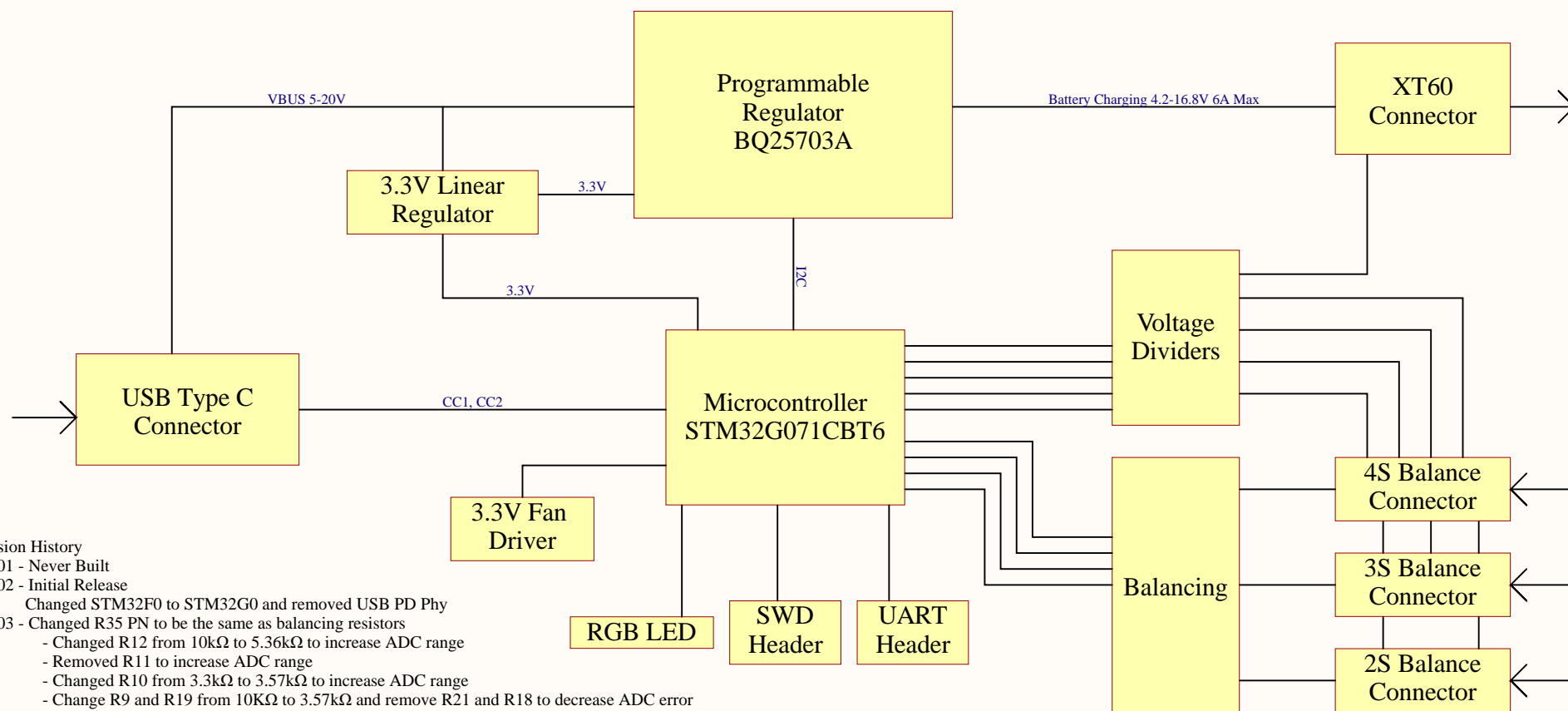


# LiPow - The USB Type C with Power Delivery LiPo Battery Charger



## Revision History

- Rev 01 - Never Built
- Rev 02 - Initial Release
  - Changed STM32F0 to STM32G0 and removed USB PD Phy
- Rev 03 - Changed R35 PN to be the same as balancing resistors
  - Changed R12 from 10k $\Omega$  to 5.36k $\Omega$  to increase ADC range
  - Removed R11 to increase ADC range
  - Changed R10 from 3.3k $\Omega$  to 3.57k $\Omega$  to increase ADC range
  - Change R9 and R19 from 10K $\Omega$  to 3.57k $\Omega$  and remove R21 and R18 to decrease ADC error
  - Changed R51 from 40.2k $\Omega$  to 10k $\Omega$  to increase SYSOVP limit
  - Changed R3 and R4 from 3.3k $\Omega$  to 1.2k $\Omega$  to decrease I2C rise time
  - Added R44, R48, R58, R59 for USB PD DB
  - Added D4, D5, D6, D7, and D8 for balance port ADC ESD protection
  - Change R26, R28, R30, and R32 from 100 $\Omega$  to 47 $\Omega$  and increase power rating
  - Add Q6, Q7, R2, R11, R18, R21, R22, and R23 to have option for CC input protection and level shifting
- Rev 04 - Change USB C connector for improved manufacturability
  - Add test points on bottom for test fixture
  - Add 3.3V fan circuit

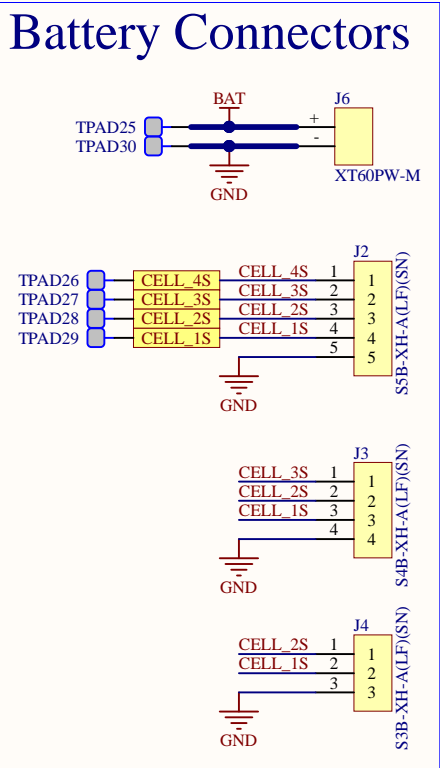
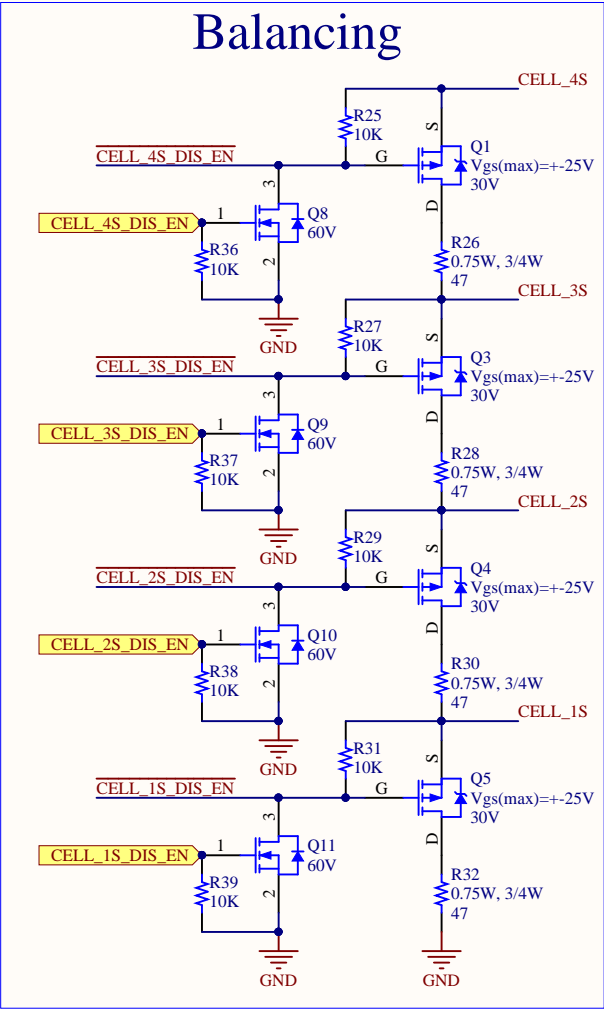
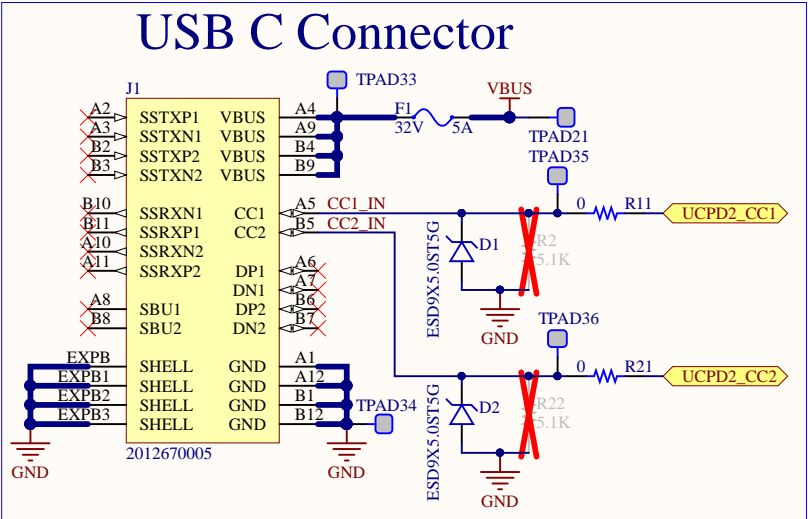


**ARK Electronics LLC**

**Alex R. Klimaj**

Page Title: Cover Sheet		Drawn By: Alex Klimaj	
Project Title: USB Type C PD 3.0 Lipo Charger		Checked By: *	
Date: 11/16/2019	Time: 1:04:47 AM	Revision: 4.0	Variant: Production
Size: LETTER		Sheet 1 of 4	

# Connectors, USB PD, and Balancing



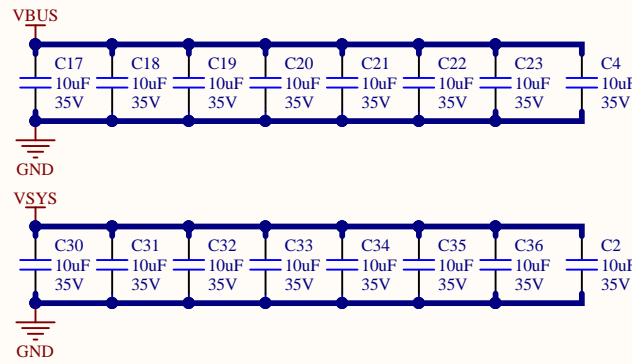
Alternates for Q1, Q3, Q4, and Q5  
RSC002P03T316  
NTR1P02T1IG  
DMP510DL-7  
PMV250EPEAR  
Si2347DS

## ARK Electronics LLC

Alex R. Klimaj

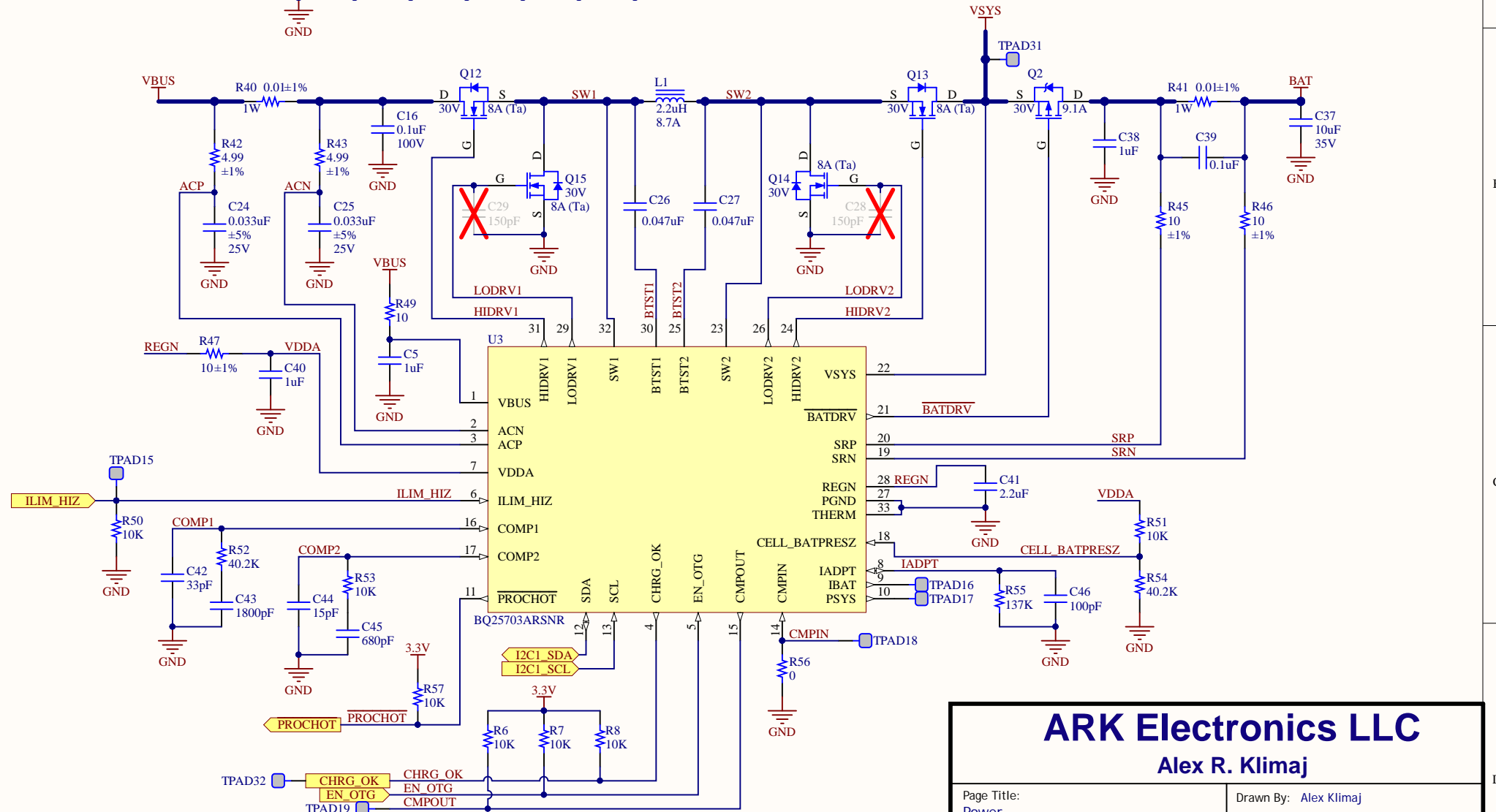
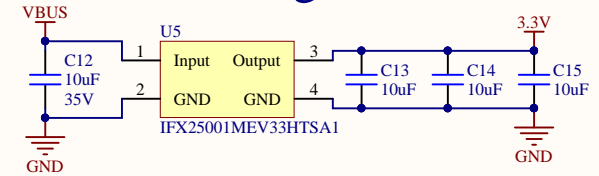
Page Title: Connectors		Drawn By: Alex Klimaj	
Project Title: USB Type C PD 3.0 Lipo Charger		Checked By: *	
Date: 11/16/2019	Time: 1:04:47 AM	Revision: 4.0	Variant: Production
		Size: LETTER	Sheet 2 of 4

# Power



3.3V Power Requirements  
 Oscillator - 10mA  
 STM32G071CBT6 - 100mA  
 RGB LED - 15mA  
 Total = 125mA  
 Total x 30% = 165mA

## 3.3V Regulator



## ARK Electronics LLC

Alex R. Klimaj

Page Title: Power	Drawn By: Alex Klimaj		
Project Title: USB Type C PD 3.0 Lipo Charger	Checked By: *		
Date: 11/16/2019	Time: 1:04:48 AM	Size: LETTER	Sheet 3 of 4

