

# 5V - 3.3V Buck Converter

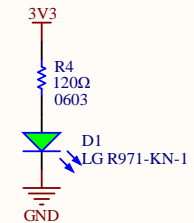
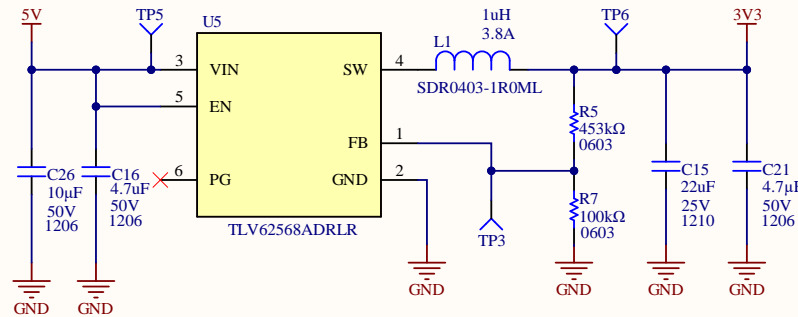
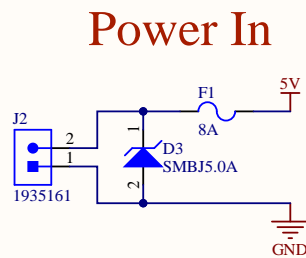
Designed for 3.3V - 5V input

Route for 1A in

Inductor: SDR0403-1R0ML  
1uH, 20%, 33mOhm DCR (max)  
3.8A (rms), 5.5A (sat), 3.2mm tall

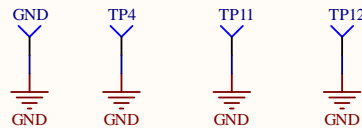
Maximum output current = 2A  
Maximum output power = 6.6W  
Expected efficiency at 1A = 94.3%

Route for 1A out

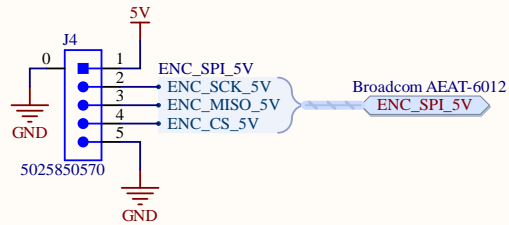


**Current Calculations**  
Green LED voltage drop: 2.2V  
-  $I = (3.3 - 2.2V) / 120 = 9.17mA$

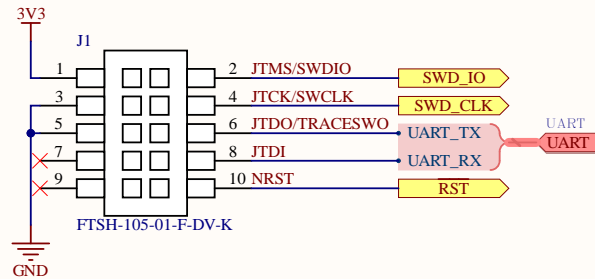
## GND Test Points



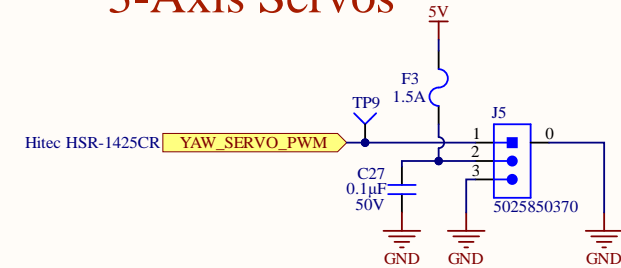
## Encoder



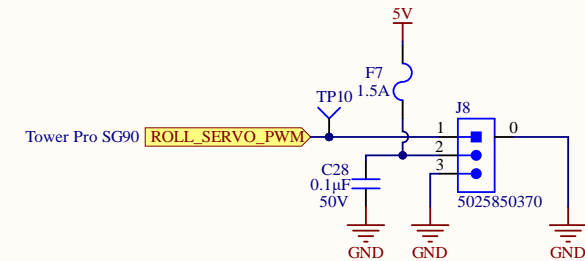
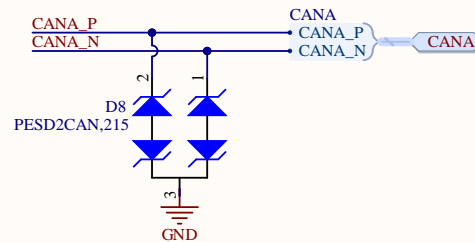
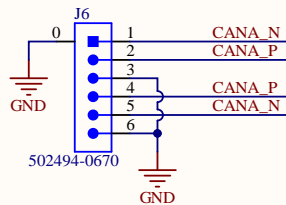
## Debug/Programming



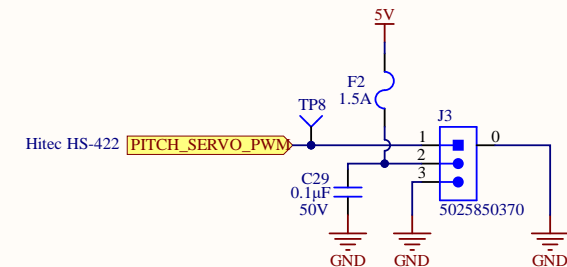
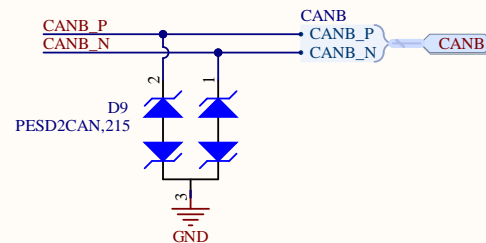
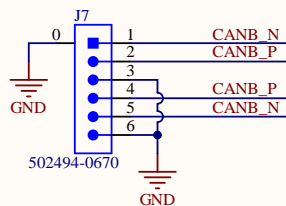
## 3-Axis Servos



## CAN BUS A

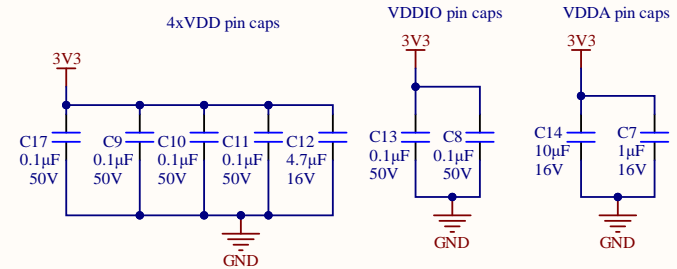


## CAN BUS B

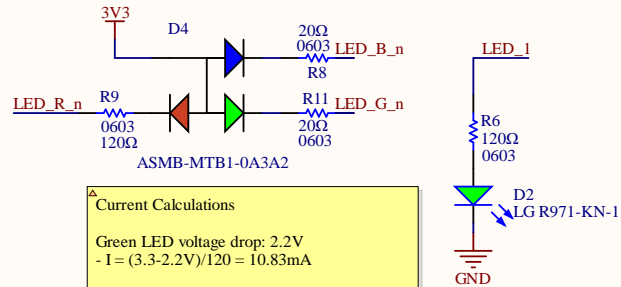




# Decoupling Caps



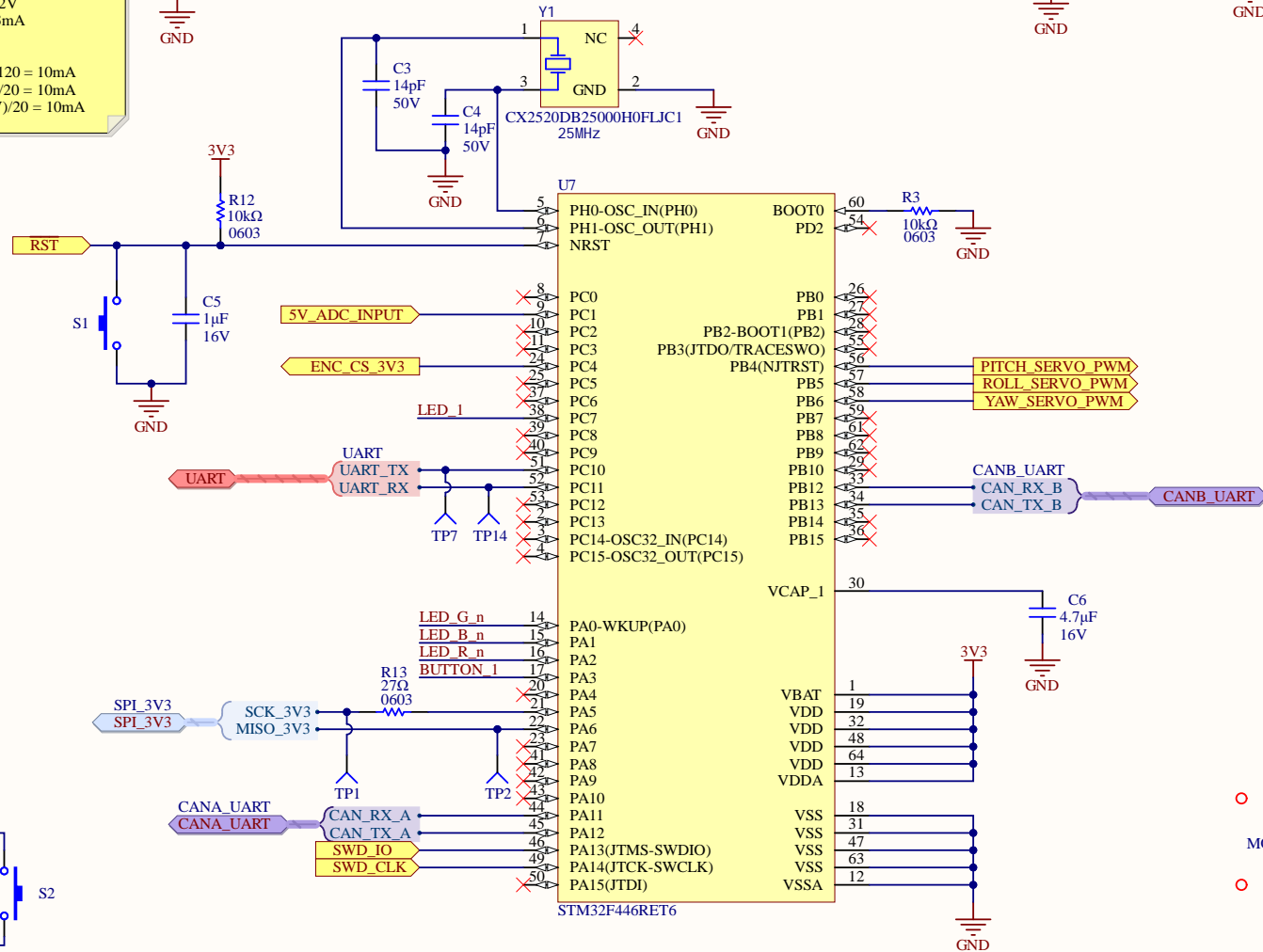
## STM32F446RET6



**Current Calculations**

Green LED voltage drop: 2.2V  
 $I = (3.3 - 2.2V) / 120 = 10.83mA$

RGB LED voltage drops:  
 - Red: 2.1V:  $I = (3.3 - 2.1V) / 120 = 10mA$   
 - Blue: 3.1V:  $I = (3.3 - 3.1V) / 20 = 10mA$   
 - Green: 3.1V:  $I = (3.3 - 3.1V) / 20 = 10mA$



# CAN Transceivers

