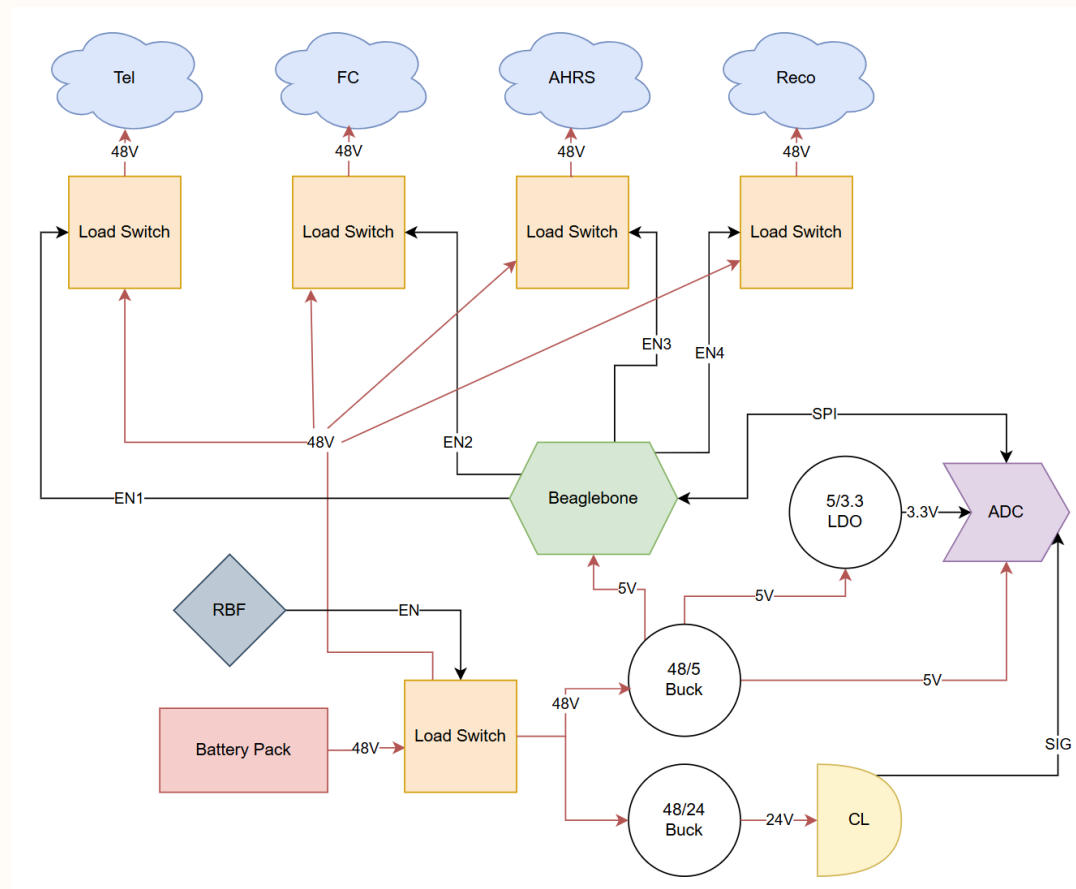
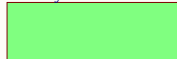




Darcy BMS

Responsible Engineer: Pratham Ingale

Primary Sheet.SchDoc



Project: **Darcy_BMS.PrjPcb**

Sheet Title: **Top Level.SchDoc**

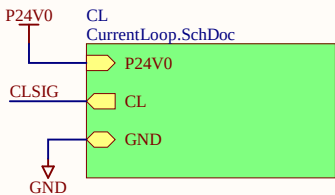
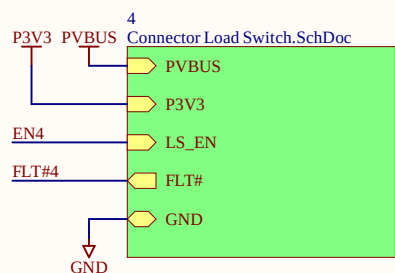
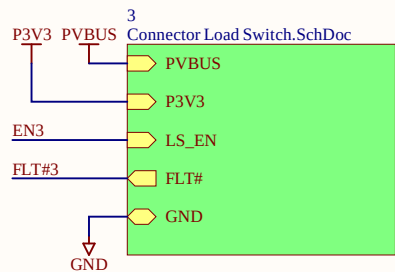
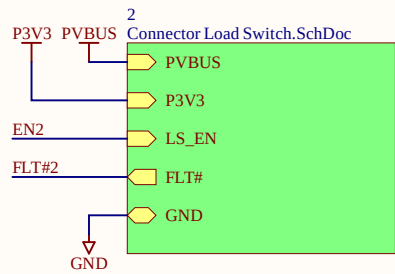
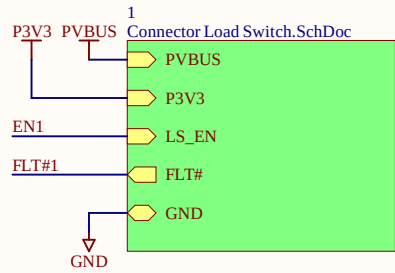
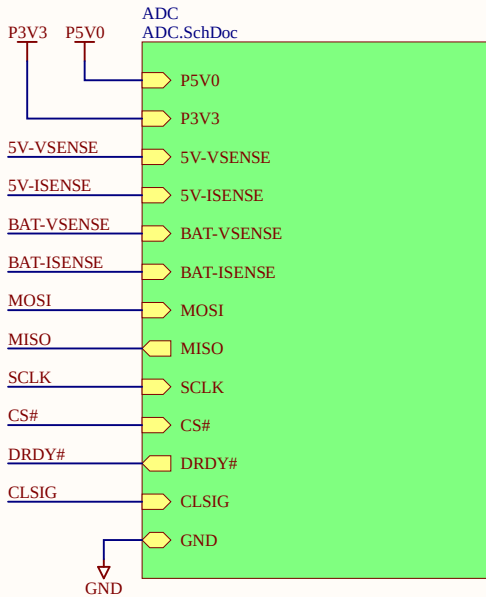
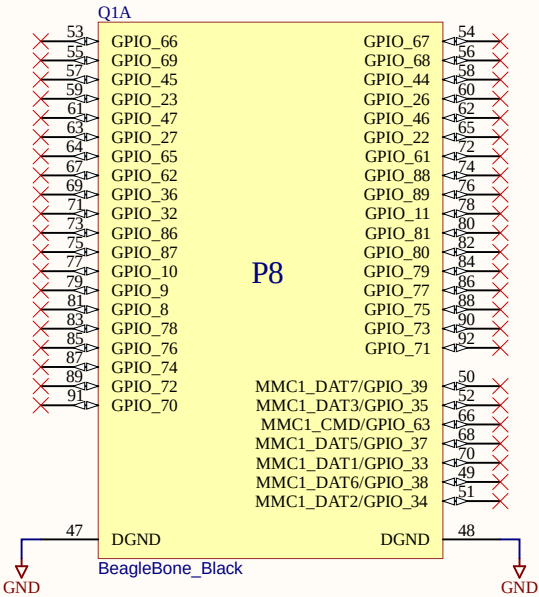
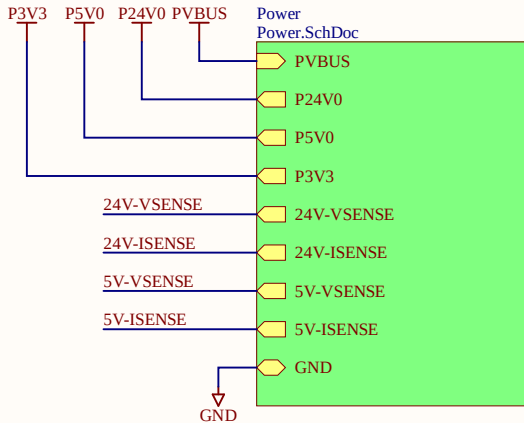
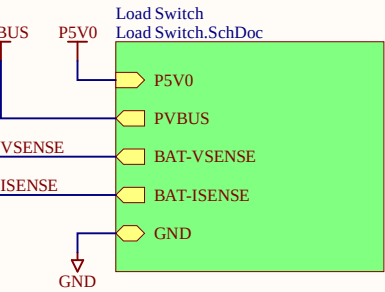
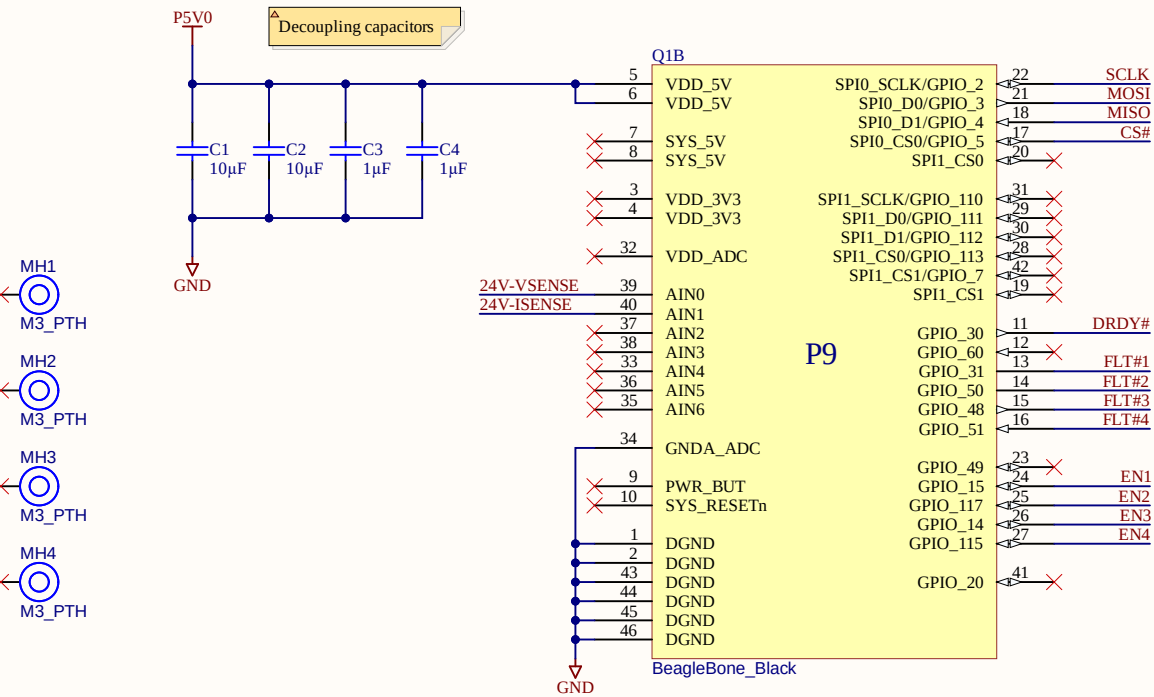
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Schematic Designer: **Pratham Ingale**
PCB Layout Designer: **Pratham Ingale**
Responsible Engineer: **Pratham Ingale**

Date: **3/18/2026** Revision: **2.1** Sheet: **1** of: **7**

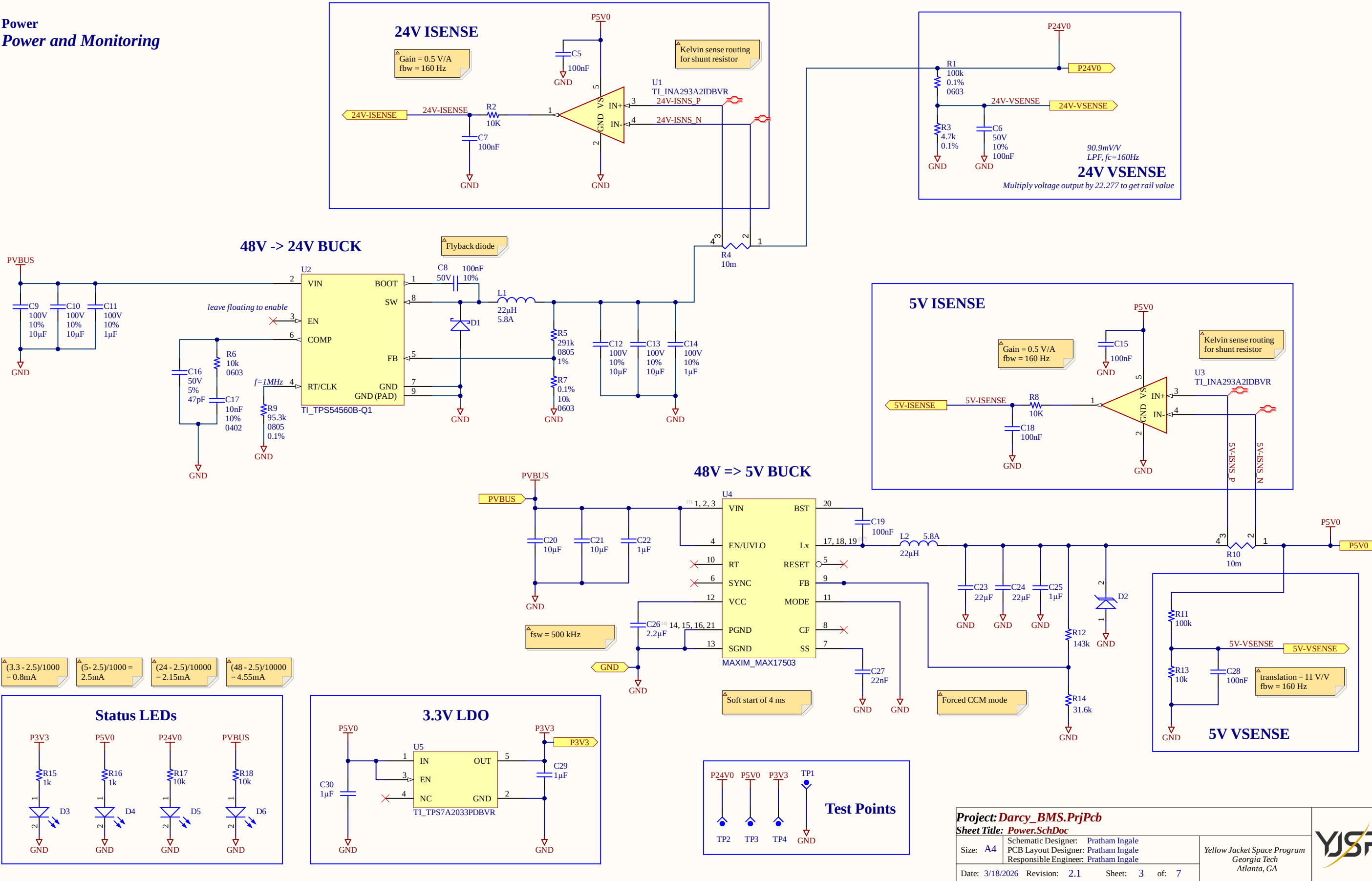
Yellow Jacket Space Program
Georgia Tech
Atlanta, GA



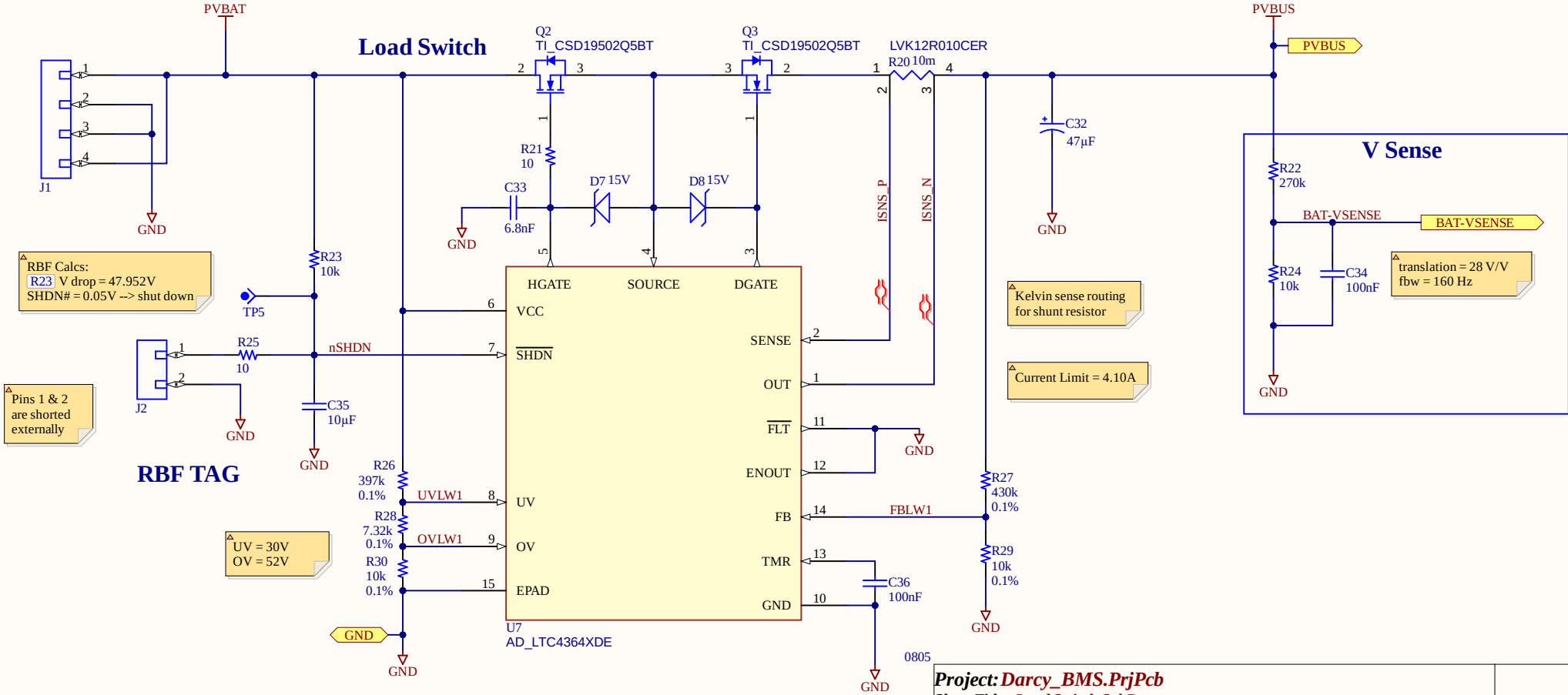
Primary Sheet
Darcy Battery Management System (DBMS)



Power
Power and Monitoring



Load Switch
Battery Sense and Load Switch



Project: Darcy_BMS.PrjPcb

Sheet Title: Load Switch.SchDoc

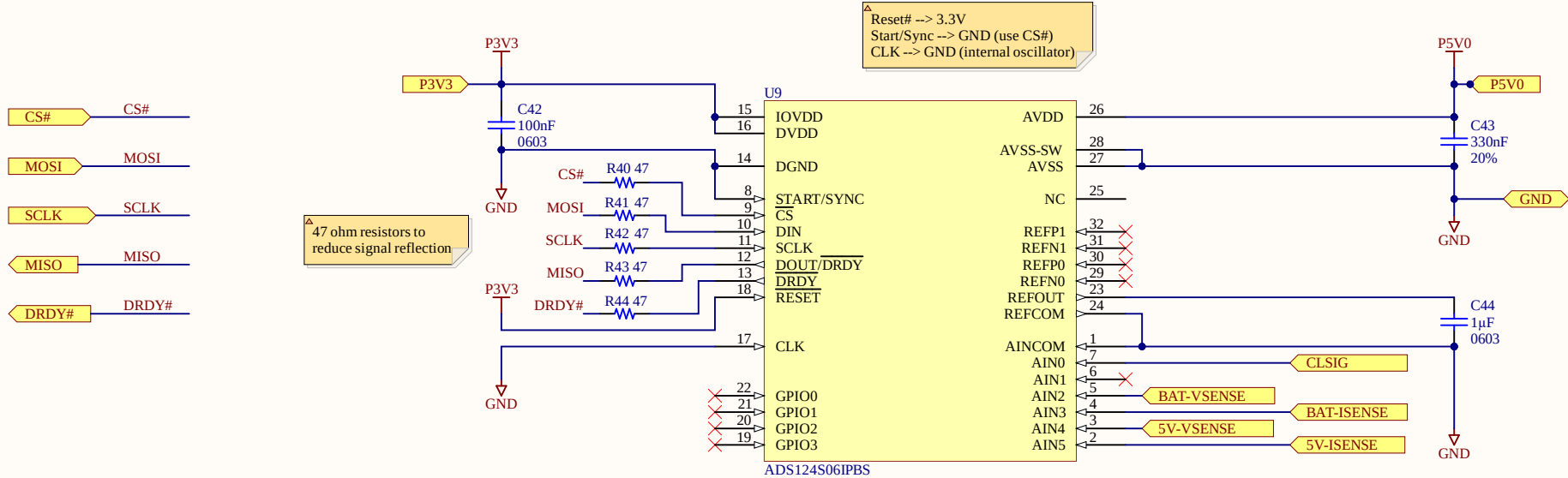
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Schematic Designer: Pratham Ingale
PCB Layout Designer: Pratham Ingale
Responsible Engineer: Pratham Ingale

Date: 3/18/2026 Revision: 2.1 Sheet: 4 of: 7

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Atlanta, GA



ADC
Analog to Digital Converter

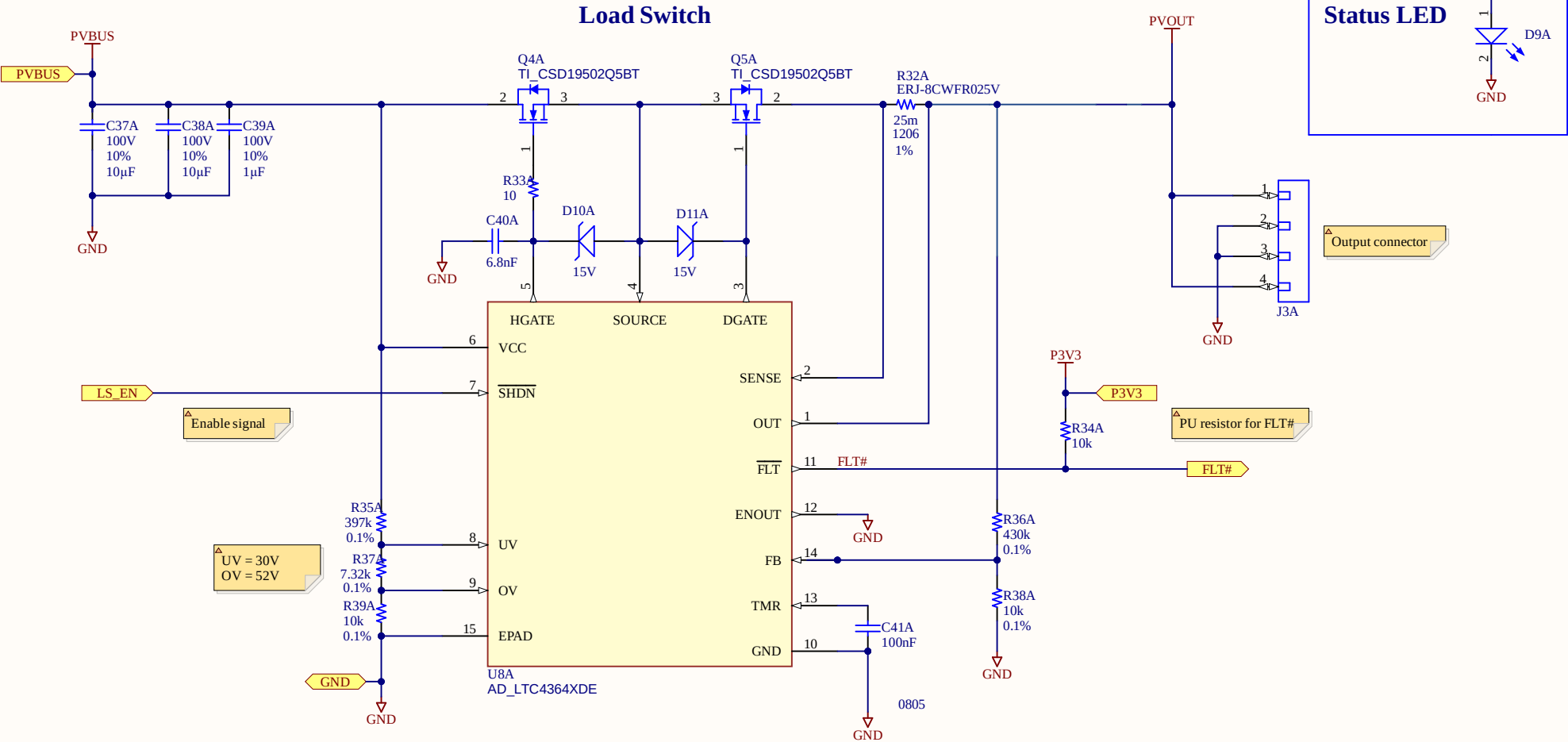


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Size: A4	Schematic Designer: Pratham Ingale PCB Layout Designer: Pratham Ingale Responsible Engineer: Pratham Ingale	Yellow Jacket Space Program Georgia Tech Atlanta, GA
Date: 3/18/2026	Revision: 2.1	Sheet: 5 of: 6



Connector Load Switch

Connector Load Switches



Project: Darcy_BMS.PrjPcb

Sheet Title: Connector Load Switch.SchDoc

Size: A4

Schematic Designer: Pratham Ingale

PCB Layout Designer: Pratham Ingale

Responsible Engineer: Pratham Ingale

Date: 3/18/2026 Revision: 2.1 Sheet: 5 of: 7

Yellow Jacket Space Program

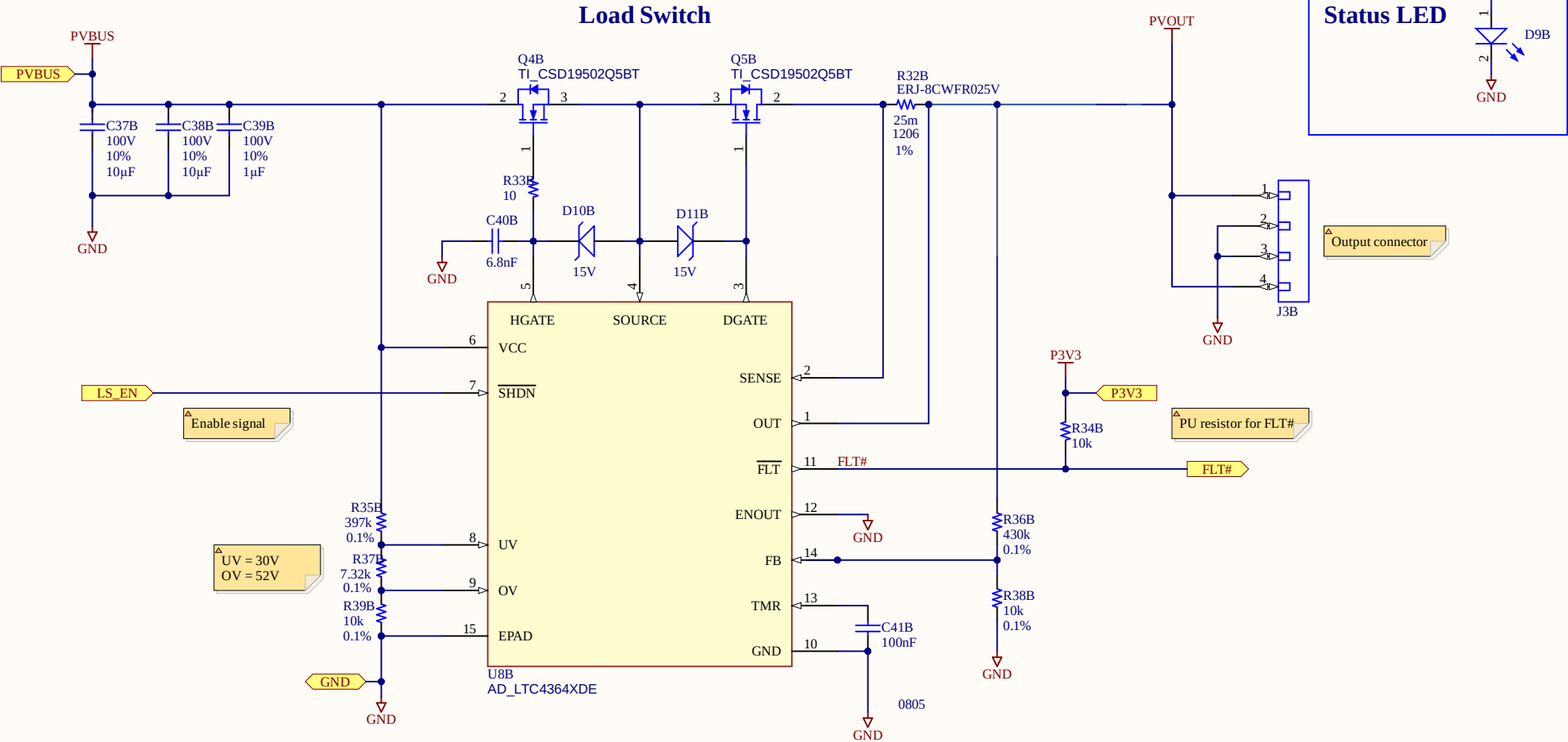
Georgia Tech

Atlanta, GA



Connector Load Switch

Connector Load Switches



Project: Darcy_BMS.PrjPcb

Sheet Title: Connector Load Switch.SchDoc

Size: A4
Schematic Designer: Pratham Ingale
PCB Layout Designer: Pratham Ingale
Responsible Engineer: Pratham Ingale

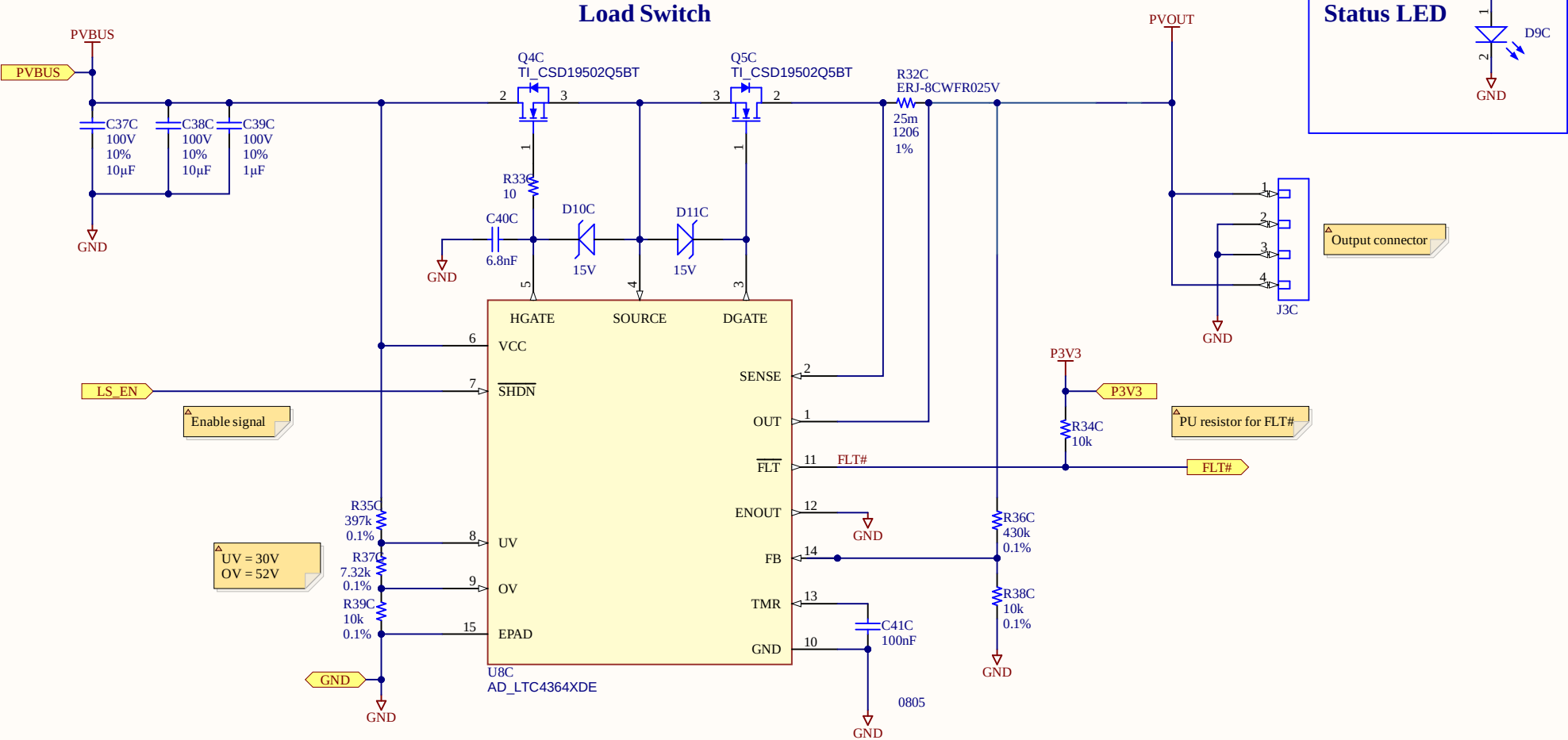
Date: 3/18/2026 Revision: 2.1 Sheet: 5 of: 7

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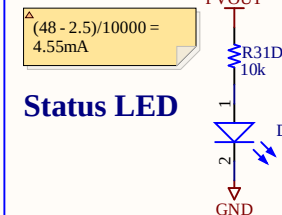


Connector Load Switch

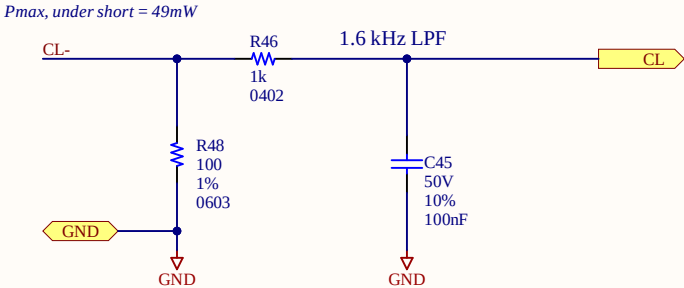
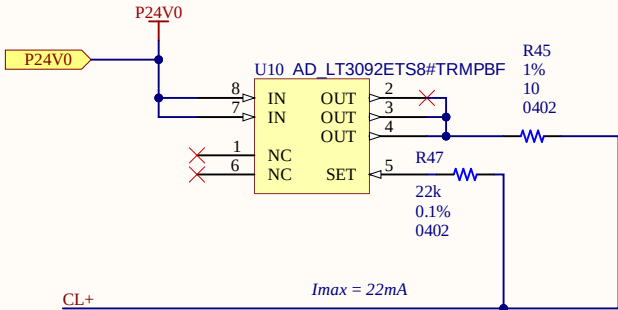
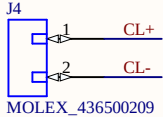
Connector Load Switches



Connector Load Switches



Current Loop Connector



DESIGN CALCULATIONS

System Avionics Module: Current Loop Sensors						
POC:		Billy Ewles				
date of last edit:		4/10/2024				
Board Operating Conditions		PPM	Tolerance	Min	Nom	Max Unit
Temperature					-20	25 85 C
Current Loop - Current Source IC (LT3092)		PPM	Tolerance	Min	Nom	Max Unit
Iout Max					22	mA
Chosen Rset		50	0.1%	21928.55	22000	22088.07 ohm
Set Pin Current				9.8	10	10.2 uA
Vset				0.2149	0.22	0.225298 V
Rout					10.00455	ohm
Chosen Rout		50	1.0%	9.877725	10	10.1303 ohm
Iout				0.0212	0.0220	0.0228 A
Current Loop - 100 ohm resistor		PPM	Tolerance	Min	Nom	Max Unit
Shunt Resistor		50	0.1%	99.67523	100	100.4003 ohm
Shunt Voltage, under short				2.115	2.200	2.291 V
Power				0.045	0.048	0.052 W
Current Loop - Sensors - Accuracy		PPM	Tolerance	Min	Nom	Max Unit
Note: we will assume infinite accuracy & precision of the raw sensor, this exclusively determines measurement interface across ca						
Shunt Resistor		50	0.1%	99.67523	100	100.4003 ohm
Ideal Current				4		20 mA
Resistor Voltage, low current				0.398701	0.4	0.401601 V
Resistor Voltage, high current				1.993505	2	2.008006 V
Error					0.1%	0.40 %
Current Loop - ADC - Accuracy		PPM	Tolerance	Min	Nom	Max Unit
ADC introduces negligible error, this is eliminated						

This schematic is borrowed from the GSAM

Project: Darcy_BMS.PrjPcb				
Sheet Title: CurrentLoop.SchDoc				
Size: A4	Schematic Designer: Pratham Ingale PCB Layout Designer: Pratham Ingale Responsible Engineer: Pratham Ingale			<i>Yellow Jacket Space Program</i> <i>Georgia Tech</i> <i>Atlanta, GA</i>
Date: 3/18/2026	Revision: 2.1	Sheet: 7	of: 7	

