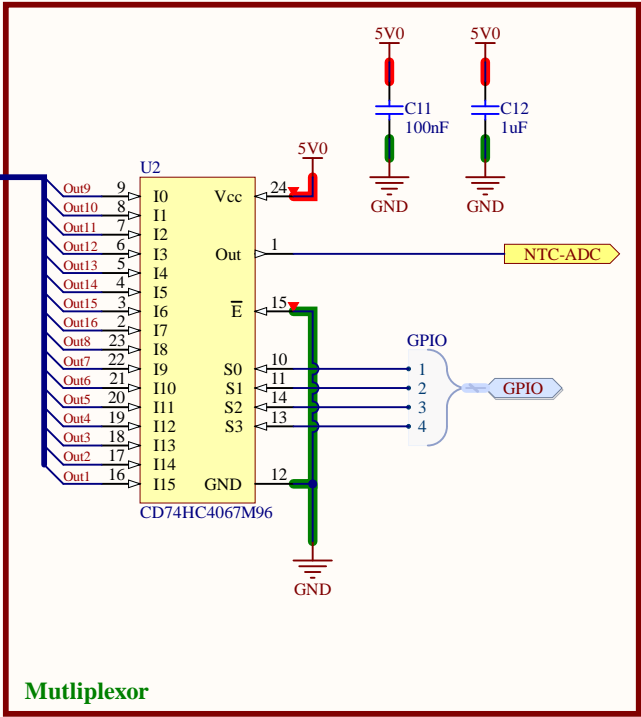
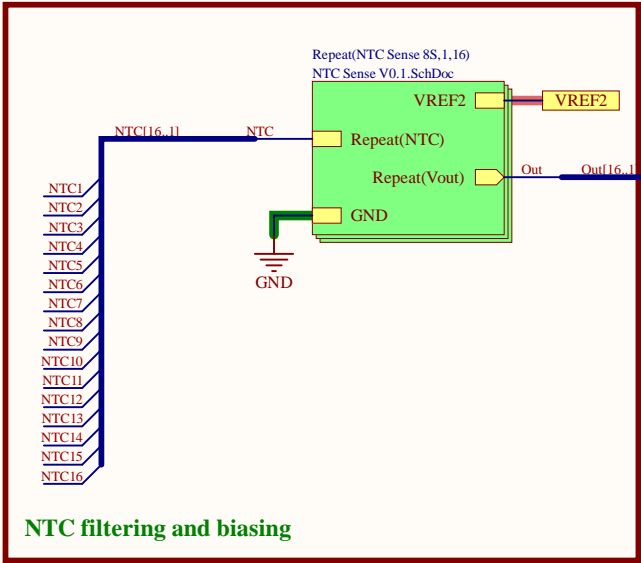
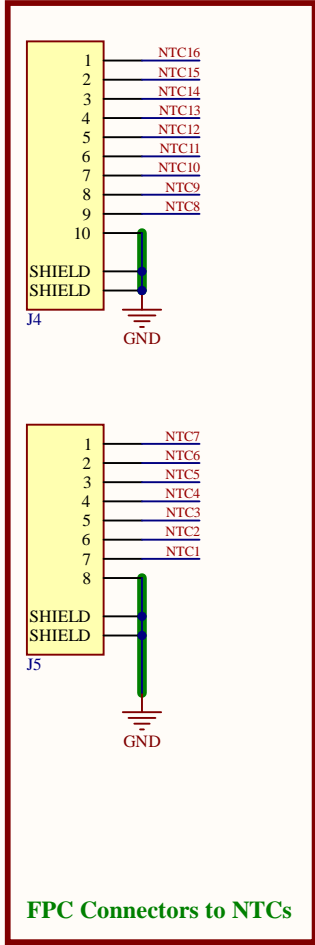
Balance current, $V/R = 4.2/21 = 200\text{mA}$
 Realistically a little less due to FET R_DS but a small increase with parallel LED.



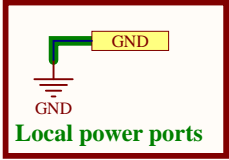
Title Balance V0.1.SchDoc			
Author William J	Version V0.1	Project BMS Slave V0.1.PrjPcb	
Date 3/04/2022	Sheet 3 of 9		







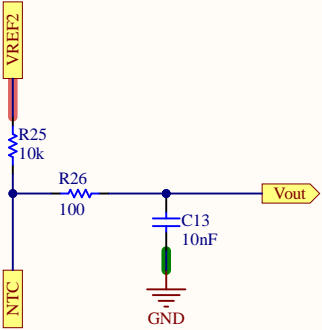
Title		Temperature Sensing 8S V0.1.SchDoc	
Author		William J	Version V0.1
Date		17/03/2022	
Sheet		6	of 9
		Project BMS Slave V0.1.PrjPcb	




Max temperature allowed is 60 degrees, after which the accumulator will shut down.
Minimum temperature is estimated to be 10 degrees.

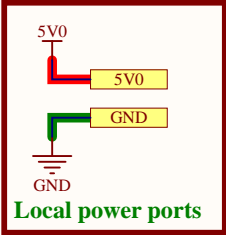
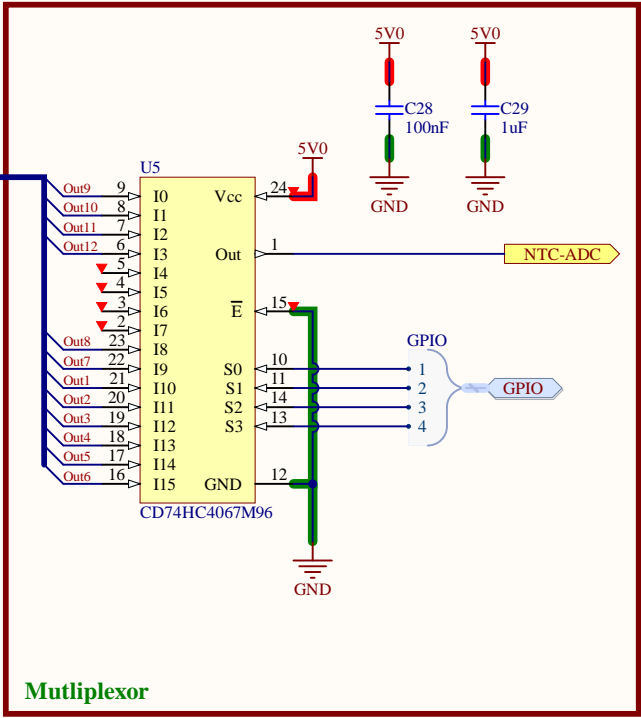
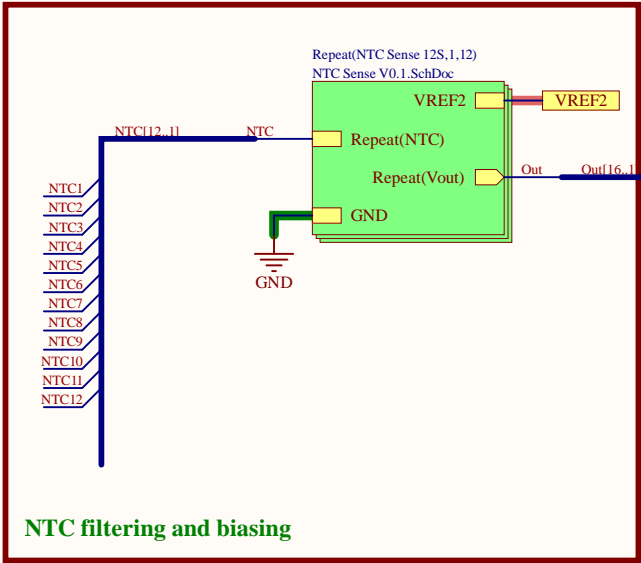
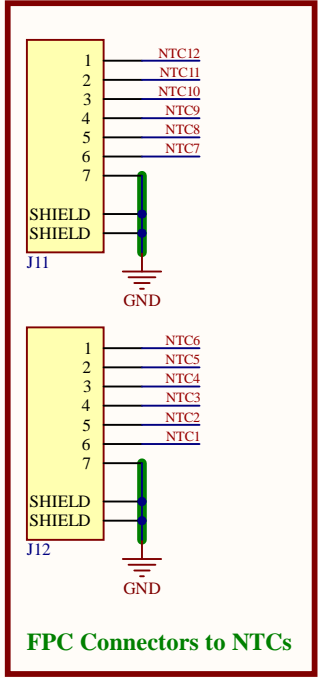
NTC thermistor PN: NCU18XH103D60RB

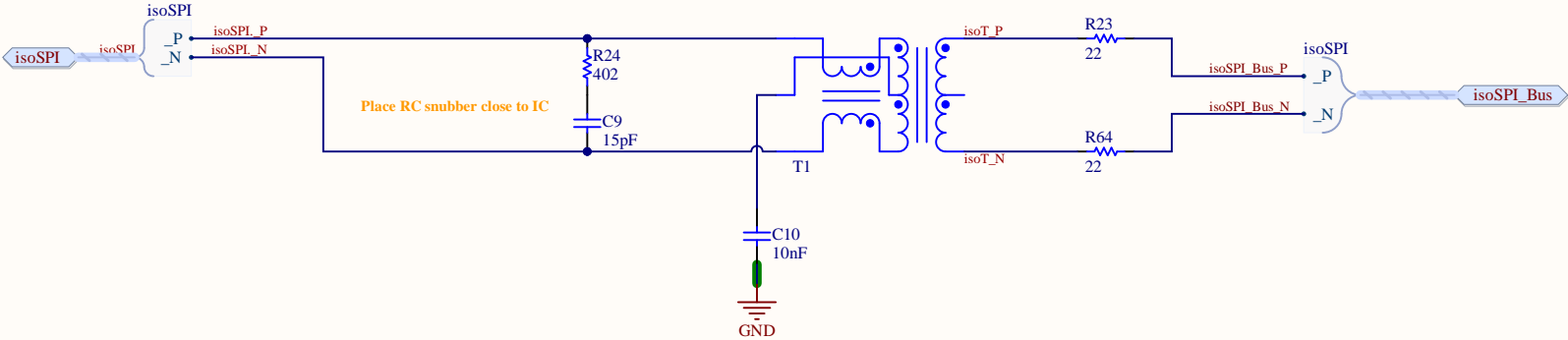
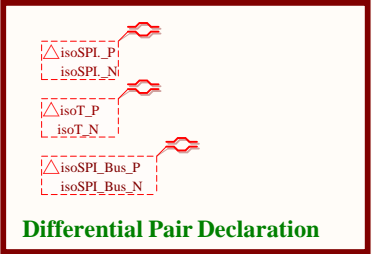
Corresponds to: ...mV at Vout



NTC leads to FPC 10k NTC thermistor. Ground path is provided on FPC.

Title NTC Sense V0.1.SchDoc			
Author William J	Version V0.1	Project BMS Slave V0.1.PrjPc	
Date 17/03/2022			
Sheet 7 of 9			






<http://www.hagtech.com/pdf/impedance.pdf>

$$Z_o = \left(\frac{160}{\sqrt{\epsilon_{eff}}} \right) \cdot \ln \left(\frac{2s}{w} \right)$$

$$\epsilon_{eff} = 1 + \left(\frac{\epsilon_r - 1}{\pi} \right) \cdot \arctan \left(\frac{2h}{w} \right)$$

Target Z_o :	100
Calculated Z_o :	100.795
ϵ_{eff}	2.5786
s	11
w	8
h	63
ϵ_r	4.29

Deviation	0.8%
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Title IsoSPI V0.1.SchDoc			
Author William J	Version V0.1	Project BMS Slave V0.1.PrjPcb	
Date 17/03/2022	Sheet 9 of 9		

