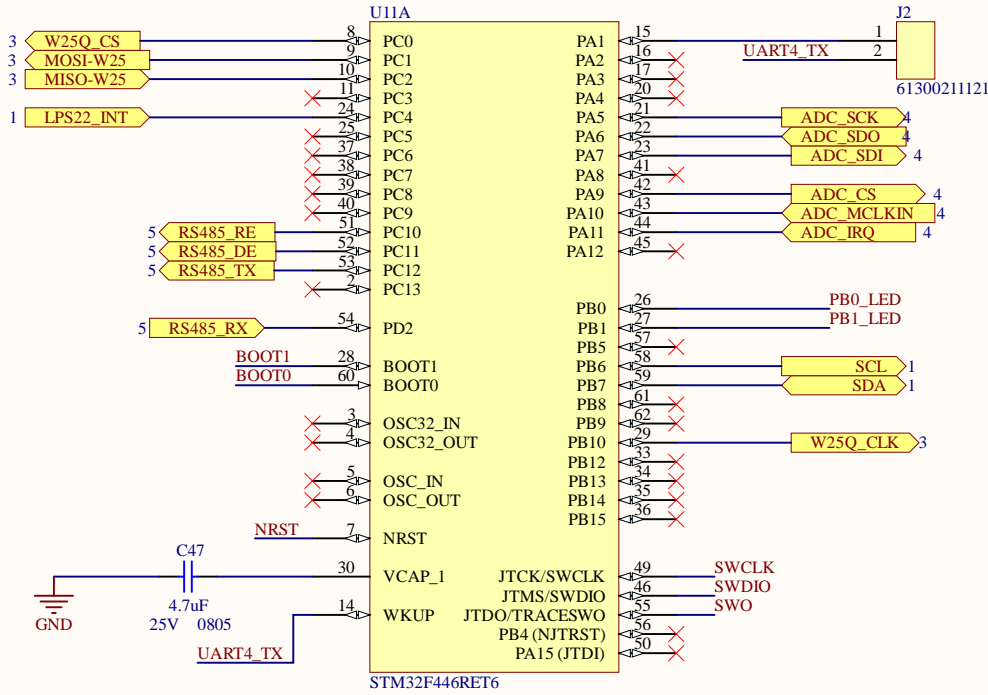
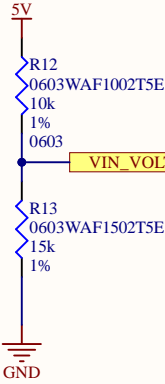


Sensor nets (interrupts can connect to any port but if PA0 is used for an INT, PB0, PC0 cannot be used for an interrupt)



Rs485 RX and TX go to USART

### Voltage Sense



RT = Top Resistor = 10kohm  
RB = Bottom Resistor = 15kohm  
VIN\_SENSE = Measured Voltage  
VIN = Input Voltage

$$\text{VIN\_SENSE}/\text{VIN} = \text{RB}/(\text{RT} + \text{RB})$$
$$\text{VIN\_SENSE}/\text{VIN} = 10/(10 + 15)$$
$$\text{VIN\_SENSE}/\text{VIN} = 0.6 \text{ (gain)}$$

**\*\* VIN = VSENSE/0.6 \*\***

VIN\_SENSE Range: 3V (Typical)

VIN\_SENSE = 3 means VIN = 5V (Power Mod)

SHEET NAME: STM32.SchDoc

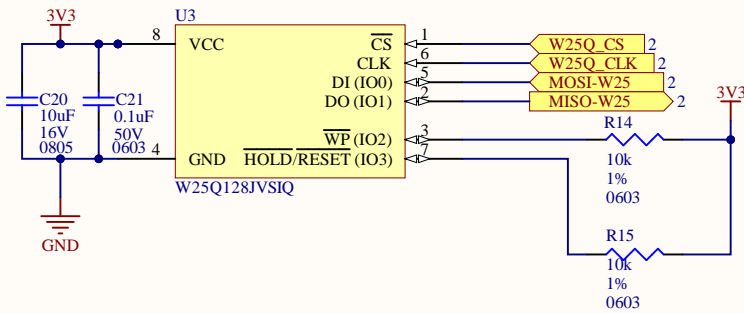
PROJECT: POTATO.PrjPcb

ENGINEER: Natalia Sokolov & Damian Suarez

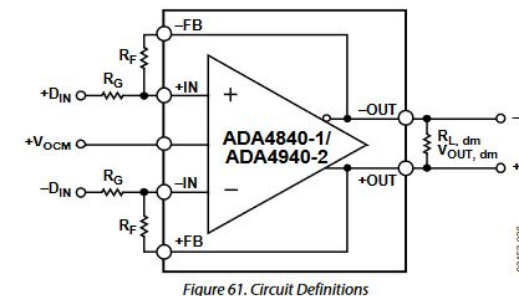
DATE: 5/19/2024



RIT LAUNCH INITIATIVE

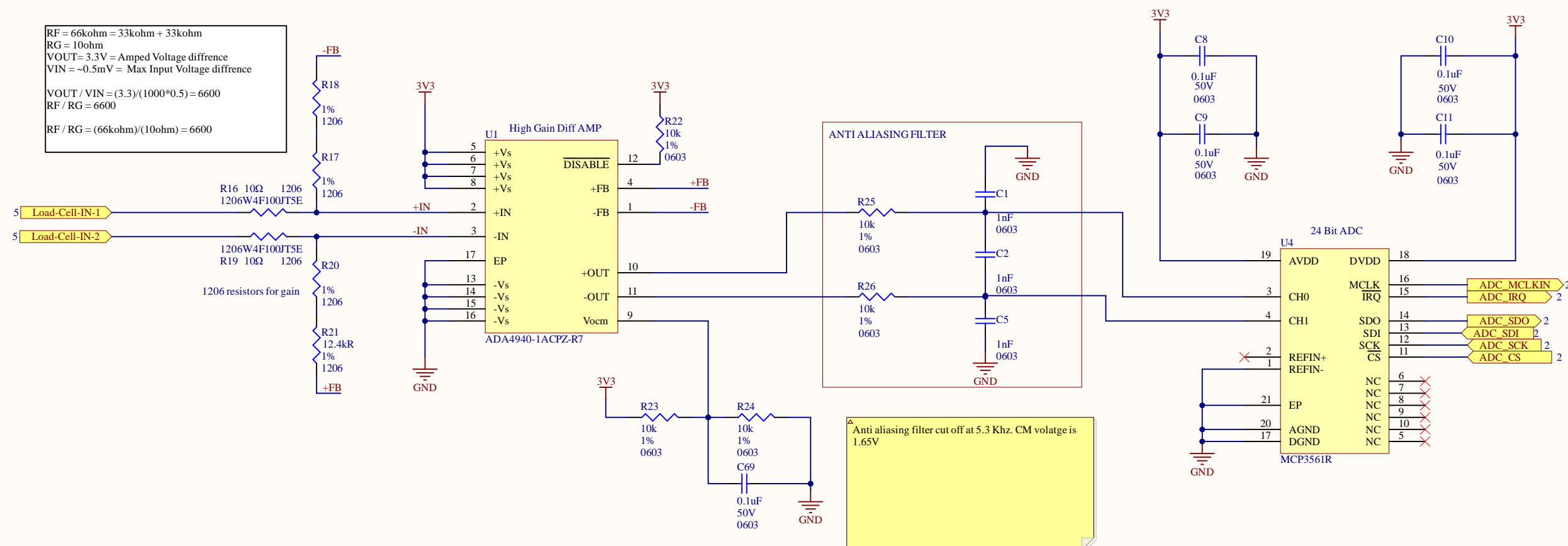


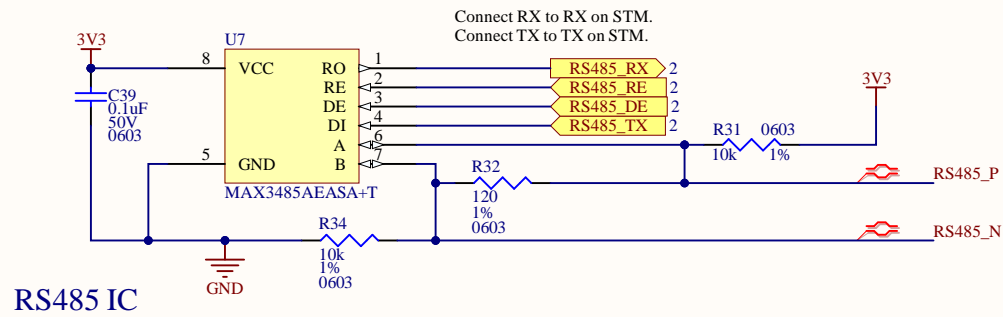
# DEFINITION OF TERMS



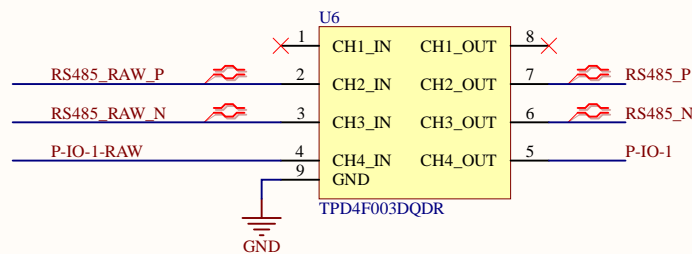
$$\frac{V_{OUT, dm}}{V_{IN, dm}} = \frac{R_F}{R_G}$$

$R_F = 66k\Omega = 33k\Omega + 33k\Omega$   
 $R_G = 10\Omega$   
 $V_{OUT} = 3.3V = \text{Amped Voltage difference}$   
 $V_{IN} = \sim 0.5mV = \text{Max Input Voltage difference}$   
 $V_{OUT} / V_{IN} = (3.3) / (1000 * 0.5) = 6600$   
 $R_F / R_G = 6600$   
 $R_F / R_G = (66k\Omega) / (10\Omega) = 6600$



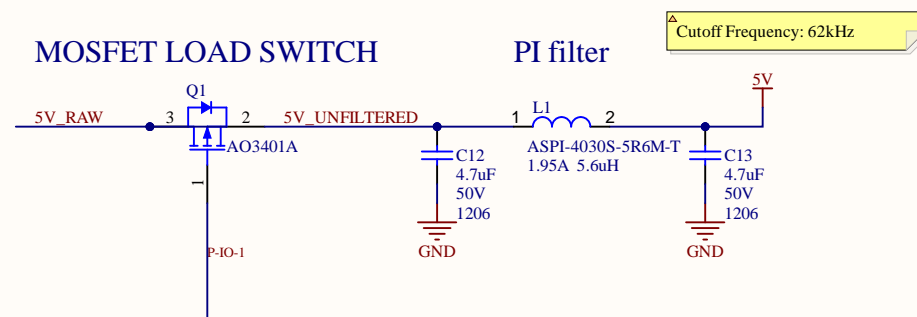


## DE9 Signals ESD

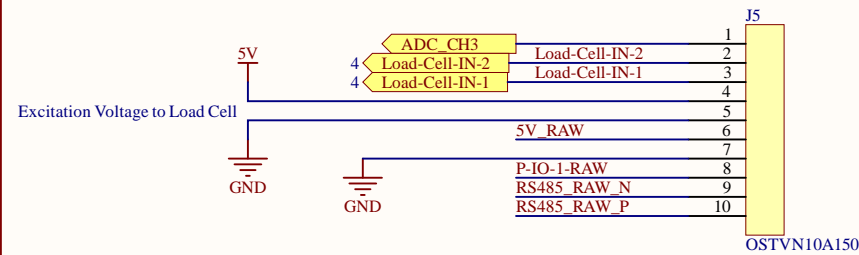


## PI filter from 5V in to Strain Gauge

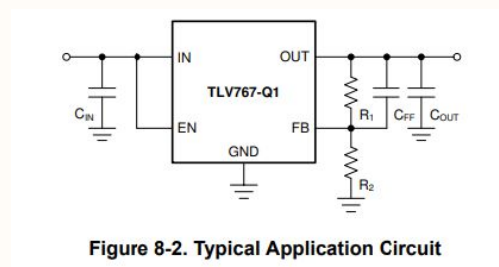
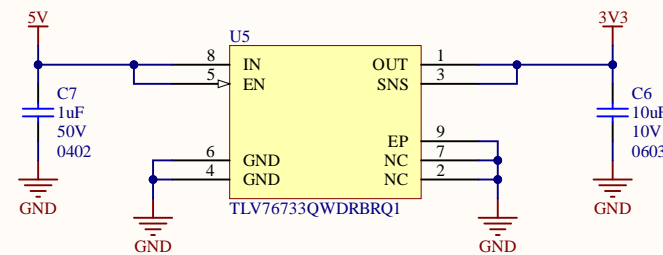
Power mod: Switching Frequency: 550 kHz



## Screw Terminals



## 3.3V LDO



For fixed regulator, tie SNS pin to OUT pin

Power Calcs:  
500mA expected  
 $P = IV = (0.5A)(5V - 3.3V) = 0.85W$   
 $\Theta_{JA} = 51.9 \text{ degC/W}$   
Temp Rise =  $0.85 * 51.9 = 44 \text{ degC}$   
Maximum Junction Temp =  $150 \text{ degC}$

MH1  
Mounting\_Hole\_3mm\_PT  
Mounting Hole

SHEET NAME: SensorMod\_Interface.SchDoc PROJECT: POTATO.PrjPcb

ENGINEER: Natalia Sokolov & Damian Suarez DATE: 5/19/2024