

A

A

B

B

C

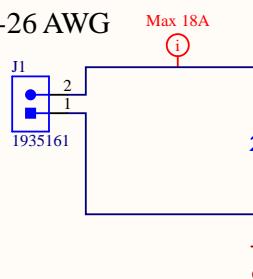
C

D

D

## Battery Input (6s1p)

12-26 AWG



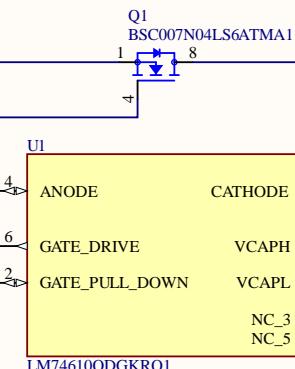
Max 18A

i

V<sub>BAT</sub>

GND

## Ideal Diode Controller



LM74610QDGKRQ1

Q1  
BSC007N04LS6ATMA1

F1

0324015.HXP

15A

V<sub>BAT</sub>  
FUSED

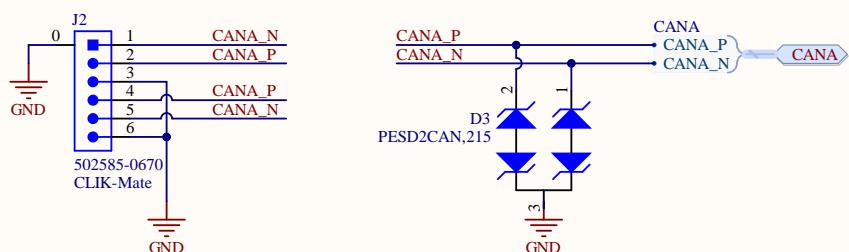
LED forward drop = 2.0V  
Max V<sub>BAT</sub> = 24V  
Min V<sub>BAT</sub> = 18V

Max LED current = (24-2)/4700 = 4.7mA  
Min LED current = (18-2)/4700 = 3.4mA

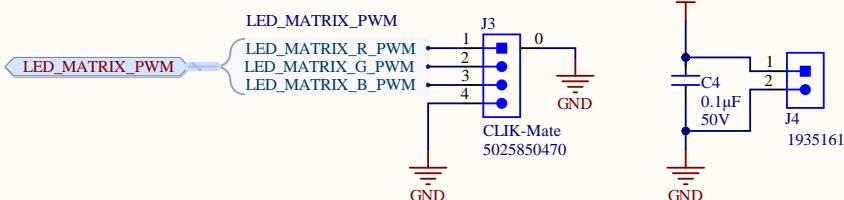
Title	Power Distribution Board Rev2 - Power	Altium Limited
Size:	Letter	Drawn By: Cindy Li
Date:	2020-11-03	Sheet of 12
File:	C:\UWRT\MarsRover2021-hardware\Projects\Power Distribution Board\Rev2\SH1 - POWER.SchDoc	Australia 2086



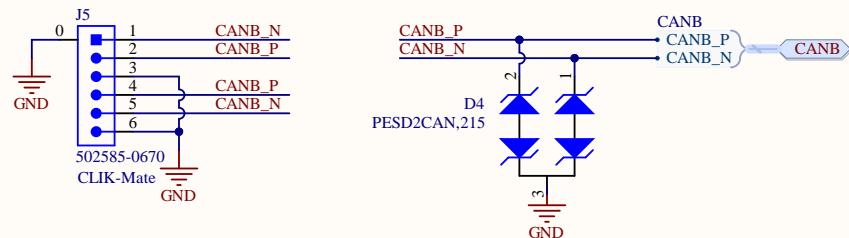
## CAN BUS A



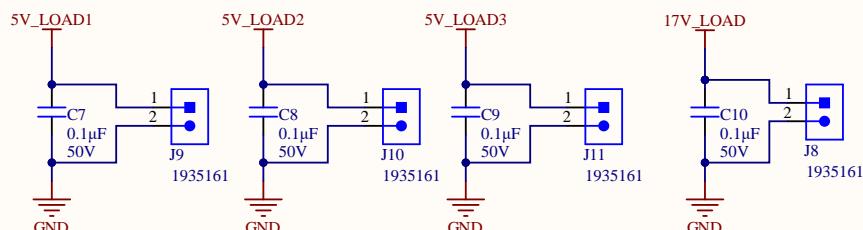
## LED Matrix



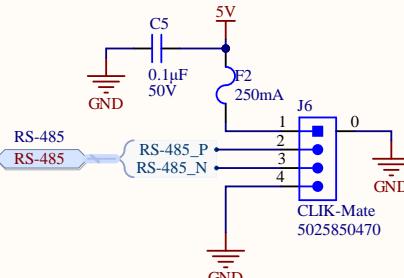
## CAN BUS B



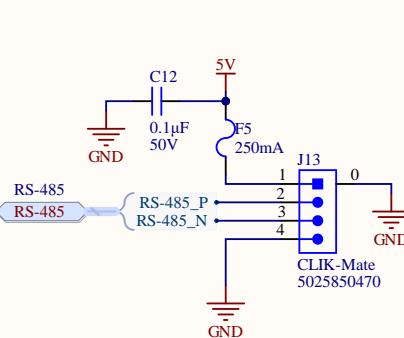
## 5V Output



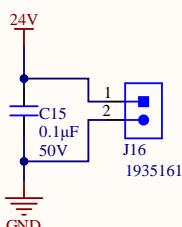
## 17V Output



## URM04 Ultrasonic Sensors



## 24V Output



Can use 12-26AWG

Title Power Distribution Board Rev2 - Connectors

Size: Letter Drawn By: Cindy Li

Date: 2020-11-03 Sheet 1 of 12

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

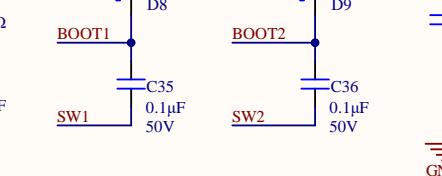
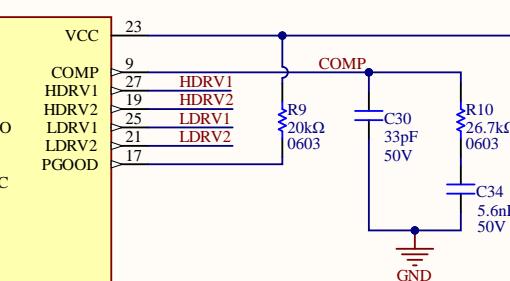
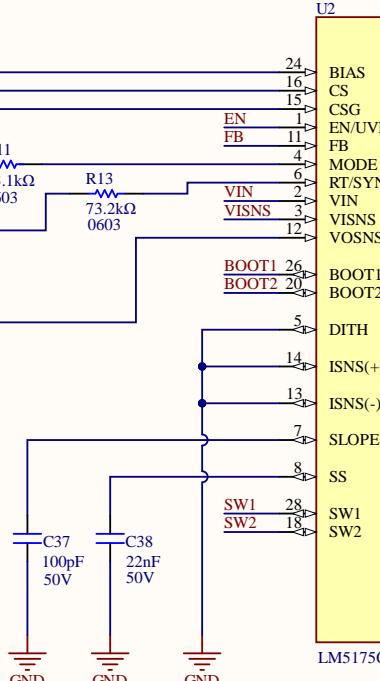
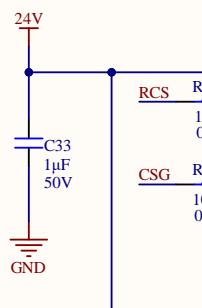
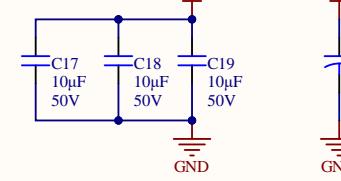
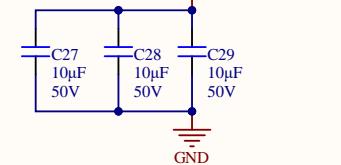
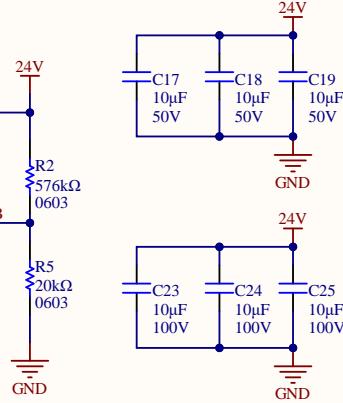
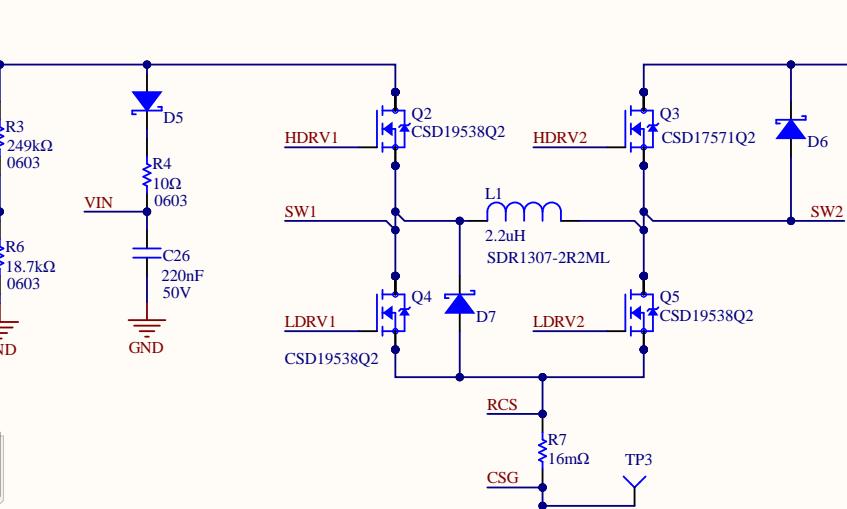
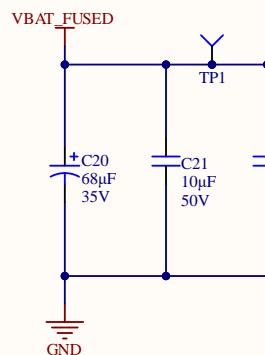
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Frenchs Forest  
NSW Australia 2086

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Input voltage range: 18-25.8V

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



Title PDB Rev2 - 24V Buck-Boost Converter

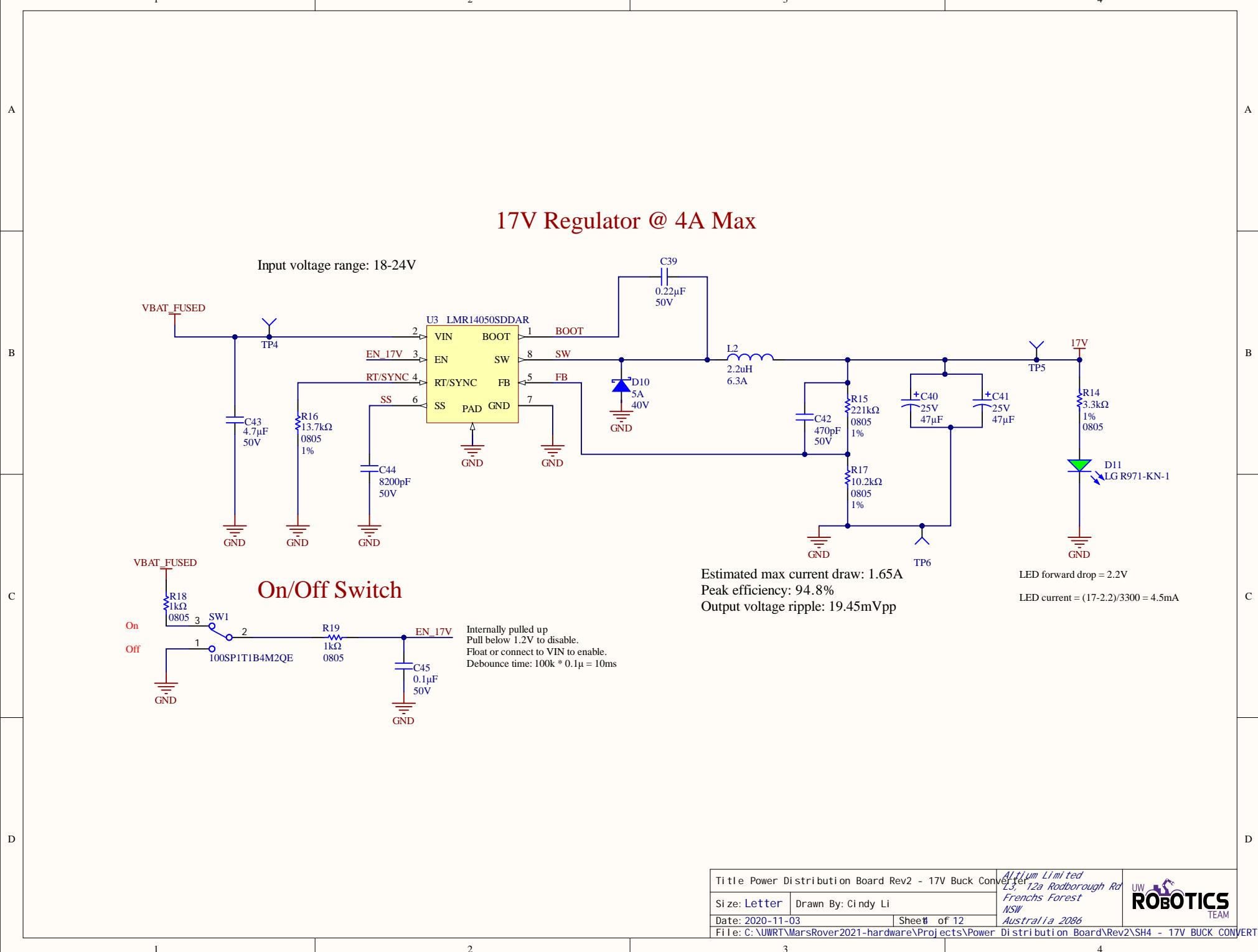
Size: Letter Drawn By: Cindy Li

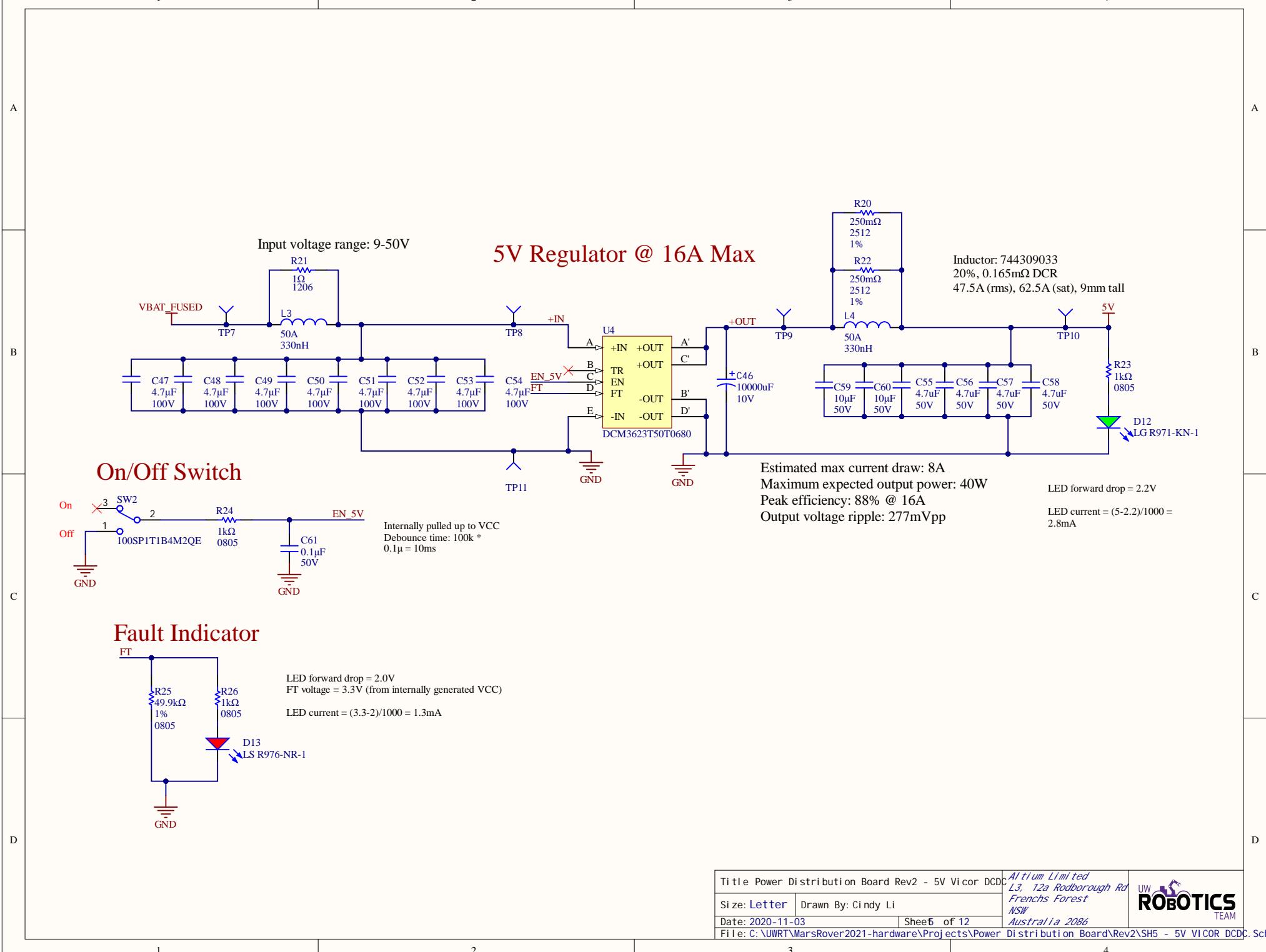
Date: 2020-11-03 Sheet 8 of 12

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

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A

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B

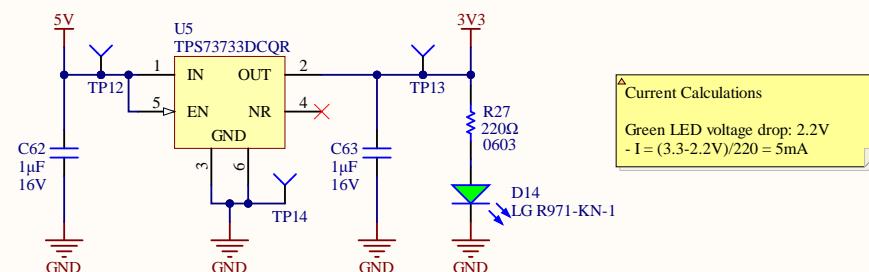
C

C

D

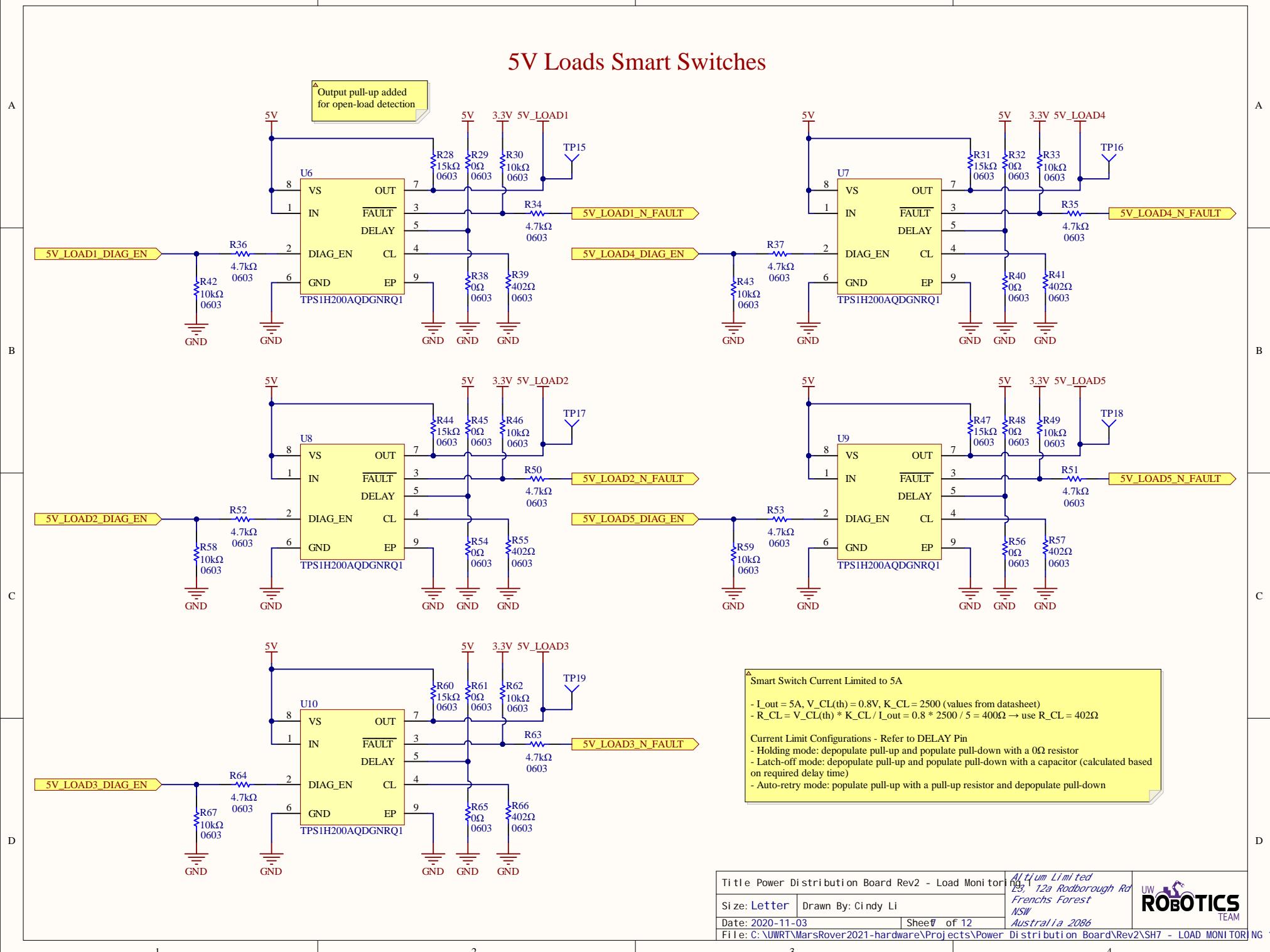
D

## 5V to 3.3V LDO



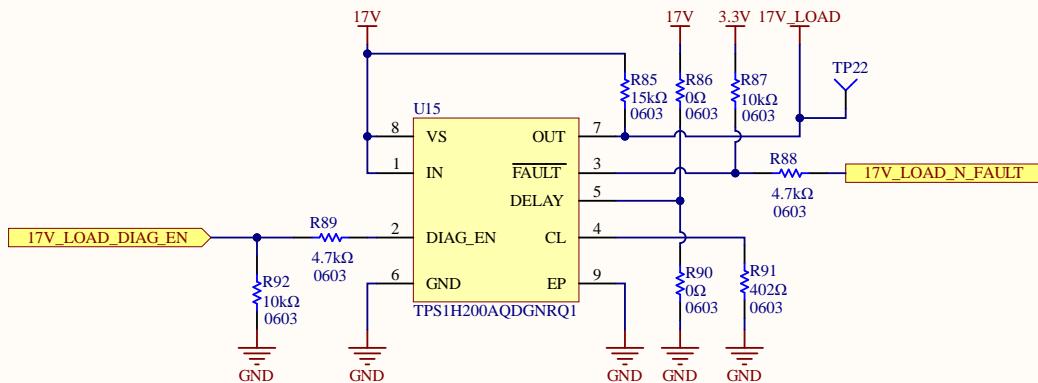
Title Power Distribution Board Rev2 - 3.3V Linear		Altium Limited 23/728 Rodborough Rd Frenchs Forest NSW Australia 2086
Size: Letter	Drawn By: Cindy Li	
Date: 2020-11-03	Sheet 6 of 12	
File: C:\UWRT\MarsRover2021-hardware\Projects\Power Distribution Board\Rev2\SH6 - 3.3V LINEAR REGULATOR.SchDoc		UW ROBOTICS TEAM

## 5V Loads Smart Switches



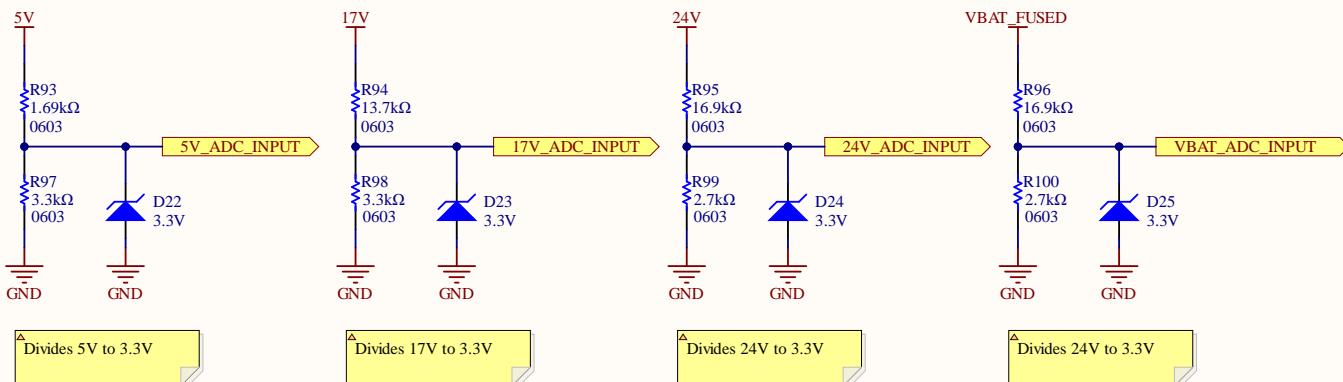
A

## 17V Load Smart Switch



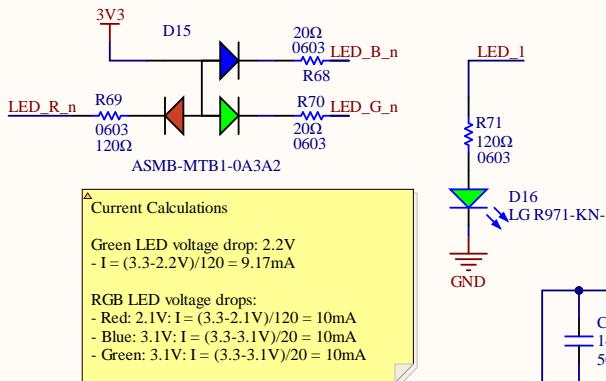
B

## Power Rail Voltage Monitoring

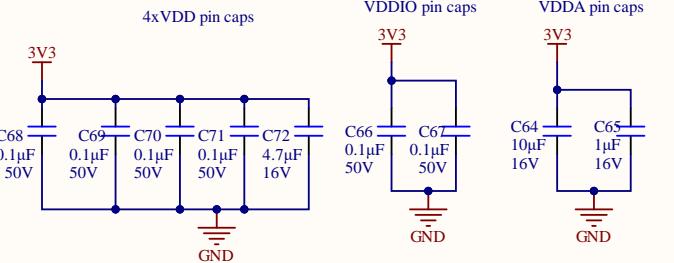


D

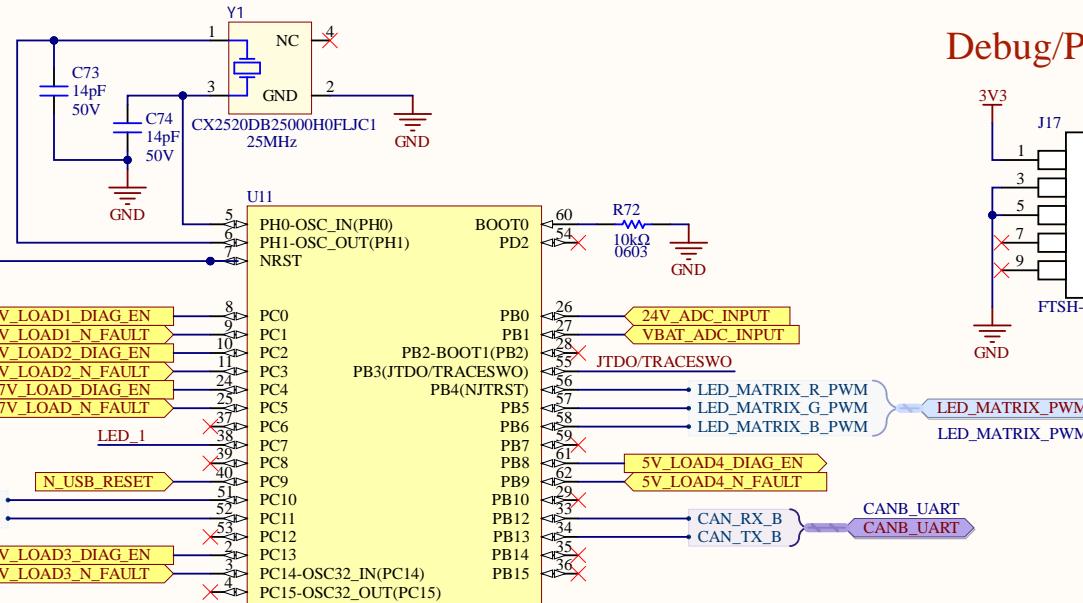
## Status/Debug LEDs



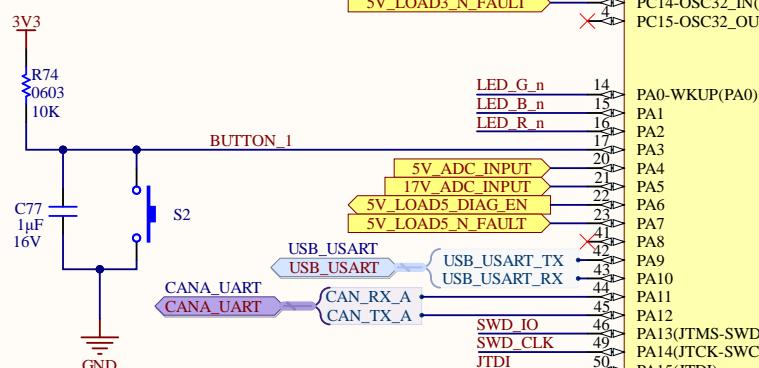
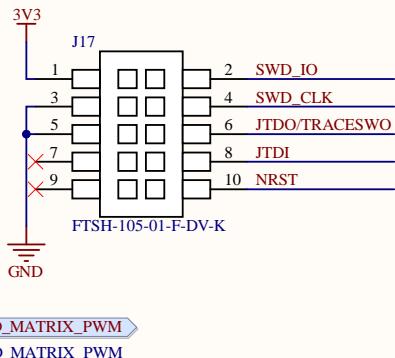
## Decoupling Caps



## STM32F446RET6



## Debug/Programming



Title Power Distribution Board Rev2 - MCU

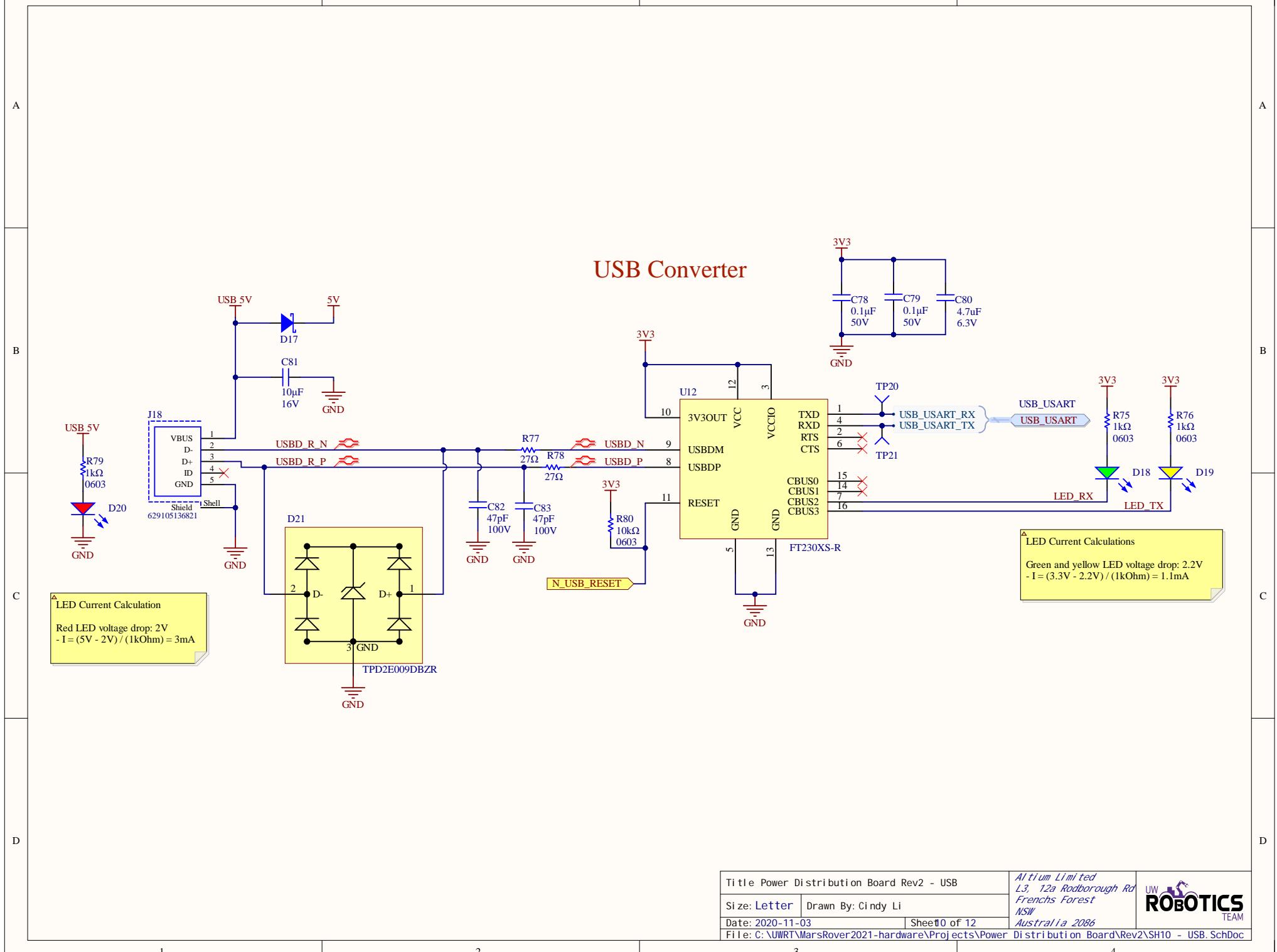
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Frenchs Forest  
NSW Australia 2086

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Date: 2020-11-03 Sheet 9 of 12

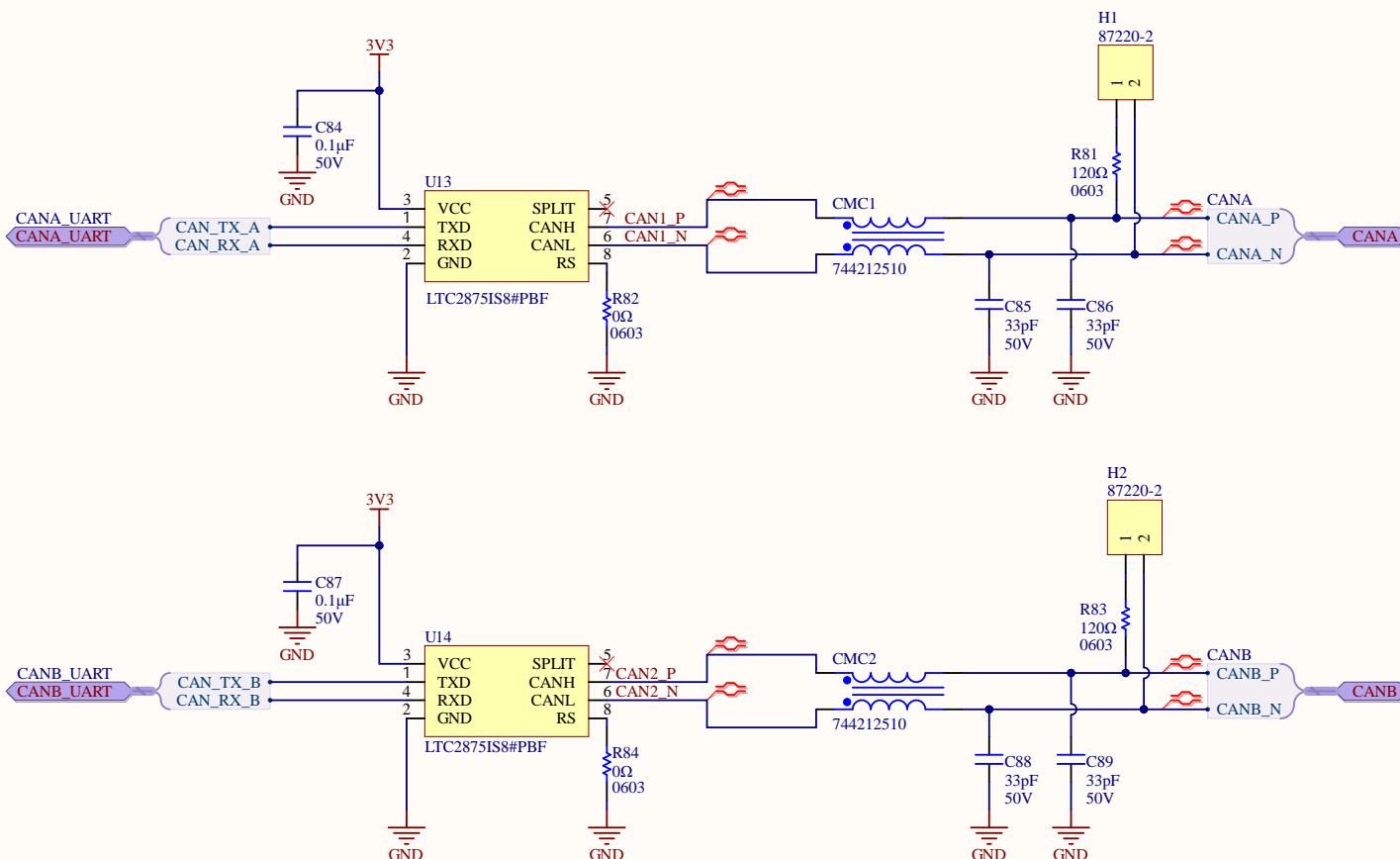
File: C:\UWRT\MarsRover2021-hardware\Projects\Power Distribution Board\Rev2\SH9 - MICROCONTROLLER.schDoc



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: 2020-11-03	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

## Level Shifter

## RS-485 Transceiver

