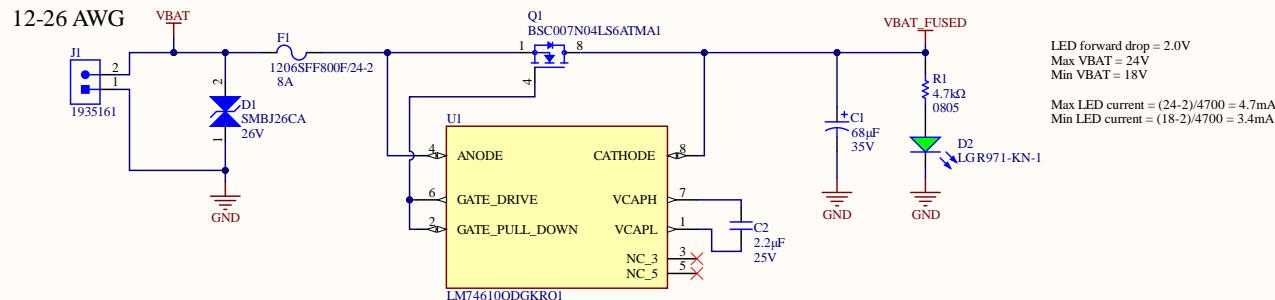


A

A

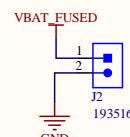
Battery Input (6s1p)

Input voltage range: 18-25.2V

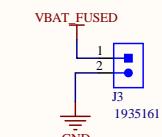


B

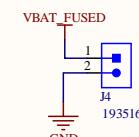
B

VBat (24V) Outputs

VBat (24V) power to LED Matrix board



VBat (24V) power to Arm, Science, Gimbal, or Localization boards (to be decided in Rev3)



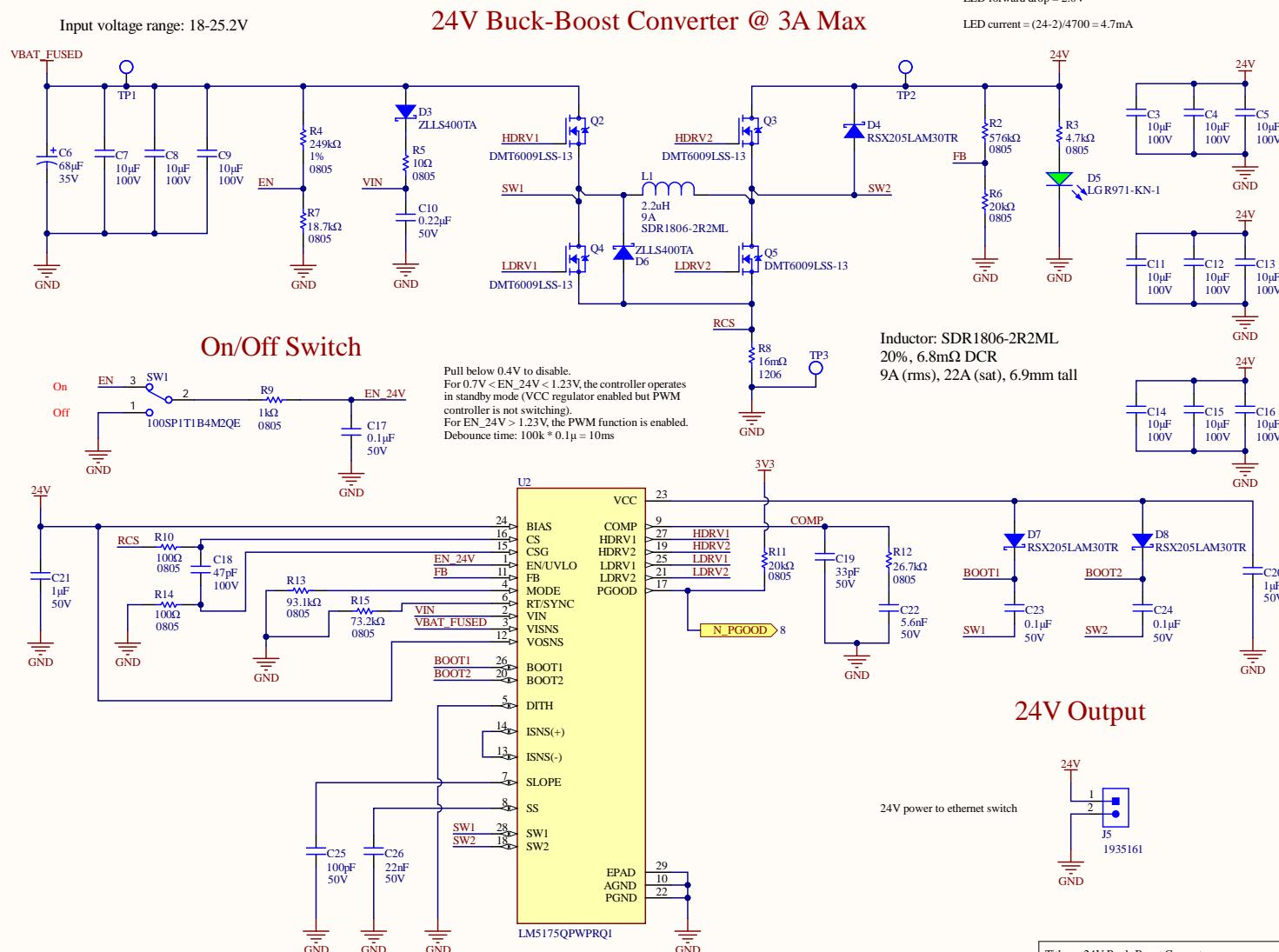
Title: Power

Project: Power Distribution Board.PrdPcb

Rev: 2 Checker: Lance Bantoto

Engineer: Cindy Li

Date: 2020-12-03 Sheet: 1 of 10



Title: 24V Buck-Boost Converter

Project: Power Distribution Board.PrjPcb

Rev: 2 Checker: Lance Bantoto

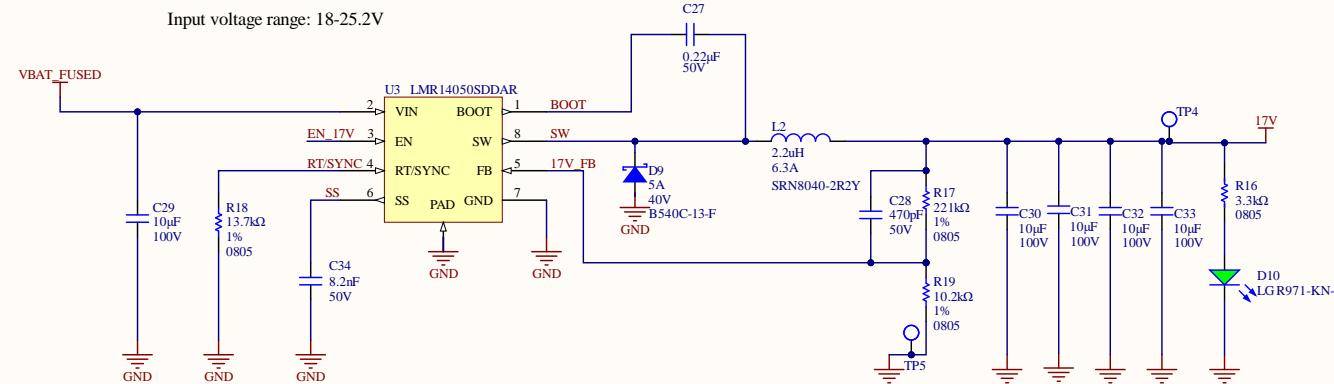
Engineer: Cindy Li

Date: 2020-12-03 Sheet: 2 of 10

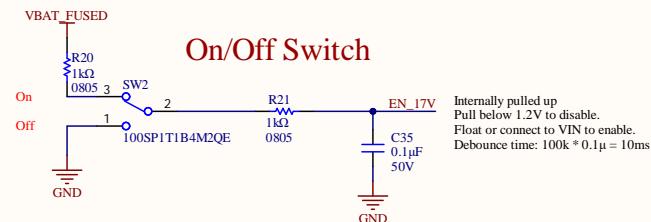
A

A

17V Regulator @ 4A Max



On/Off Switch



Title: 17V Buck Converter

Project: Power Distribution Board.PnjPcb

Rev: 2 Checker: Lance Bantoto

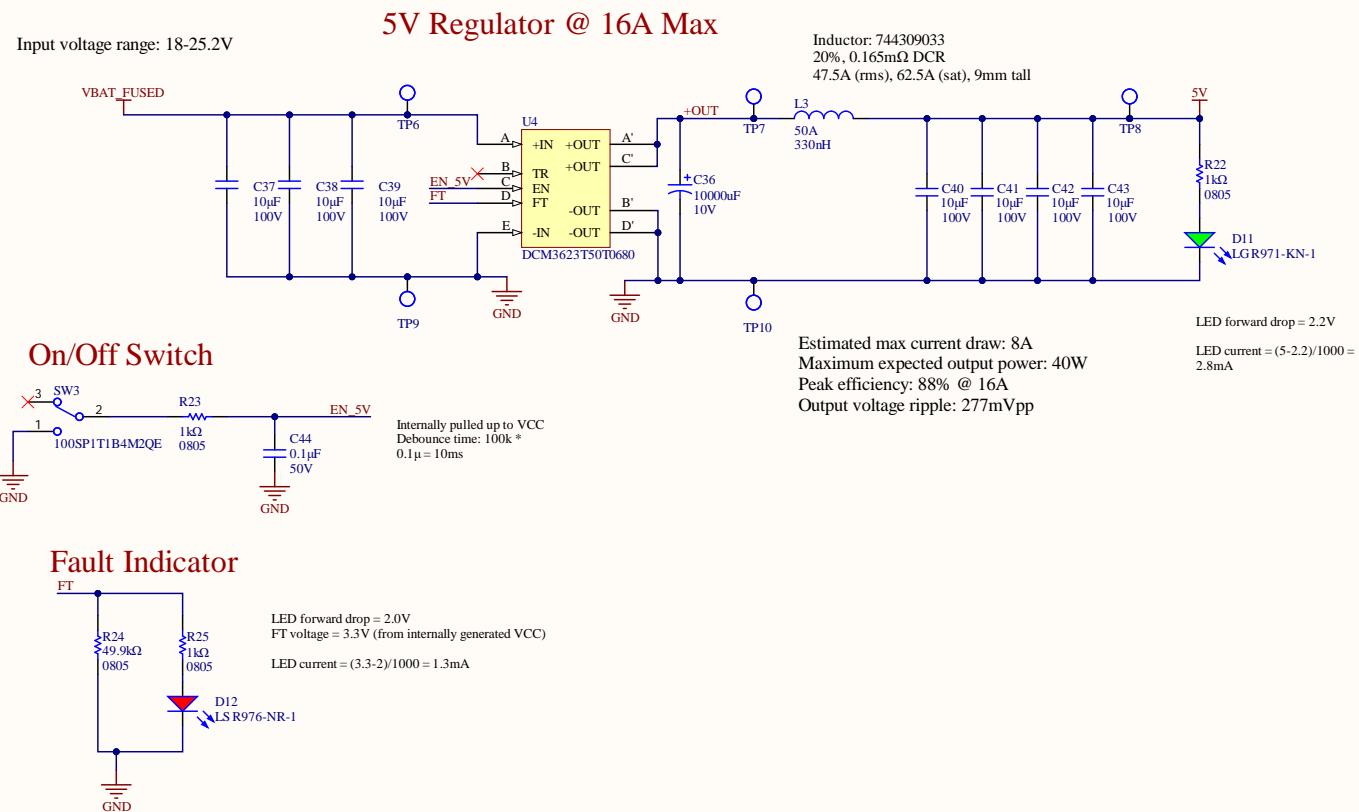
Engineer: Cindy Li

Date: 2020-12-03 Sheet: 3 of 10



A

A



Title: 5V Vicor DCDC

Project: Power Distribution Board.PrjPcb

Rev: 2 Checker: Lance Bantoto

Engineer: Cindy Li

Date: 2020-12-03 Sheet: 4 of 10



A

A

B

B

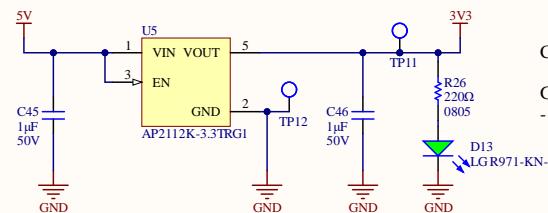
C

C

D

D

3.3V LDO @ 600mA Max



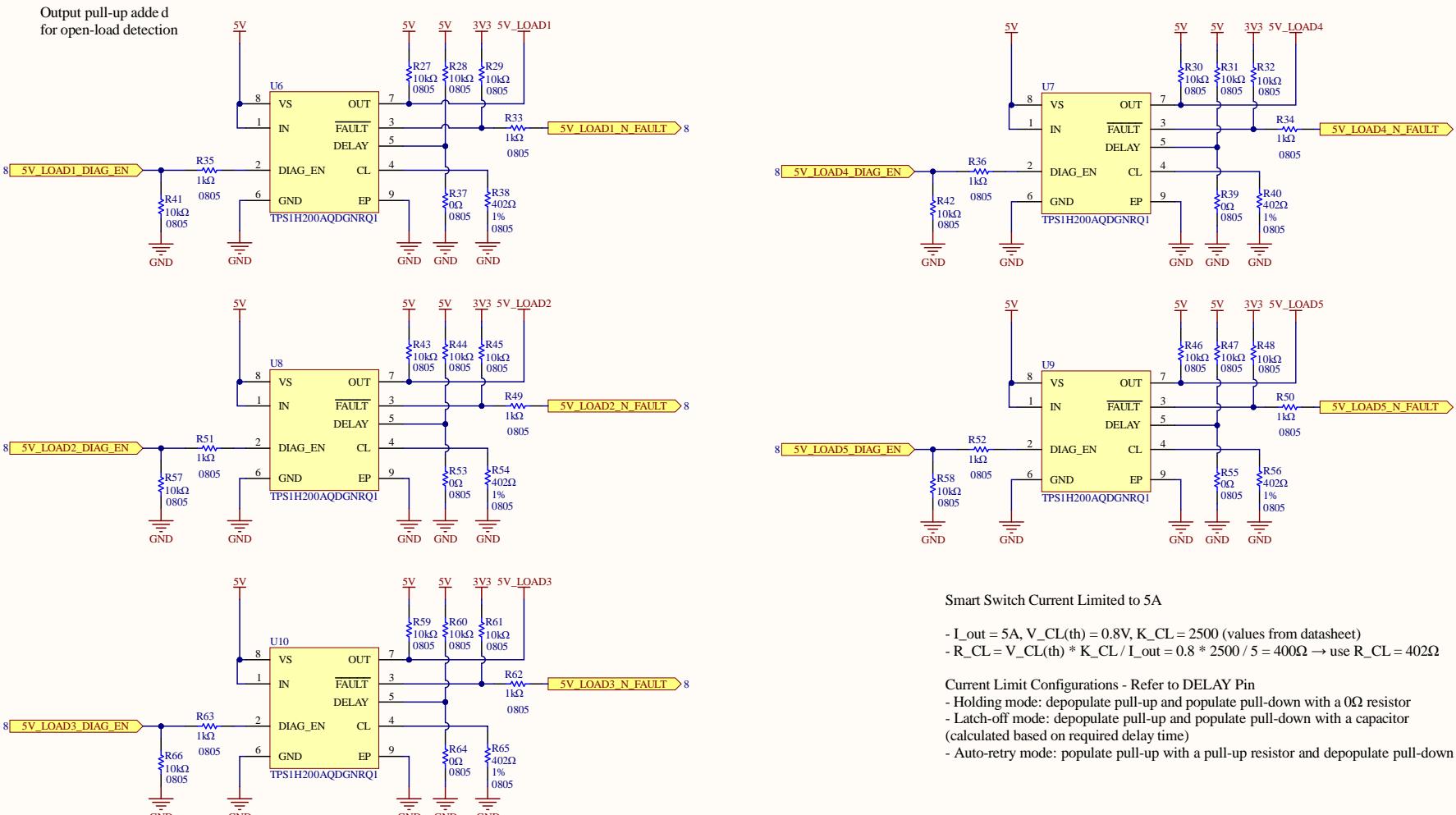
Current Calculations

Green LED voltage drop: 2.2V
 $- I = (3.3 - 2.2V) / 220 = 5mA$

Title: 3.3V Linear Regulator	
Project: Power Distribution Board.PrjPcb	
Rev: 2	Checker: Lance Bantoto
Engineer: Cindy Li	
Date: 2020-12-03	Sheet: 5 of 10



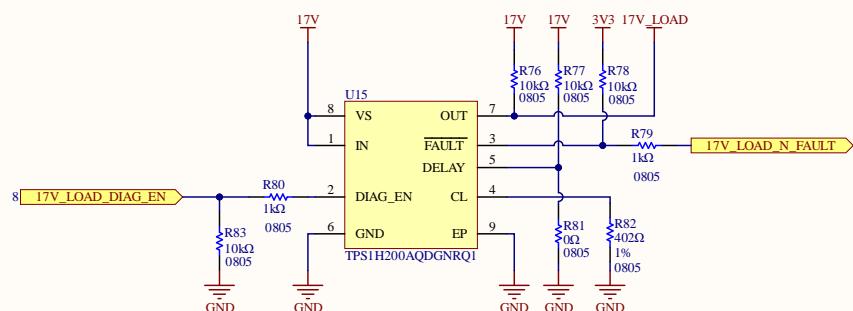
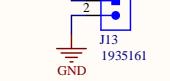
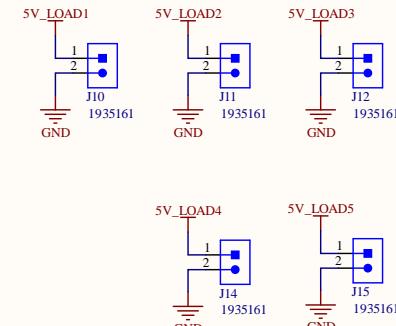
5V Smart High-Side Switches



Title: Load Monitoring 1	
Project: Power Distribution Board.PnjPcb	
Rev: 2	Checker: Lance Bantoto
Engineer: Cindy Li	Date: 2020-12-03 Sheet: 6 of 10

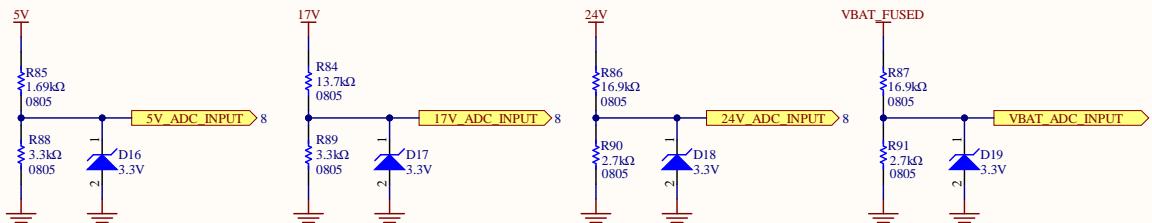


A

17V Load Smart Switch**17V Output****5V Outputs**

5V power to Arm, Science, Gimbal, and
Localization boards (plus one spare)

B

Power Rail Voltage Monitoring

Divides 5V to 3.3V

Divides 17V to 3.3V

Divides 24V to 3.3V

Divides 24V to 3.3V

C

Title: Load Monitoring 2

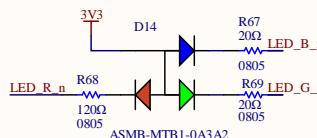
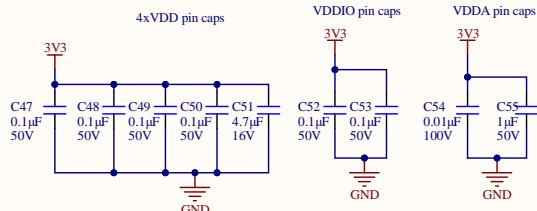
Project: Power Distribution Board.PnjPcb

Rev: 2 Checker: Lance Bantoto

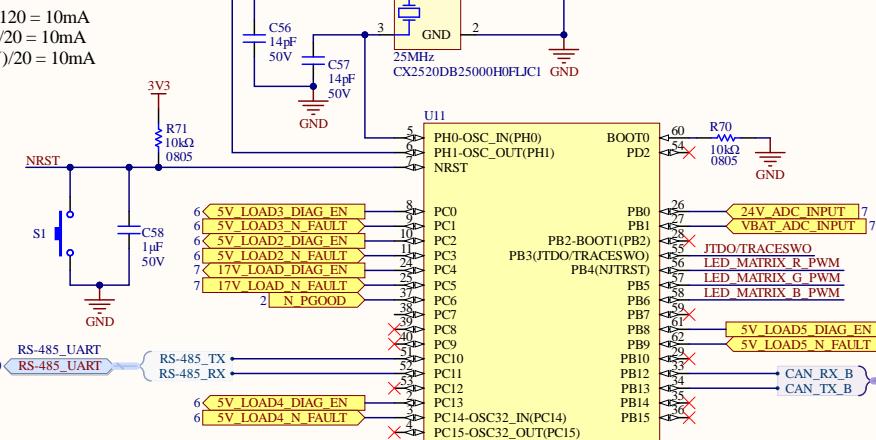
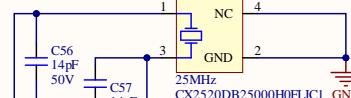
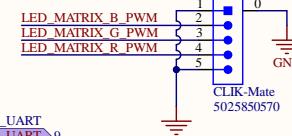
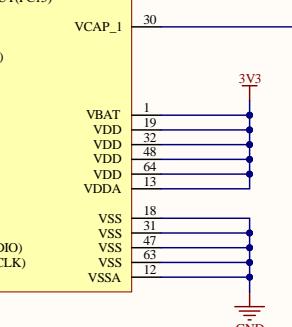
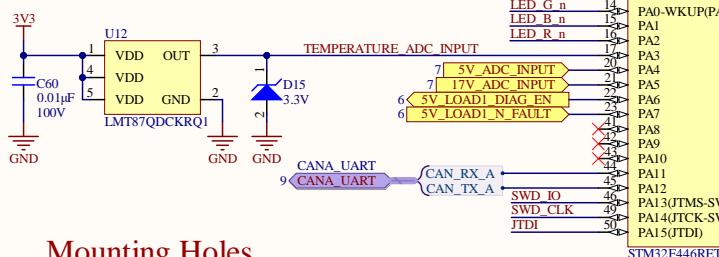
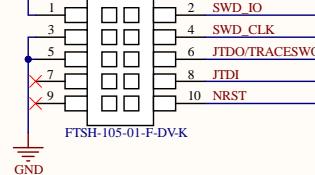
Engineer: Cindy Li

Date: 2020-12-03 Sheet: 7 of 10



Status LED**Decoupling Caps****STM32F446RET6****Current Calculations**

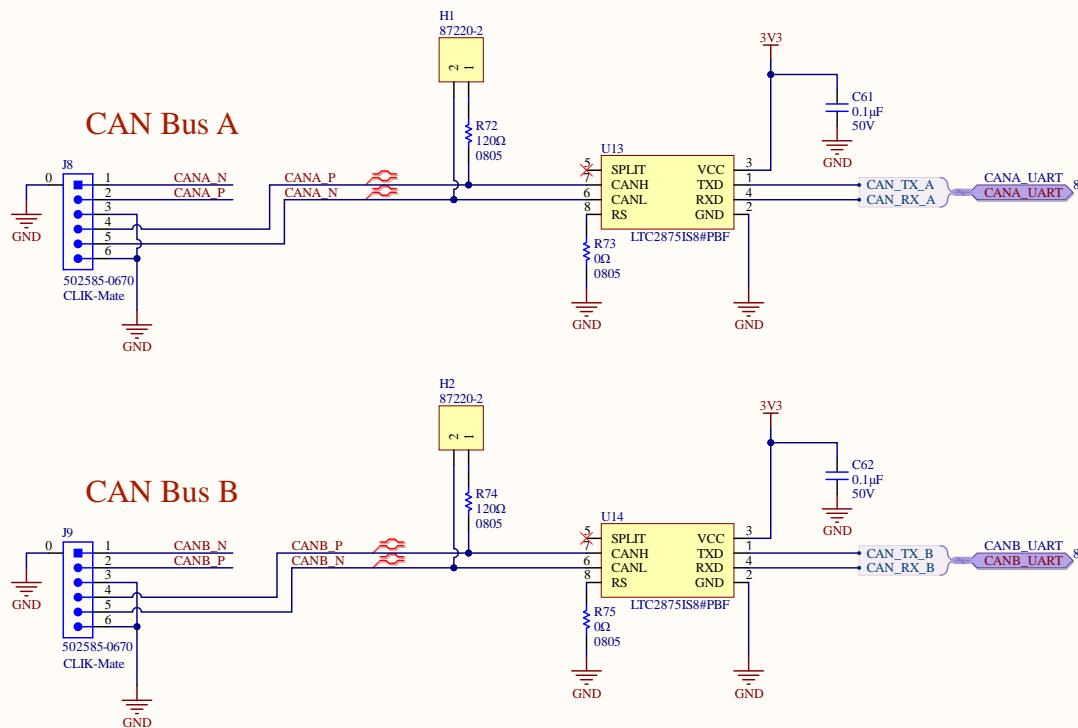
- RGB LED voltage drops:
 - Red: $(3.3 - 2.1V)/120 = 10mA$
 - Blue: $(3.1V - 3.0V)/20 = 10mA$
 - Green: $(3.1V - 3.0V)/20 = 10mA$

**LED Matrix****Temperature Sensor****Debug/Programming****Mounting Holes**

MH1 MOUNTING_HOLE_5/32	MH2 MOUNTING_HOLE_5/32
MH3 MOUNTING_HOLE_5/32	MH4 MOUNTING_HOLE_5/32

Title: Microcontroller	
Project: Power Distribution Board.PrbPcb	
Rev: 2	Checker: Lance Bantoto
Engineer: Cindy Li	
Date: 2020-12-03	Sheet: 8 of 10

CAN Transceivers

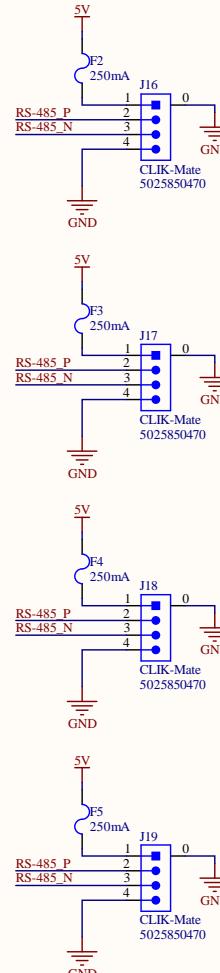
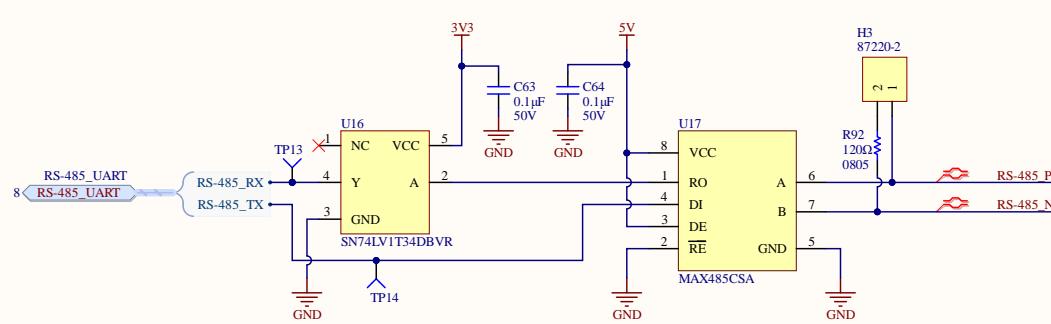


Title: CAN	
Project: Power Distribution Board.PrjPcb	
Rev: 2	Checker: Lance Bantoto
Engineer: Cindy Li	
Date: 2020-12-03	Sheet: 9 of 10



URM04 Ultrasonic Sensors

RS-485 Transceiver



Title:	RS-485
Project:	Power Distribution Board.PnjPcb
Rev:	2
Checker:	Lance Bantoto
Engineer:	Cindy Li
Date:	2020-12-03
Sheet:	10 of 10

