

A

A

B

B

C

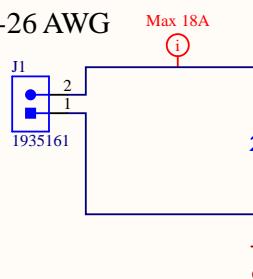
C

D

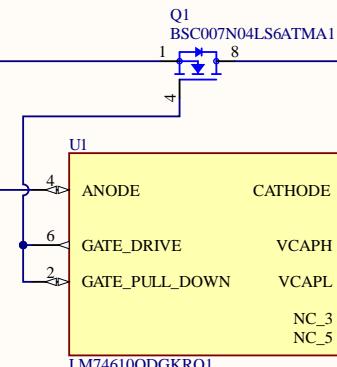
D

## Battery Input (6s1p)

12-26 AWG



## Ideal Diode Controller

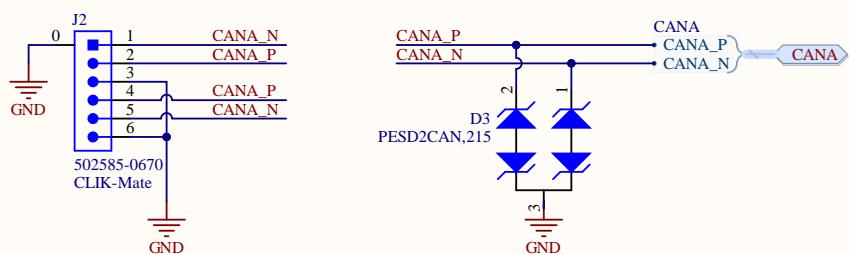


LED forward drop = 2.0V  
Max VBAT = 24V  
Min VBAT = 18V

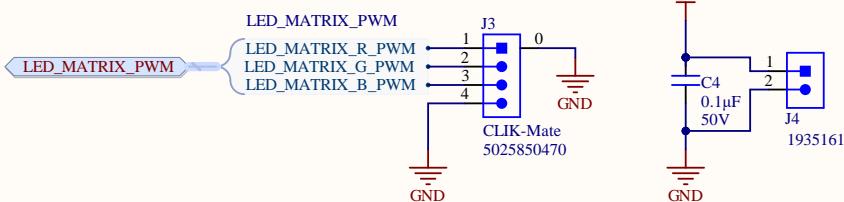
Max LED current =  $(24-2)/4700 = 4.7\text{mA}$   
Min LED current =  $(18-2)/4700 = 3.4\text{mA}$

Title: Power Distribution Board Rev2 - Power	Altium Limited L3, 12a Rodborough Rd Frenchs Forest NSW Australia 2086	
Size: Letter	Drawn By: Cindy Li	
Date: 2020-11-02	Sheet 1 of 12	
File: C:\UWRT\MarsRover2021-hardware\Projects\Power Distribution Board\Rev2\SH1 - POWER.SchDoc		UW ROBOTICS TEAM

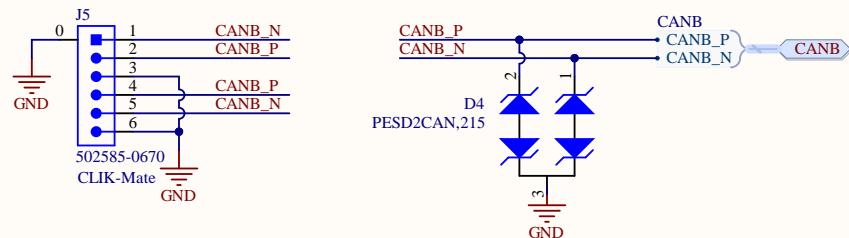
## CAN BUS A



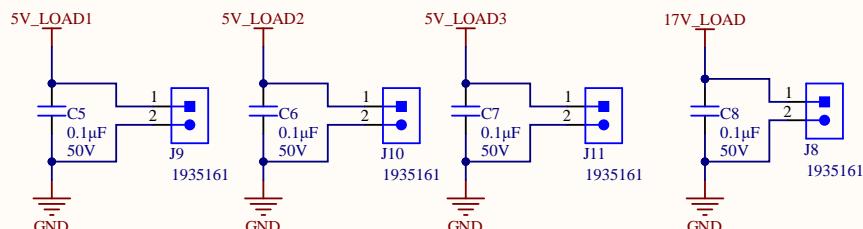
## LED Matrix



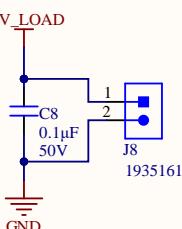
## CAN BUS B



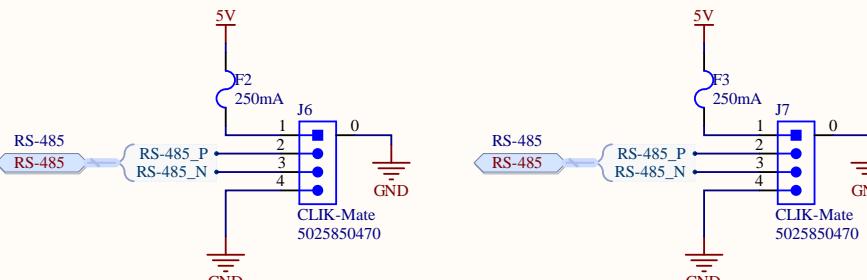
## 5V Output



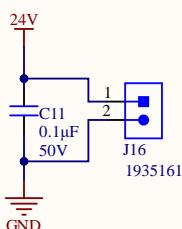
## 17V Output



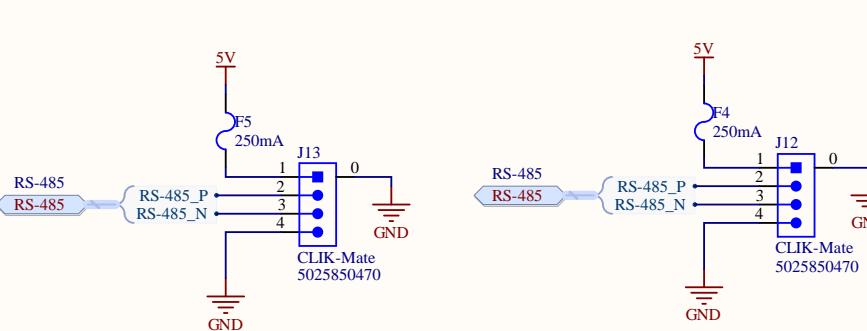
## URM04 Ultrasonic Sensors



## 24V Output



Can use 12-26AWG



Title Power Distribution Board Rev2 - Connectors

Size: Letter Drawn By: Cindy Li

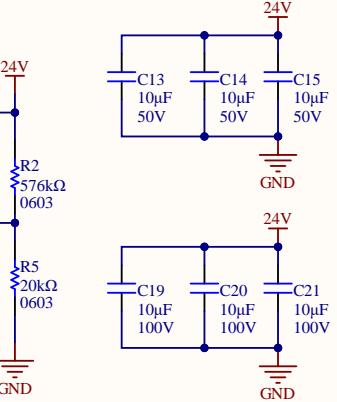
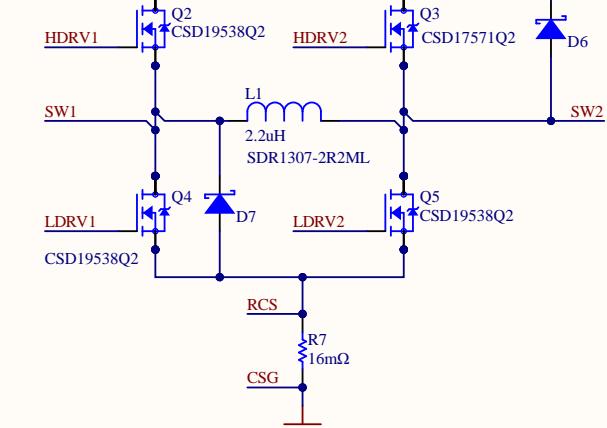
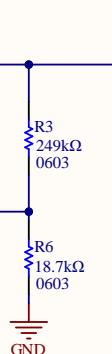
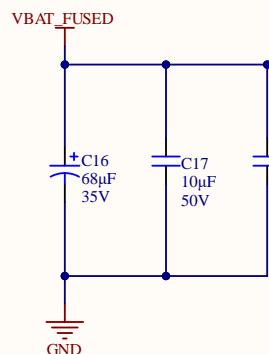
Date: 2020-11-02 Sheet 1 of 12

File: C:\UWRT\MarsRover2021-hardware\Projects\Power Distribution Board\Rev2\SH2 - CONNECTORS.SchDoc

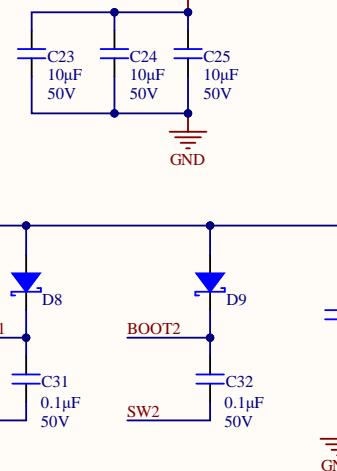
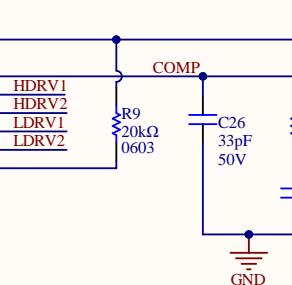
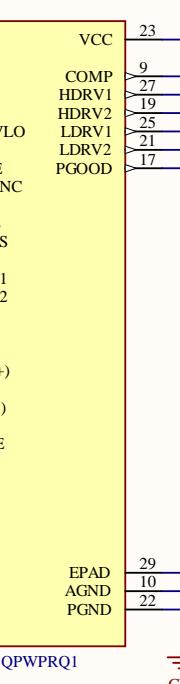
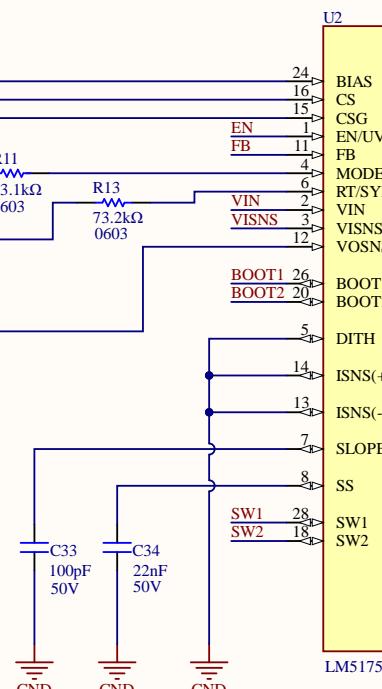
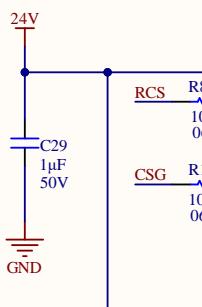
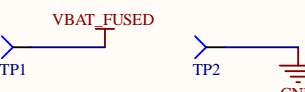
Altium Limited  
L3, 12a Rodborough Rd  
Frenchs Forest  
NSW Australia 2086

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Input voltage range: 18-25.8V

**24V Buck-Boost Converter @ 3A Max**

**TODO:**  
- add appropriate comments

**Test Points**

Title PDB Rev2 - 24V Buck-Boost Converter

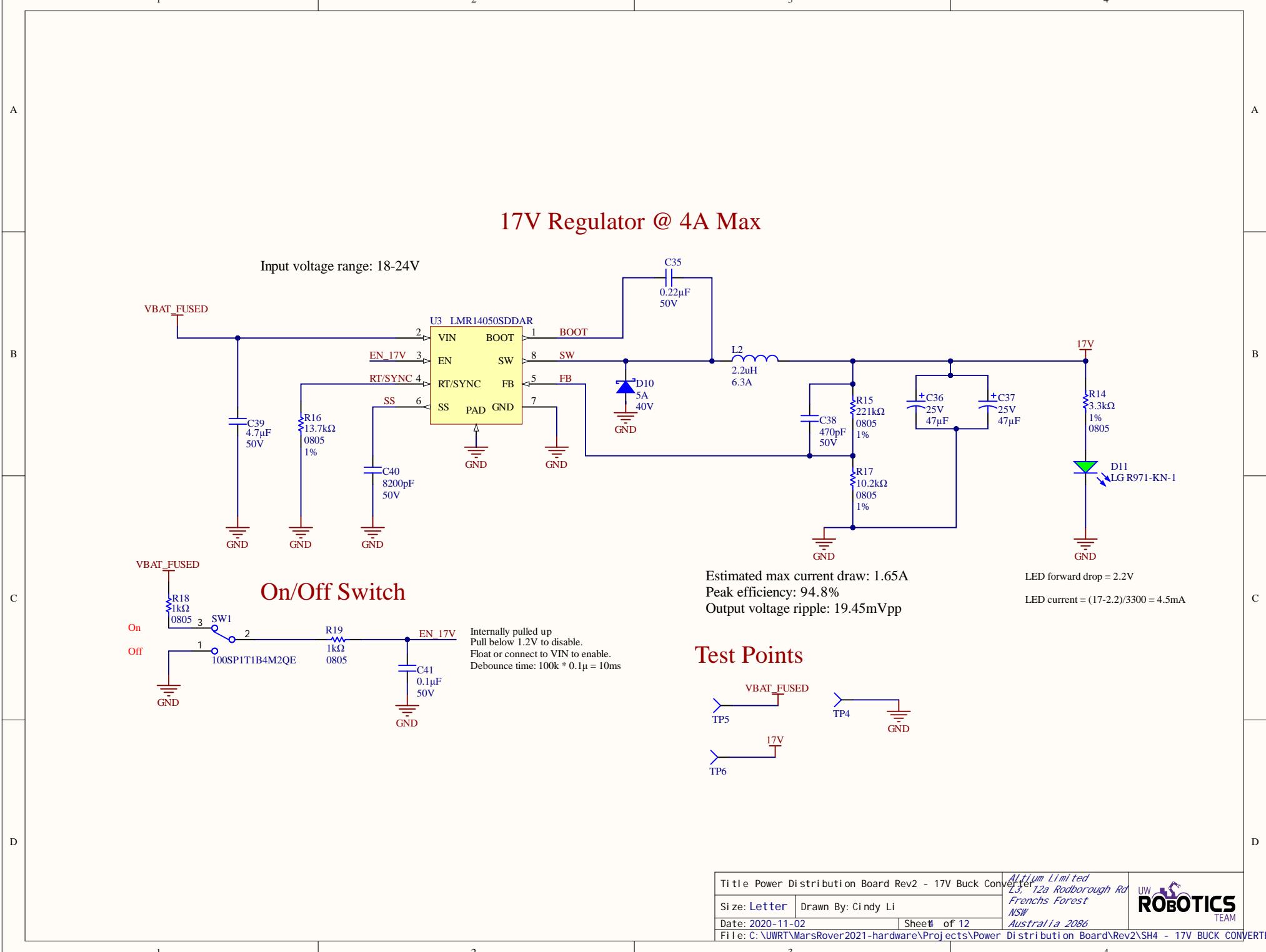
Size: Letter Drawn By: Cindy Li

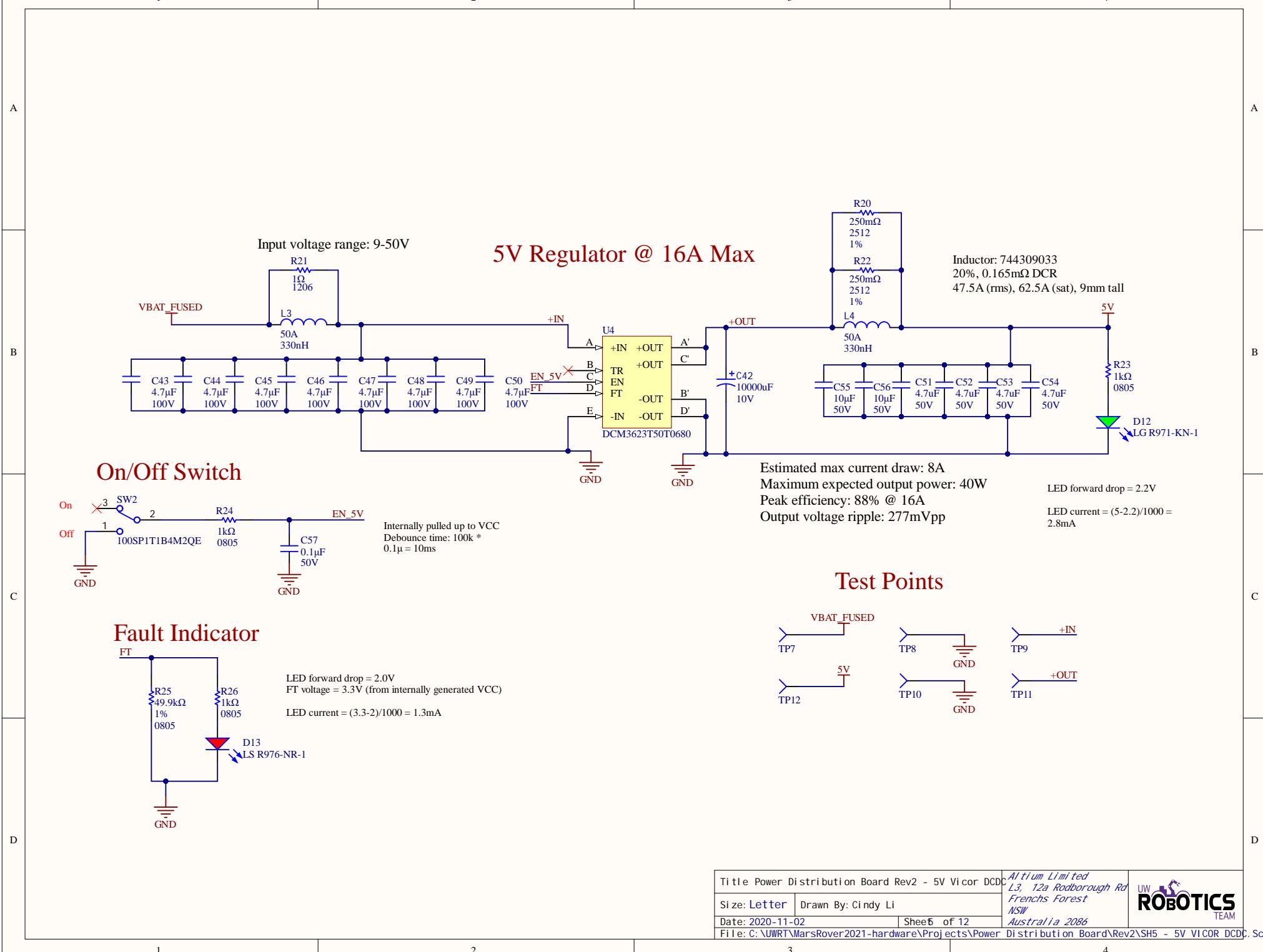
Date: 2020-11-02 Sheet 8 of 12

File: C:\UWRT\MarsRover2021-hardware\Projects\Power Distribution Board\Rev2\SH3 - 24V BUCK-BOOST CONVERTER.SchD

Altium Limited  
L3, 12a Rodborough Rd  
Frenchs Forest  
NSW Australia 2086

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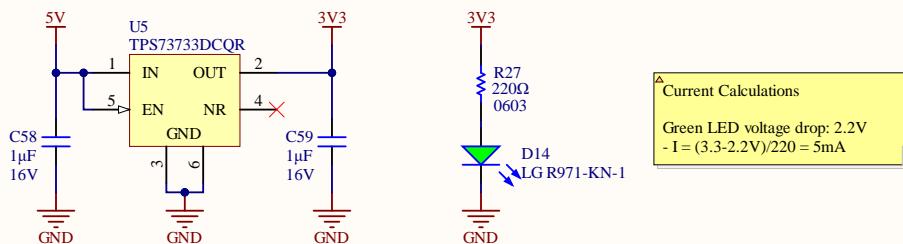
A

A

B

B

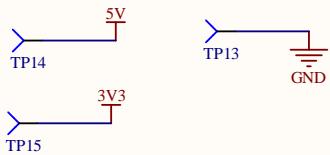
## 5V to 3.3V LDO



C

C

## Test Points

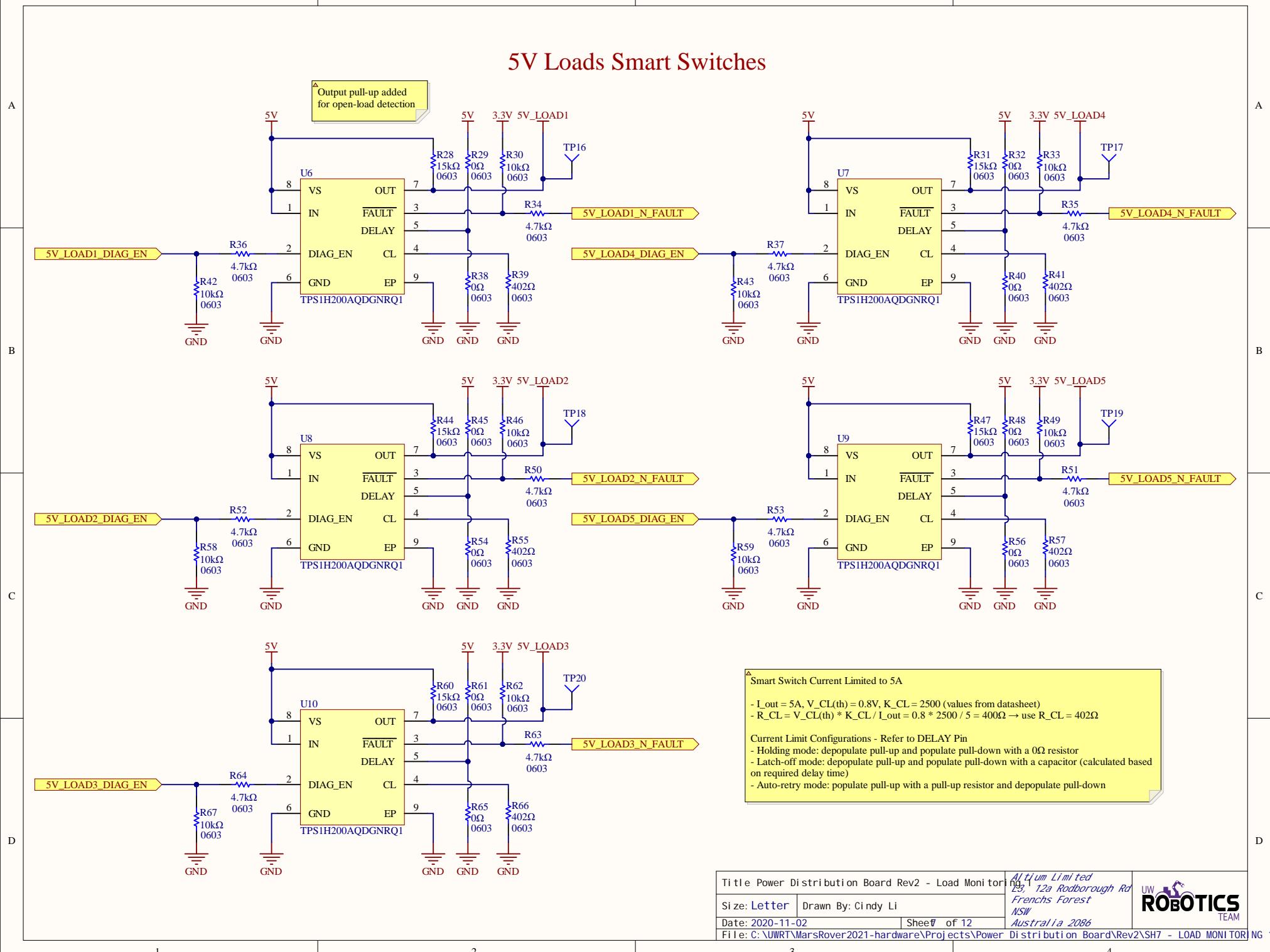


D

D

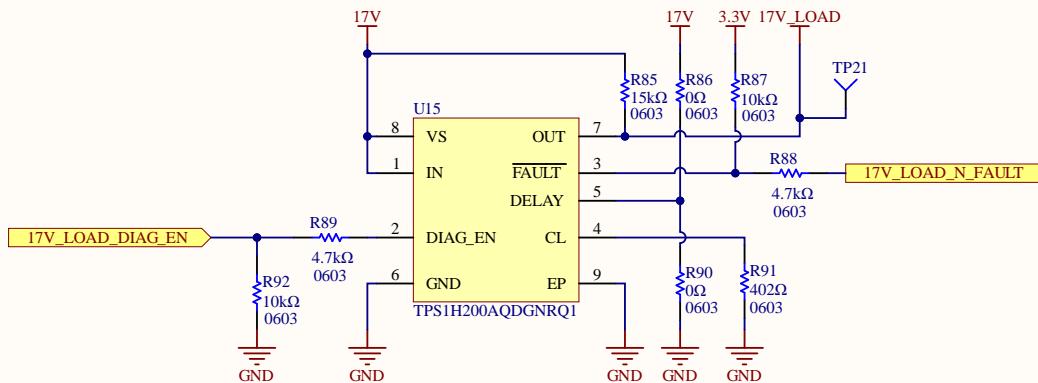
Title Power Distribution Board Rev2 - 3.3V Linear		Altium Limited 23/728 Rodborough Rd Frenchs Forest NSW Australia 2086
Size: Letter	Drawn By: Cindy Li	
Date: 2020-11-02	Sheet 6 of 12	
File: C:\UWRT\MarsRover2021-hardware\Projects\Power Distribution Board\Rev2\SH6 - 3.3V LINEAR REGULATOR.SchDoc		UW ROBOTICS TEAM

## 5V Loads Smart Switches



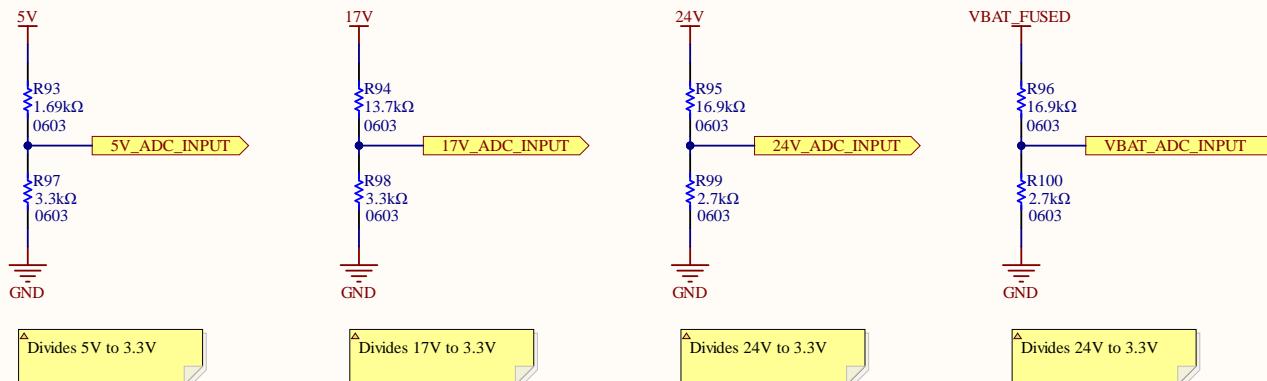
A

## 17V Load Smart Switch



B

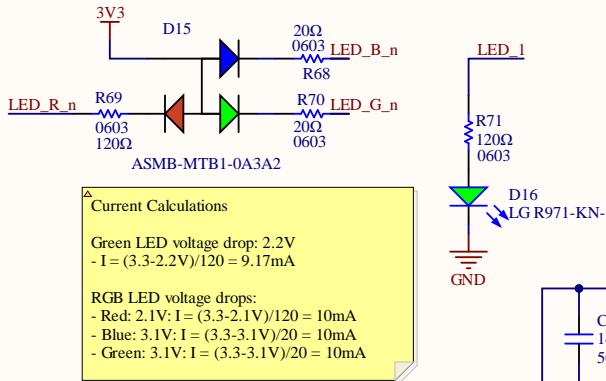
## Power Rail Voltage Monitoring



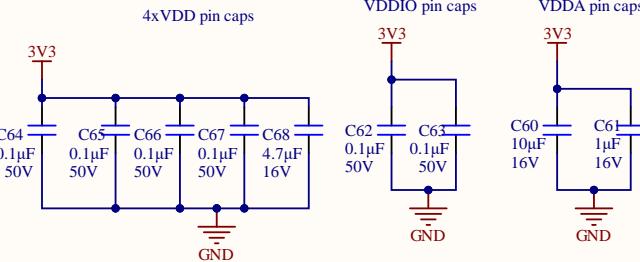
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D

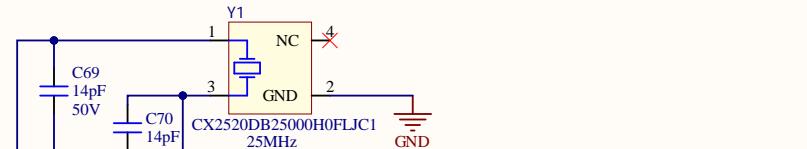
## Status/Debug LEDs



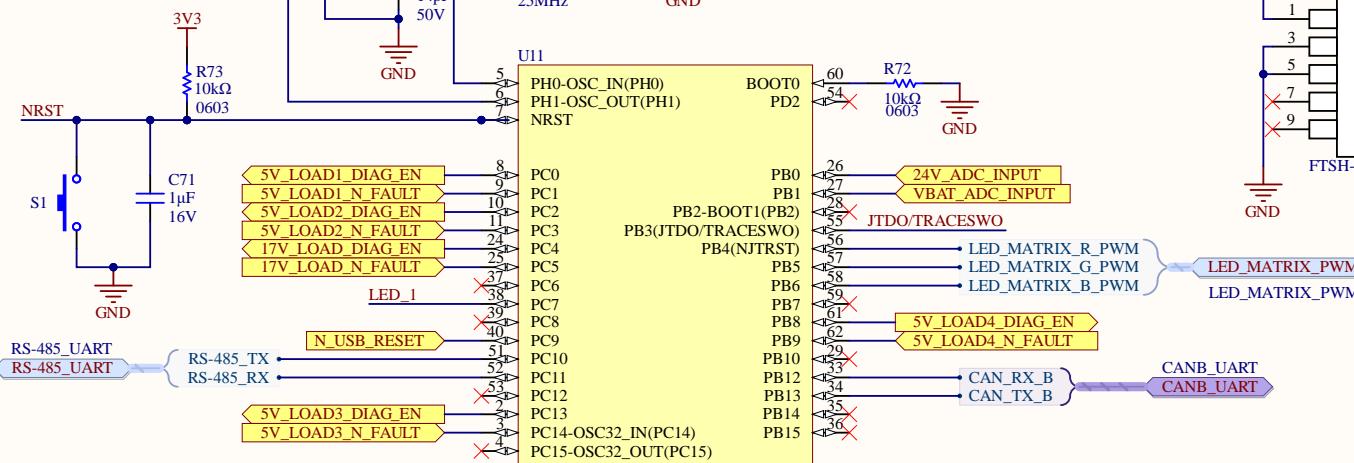
## Decoupling Caps



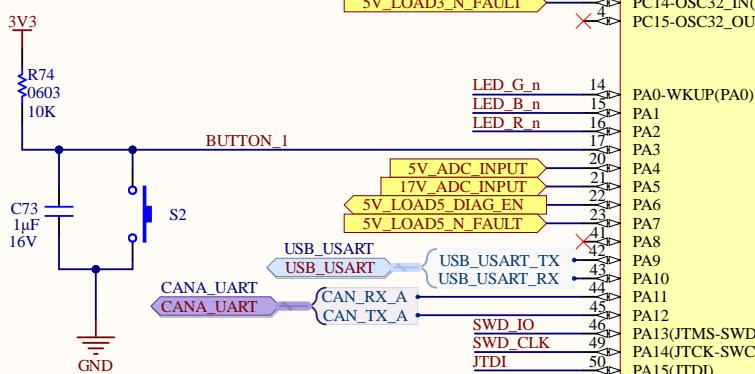
## STM32F446RET6



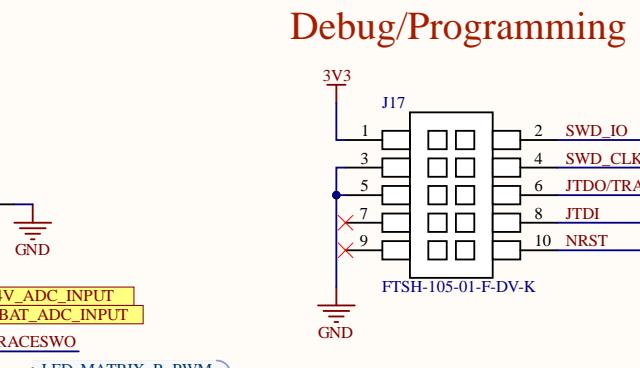
B

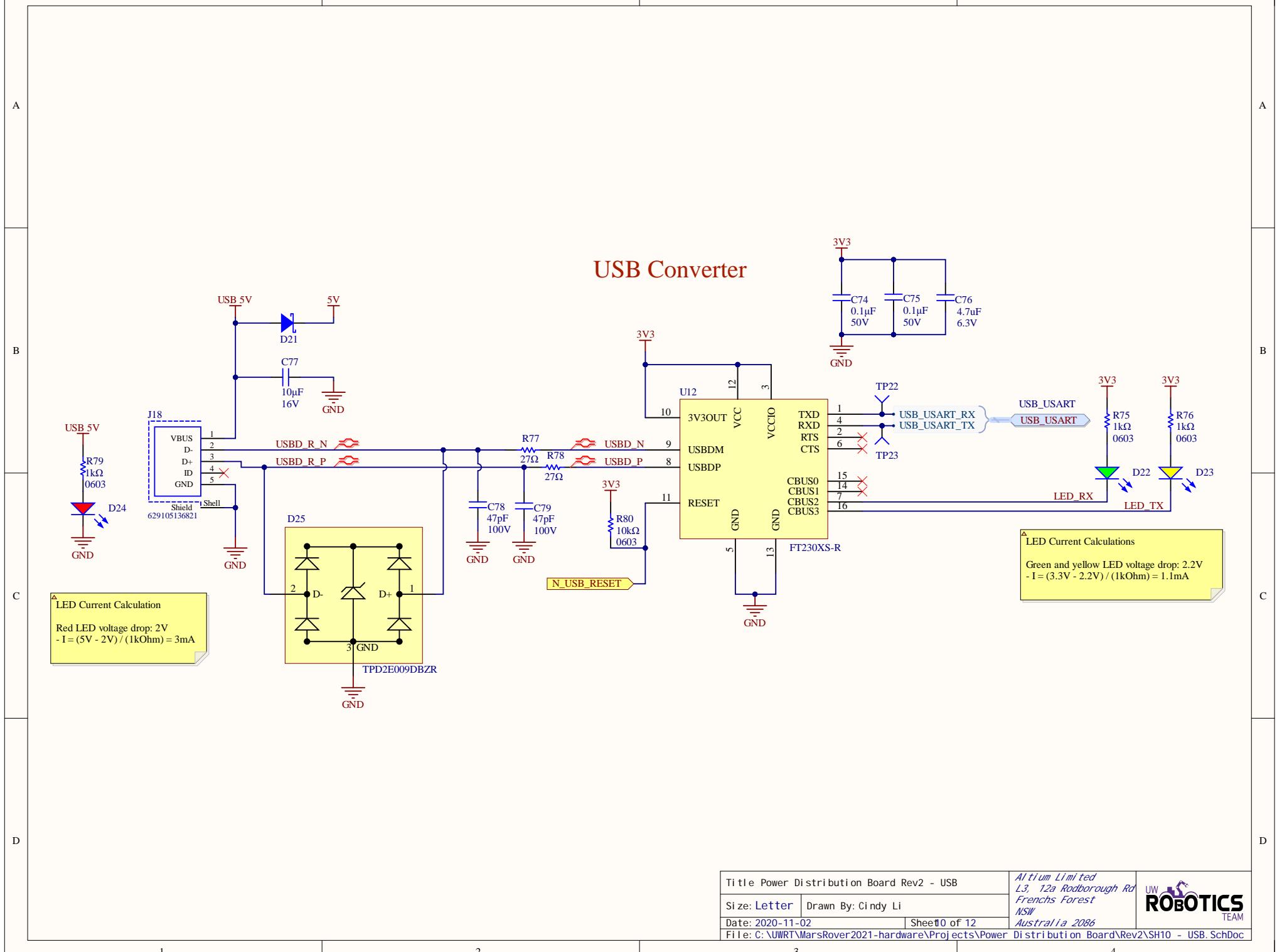


C



D

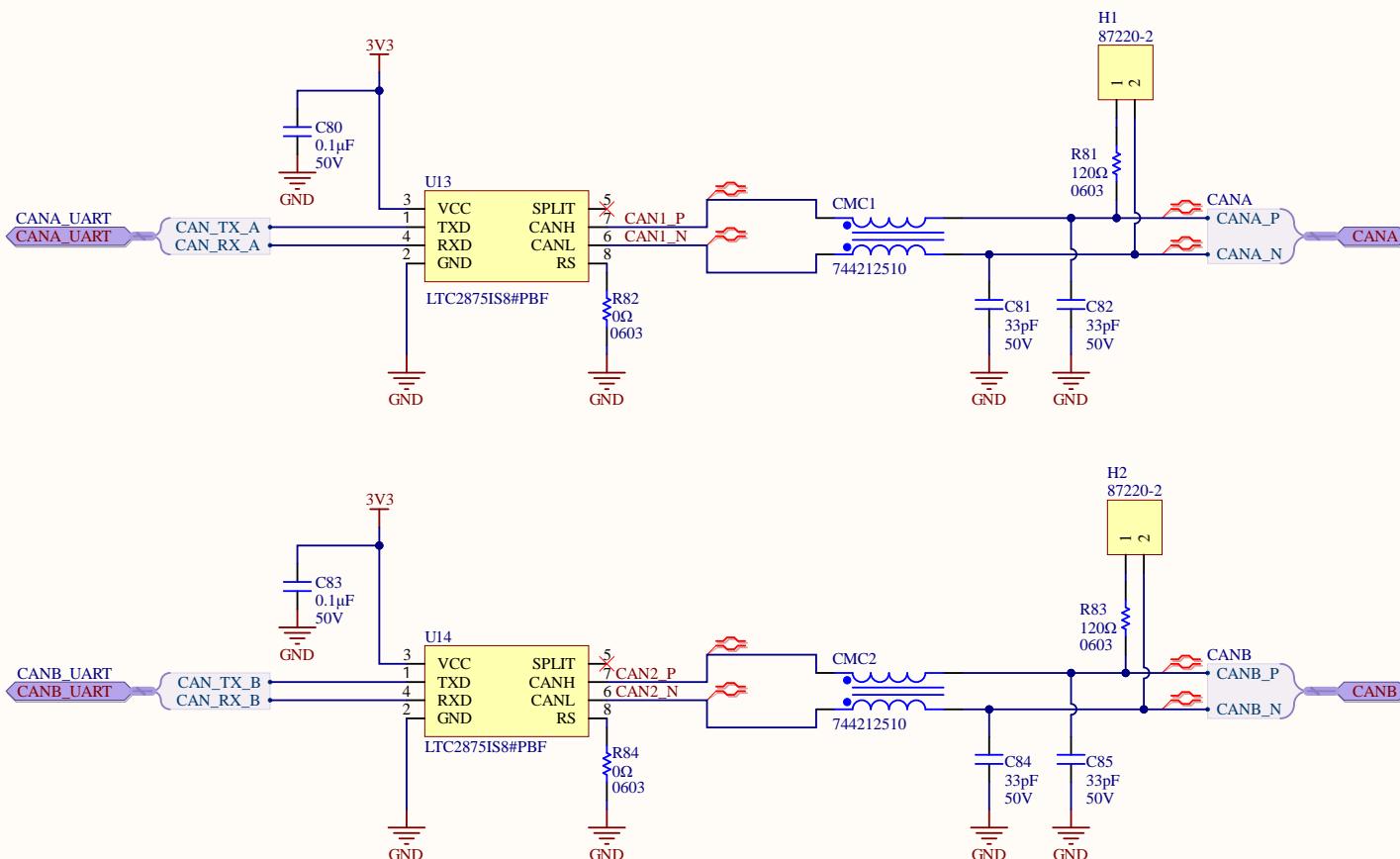




A

A

## CAN Transceivers



Title: Power Distribution Board Rev2 - CAN Transceivers		Altium Limited 13/12a Rodborough Rd Frenchs Forest NSW Australia 2086
Size: Letter	Drawn By: Cindy Li	
Date: 2020-11-02	Sheet 1 of 12	
File: C:\UWRT\MarsRover2021-hardware\Projects\Power Distribution Board\Rev2\SH11 - CAN.SchDoc		

A

A

B

B

C

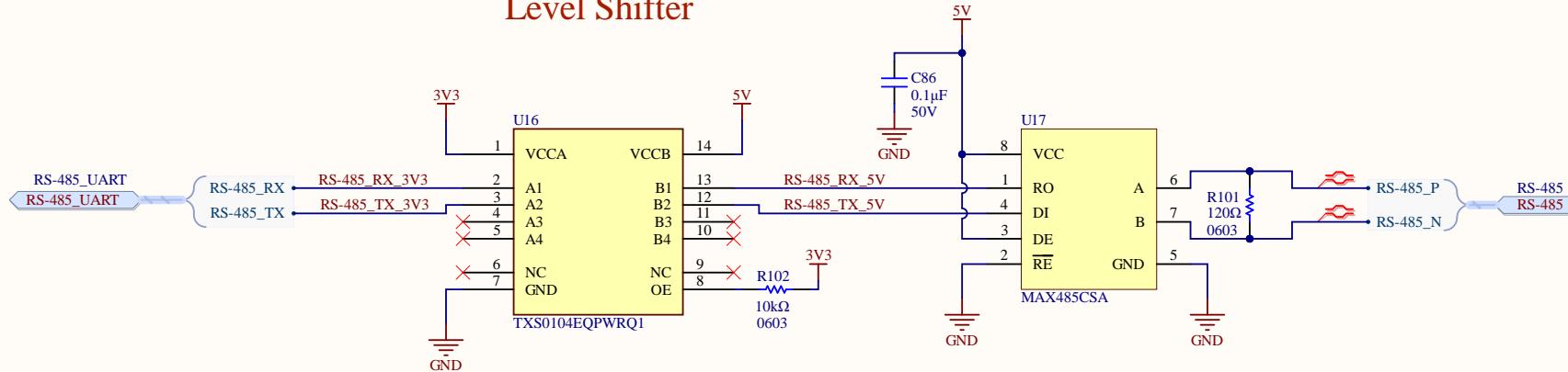
C

D

D

## RS-485 Transceiver

### Level Shifter



### Test Points

RS-485\_RX\_3V3      RS-485\_TX\_3V3

TP24

TP25

Title	Power Distribution Board Rev2 - RS-485	Altium Limited L3, 12a Rodborough Rd Frenchs Forest NSW Australia 2086
Size:	Letter	Drawn By: Cindy Li
Date:	2020-11-02	Sheet 12 of 12
File:	C:\UWRT\MarsRover2021-hardware\Projects\Power Distribution Board\Rev2\SH12 - RS-485.SchDoc	



