

# Thermal Camera

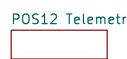
[https://github.com/drewsum/THERMAL\\_Camera](https://github.com/drewsum/THERMAL_Camera)

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02. POS12 Input



03. POS12 Telemetry



04. POS3P0 Power Supply



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B 06. POS1P8 Power Supply



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08. POS2P8 Power Supply



09. POS2P8 Telemetry



C 10. POS1P2 Power Supply



11. POS1P2 Telemetry



12. LCD Backlight Power Supply



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File: Upstream\_USB\_Port.kicad\_sch

PGOOD LEDs



Status LEDs



Mechanical

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Sheet: /

File: Thermal\_Camera.kicad\_sch

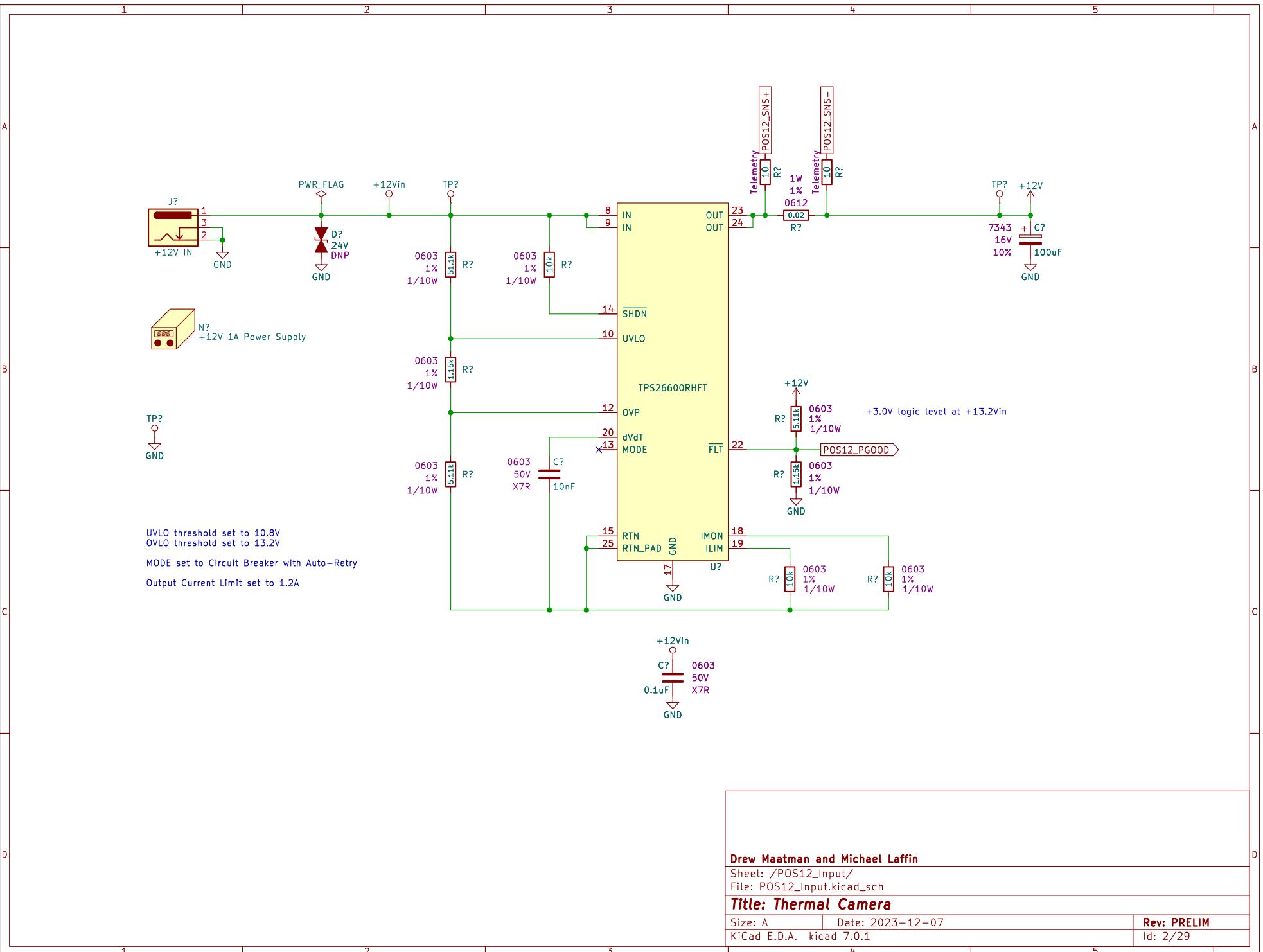
Title: Thermal Camera

Size: A | Date: 2023-12-07

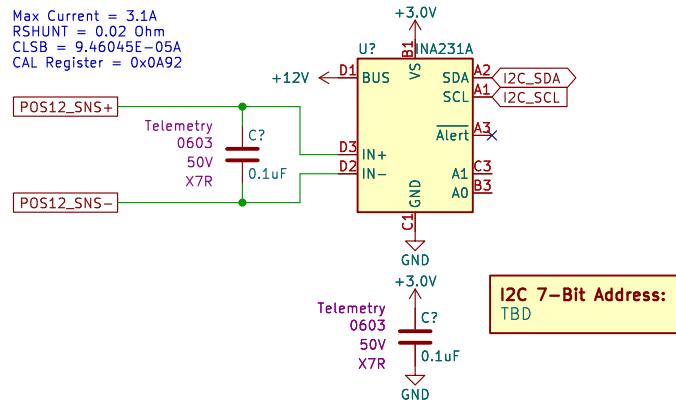
KiCad E.D.A. kicad 7.0.1

Rev: PRELIM

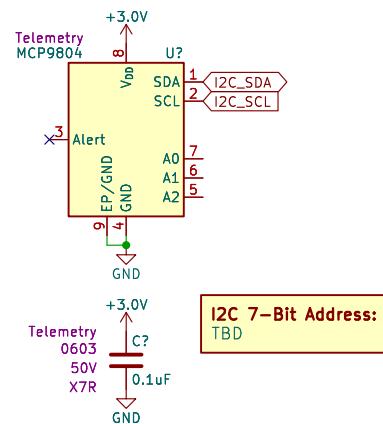
Id: 1/29



A



B

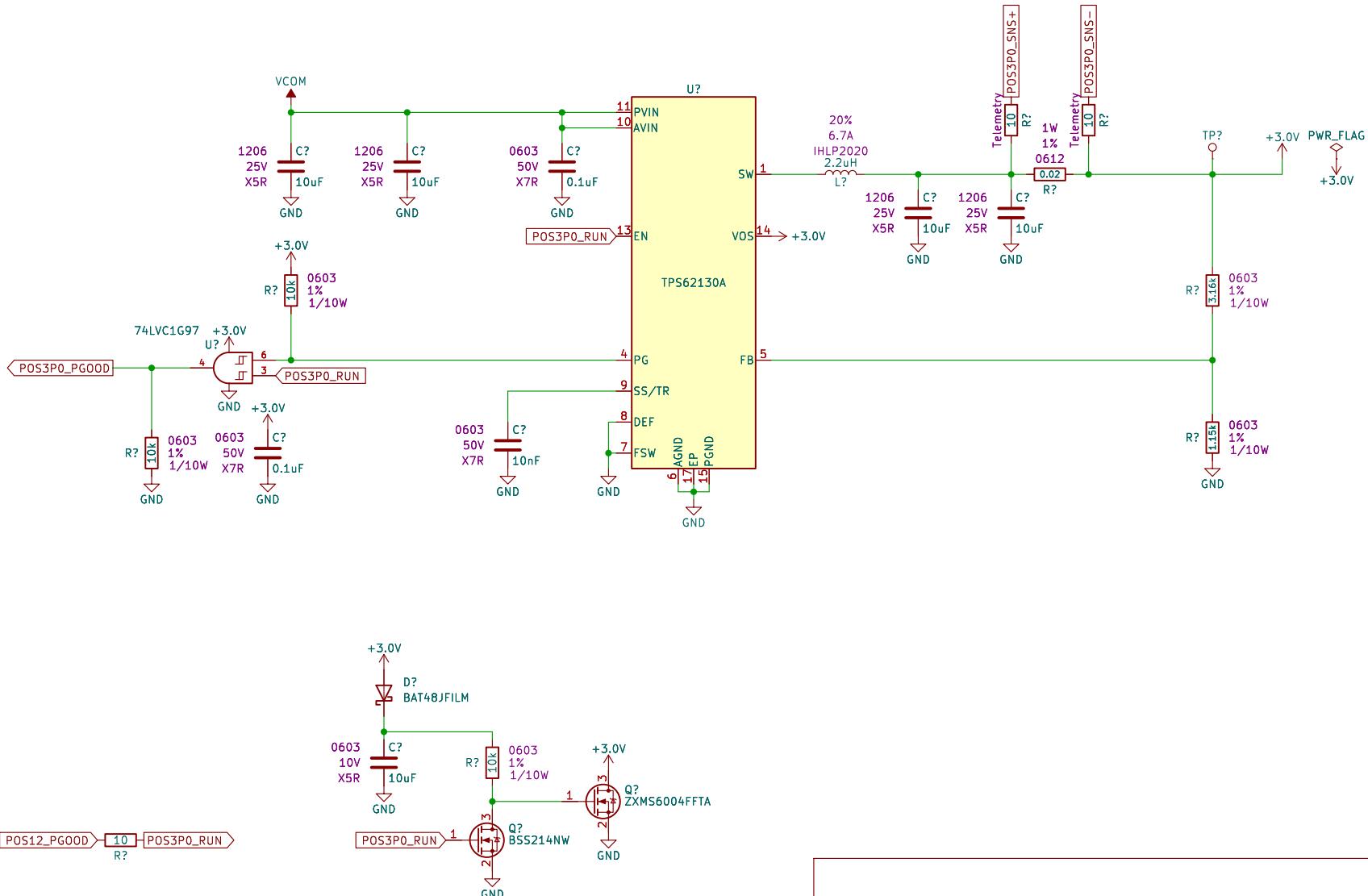


C

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Sheet: /POS12\_Telemetry/  
File: POS12\_Telemetry.kicad\_sch**Title: Thermal Camera**Size: A | Date: 2023-12-07  
KiCad E.D.A. kicad 7.0.1Rev: PRELIM  
Id: 3/29

# figure out sequencing



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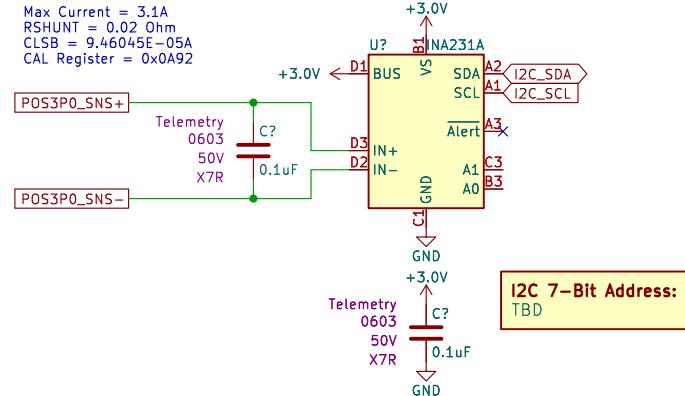
Sheet: /POS3P0 Power Supply/  
File: POS3P0\_Power\_Supply.kicad\_sch

Title: Thermal Camera

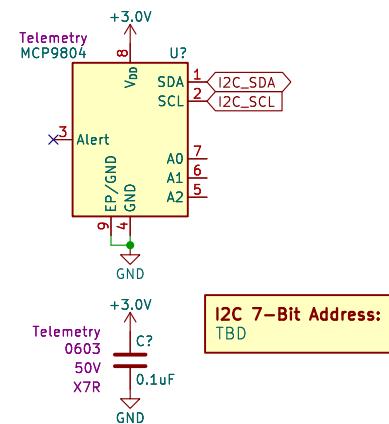
Size: A Date: 2023-12-07  
KiCad E.D.A. kicad 7.0.1

Rev: PRELIM  
Id: 4/29

A



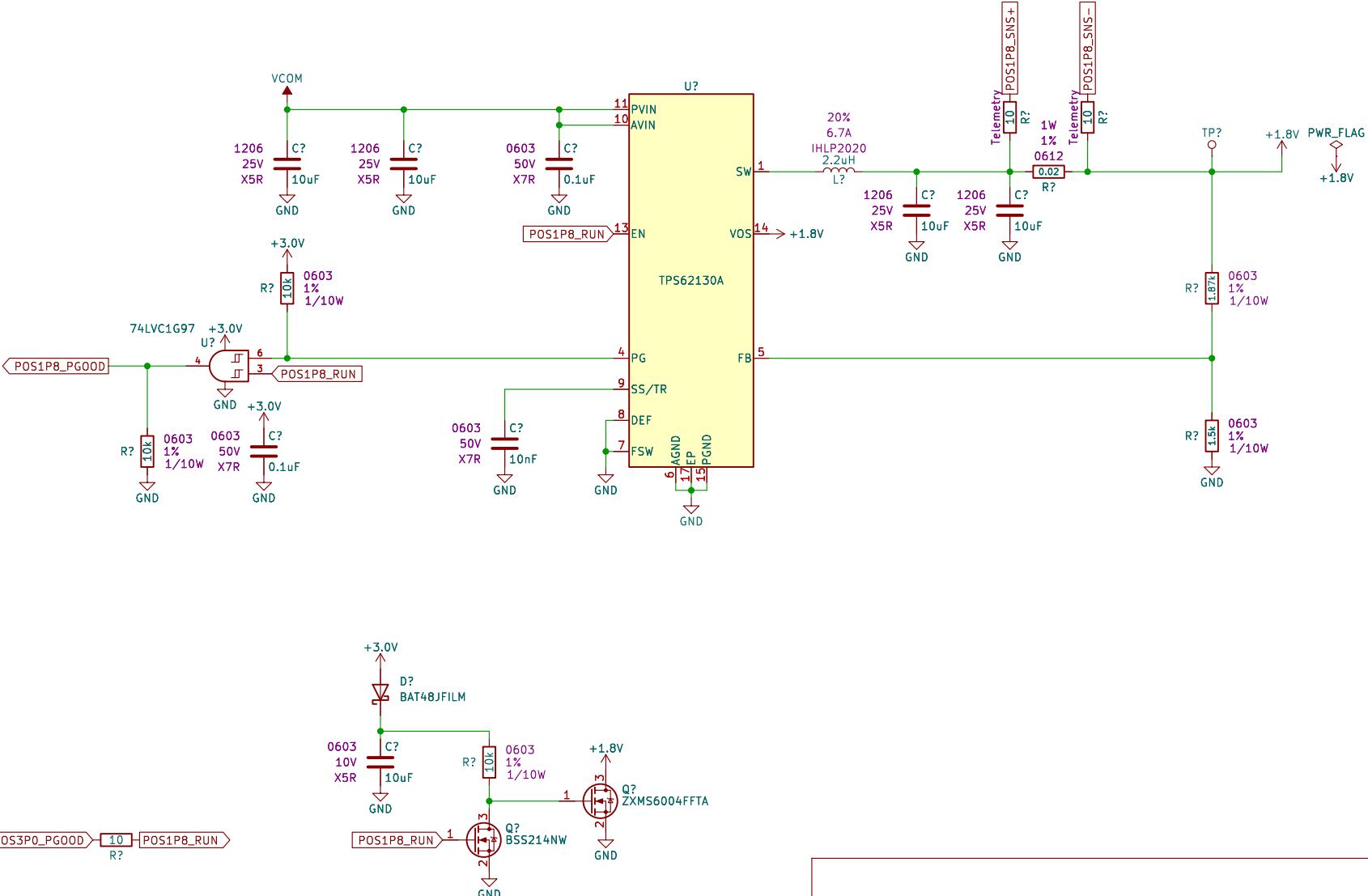
B



C

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Sheet: /POS3PO\_Telemetry/  
File: POS3PO\_Telemetry.kicad\_sch**Title: Thermal Camera**Size: A | Date: 2023-12-07  
KiCad E.D.A. kicad 7.0.1Rev: PRELIM  
Id: 5/29



Drew Maatman and Michael Laffin

Sheet: /POS1P8 Power Supply/  
File: POS1P8\_Power\_Supply.kicad\_sch

Title: Thermal Camera

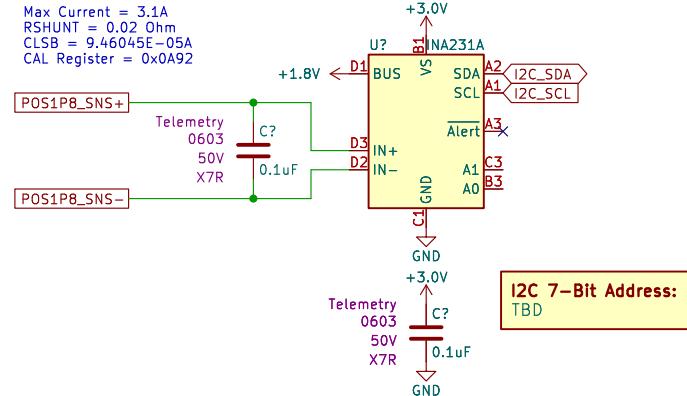
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KiCad E.D.A. kicad 7.0.1

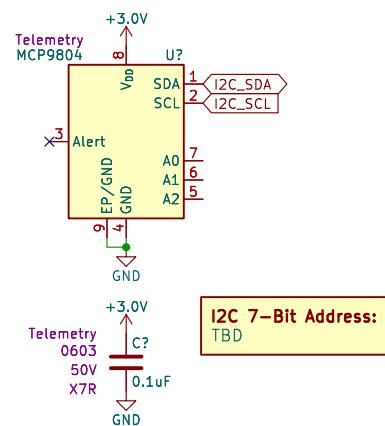
Rev: PRELIM

Id: 6/29

A



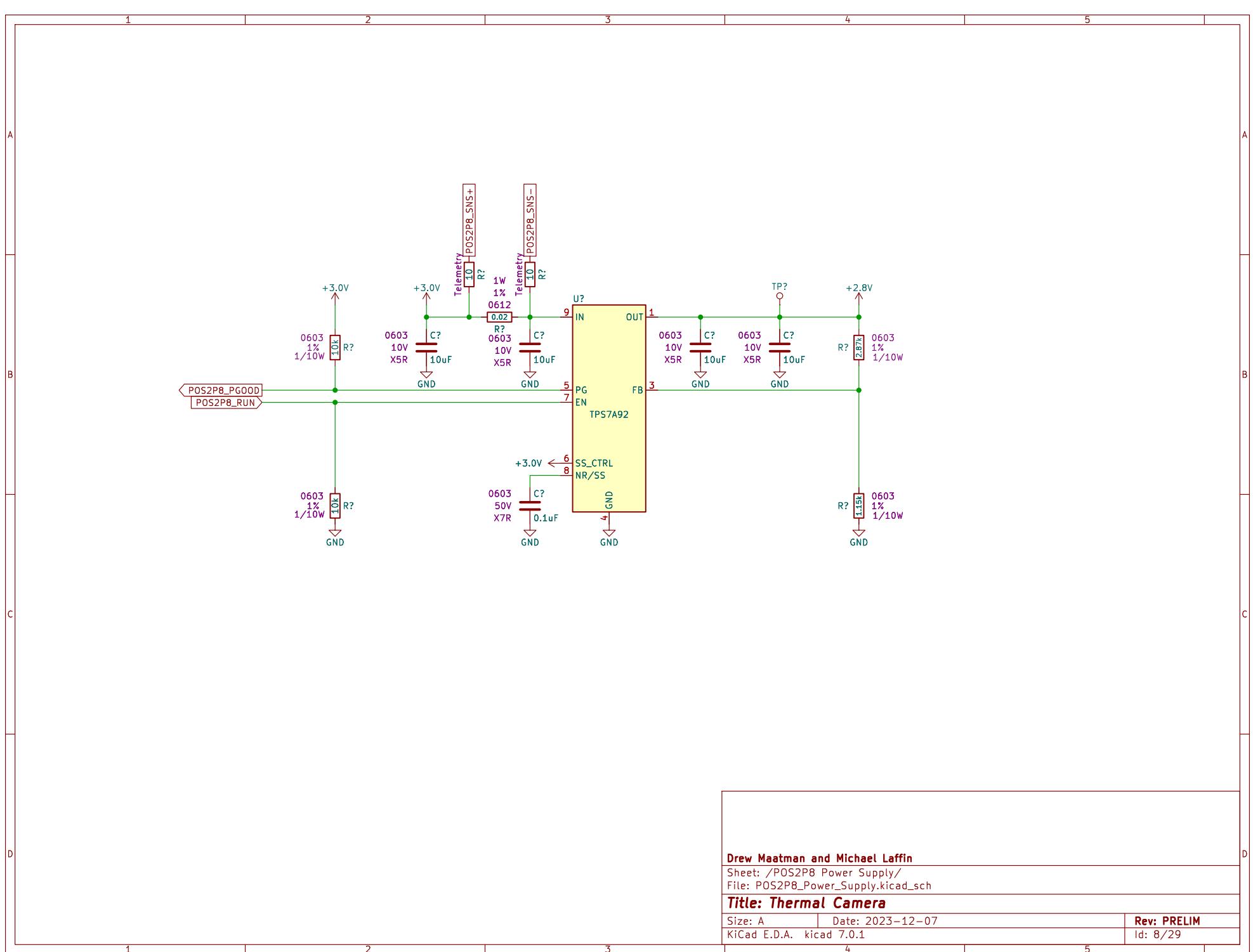
B



C

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Sheet: /POS1P8\_Telemetry/  
File: POS1P8\_Telemetry.kicad\_sch**Title: Thermal Camera**Size: A | Date: 2023-12-07  
KiCad E.D.A. kicad 7.0.1Rev: PRELIM  
Id: 7/29



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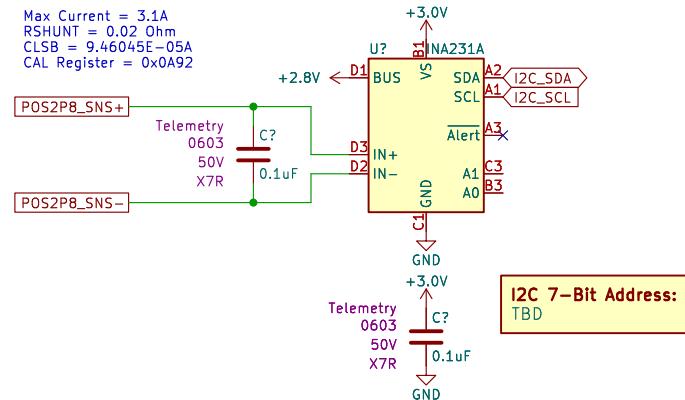
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File: POS2P8\_Power\_Supply.kicad\_sch

**Title: Thermal Camera**

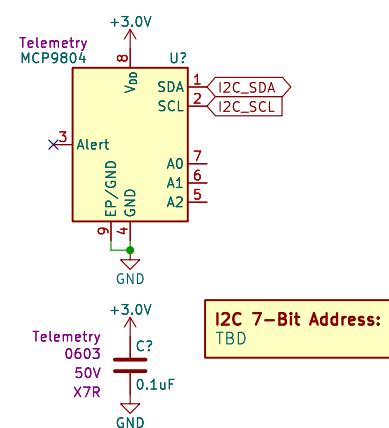
Size: A | Date: 2023-12-07  
KiCad E.D.A. kicad 7.0.1

Rev: PRELIM  
Id: 8/29

A



B



C

Drew Maatman and Michael Laffin

Sheet: /POS2P8\_Telemetry/  
File: POS2P8\_Telemetry.kicad\_sch**Title: Thermal Camera**Size: A | Date: 2023-12-07  
KiCad E.D.A. kicad 7.0.1Rev: PRELIM  
Id: 9/29

A

A

B

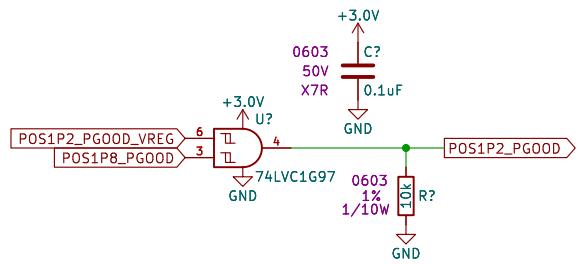
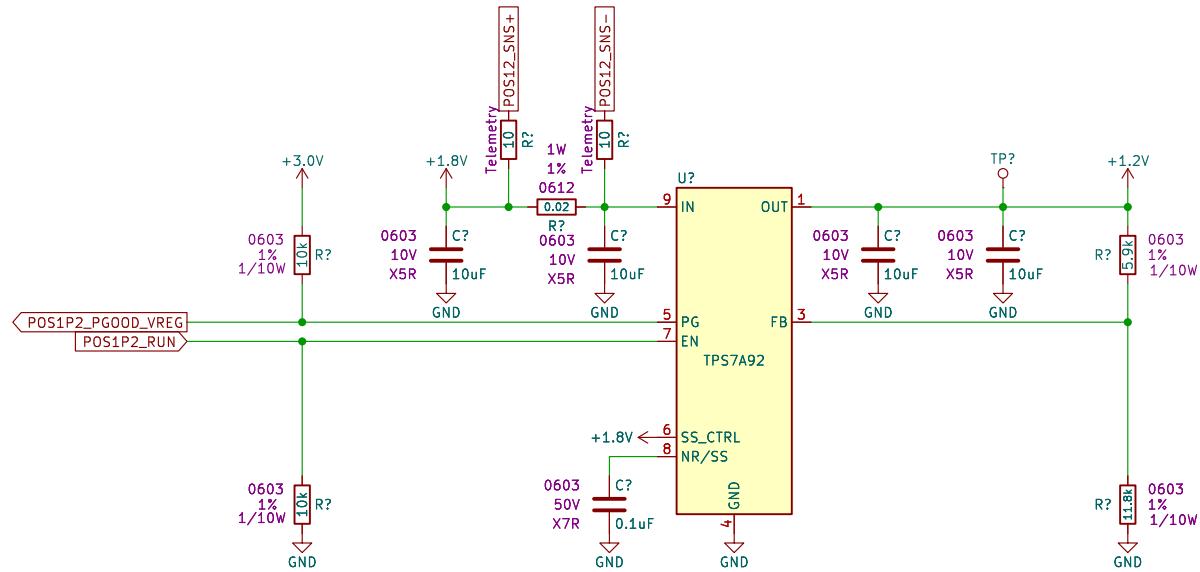
B

C

C

D

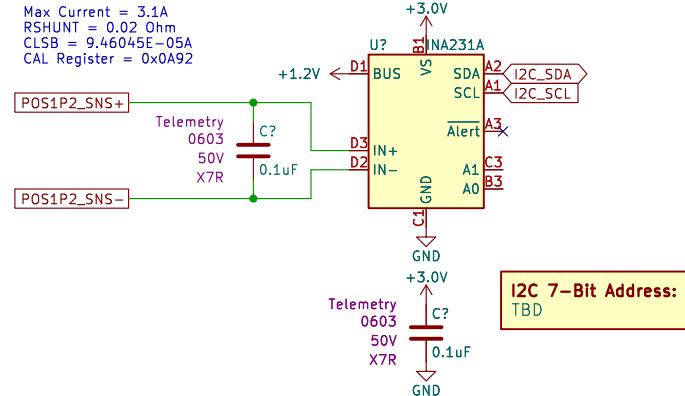
D



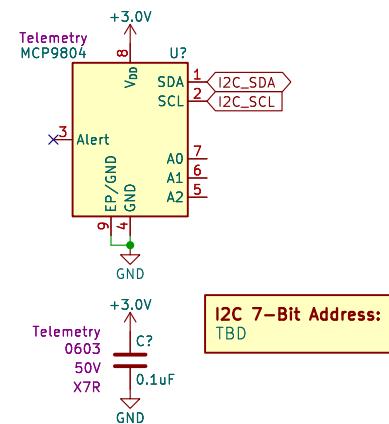
Drew Maatman and Michael Laffin

Sheet: /POS1P2 Power Supply/  
File: POS1P2\_Power\_Supply.kicad\_sch**Title: Thermal Camera**Size: A Date: 2023-12-07  
KiCad E.D.A. kicad 7.0.1Rev: PRELIM  
Id: 10/29

A



B



C

Drew Maatman and Michael Laffin

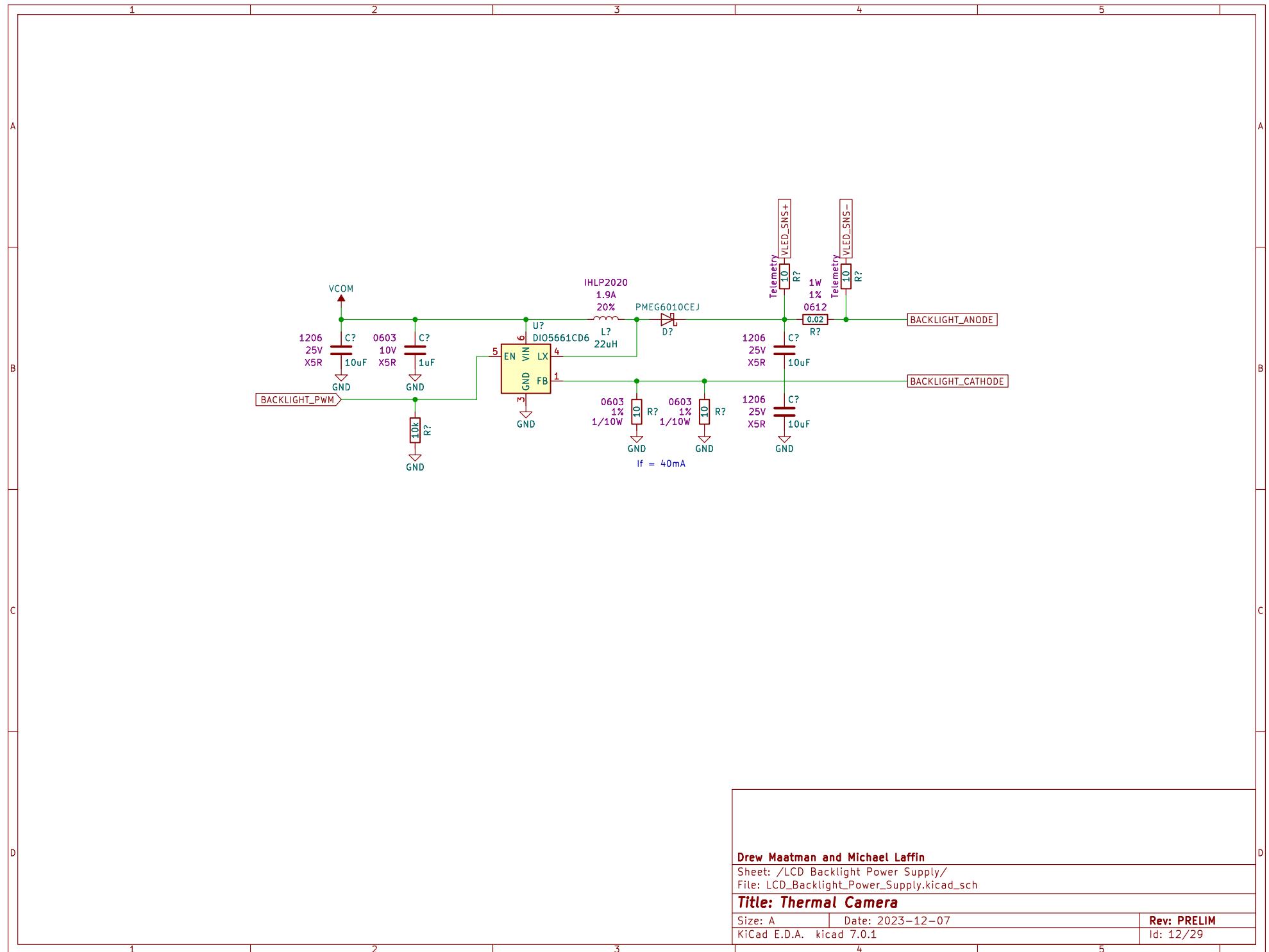
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Size: A | Date: 2023-12-07

KiCad E.D.A. kicad 7.0.1

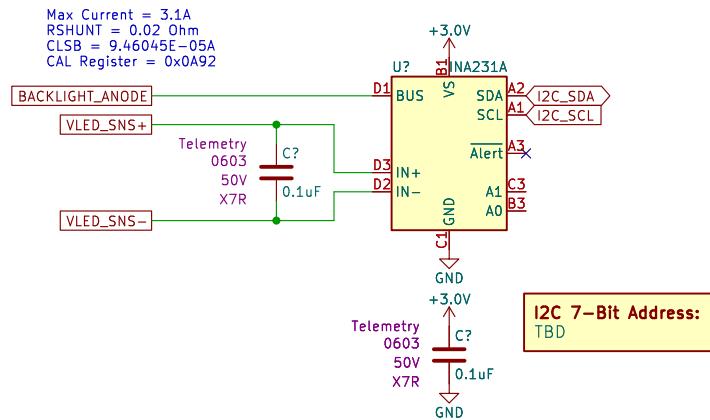
Rev: PRELIM

Id: 11/29

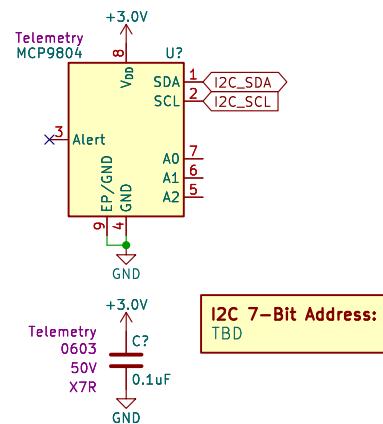


Drew Maatman and Michael Laffin  
 Sheet: /LCD Backlight Power Supply/  
 File: LCD\_Backlight\_Power\_Supply.kicad\_sch  
**Title: Thermal Camera**  
 Size: A Date: 2023-12-07  
 KiCad E.D.A. kicad 7.0.1 Rev: PRELIM  
 Id: 12/29

A



B



C

Drew Maatman and Michael Laffin

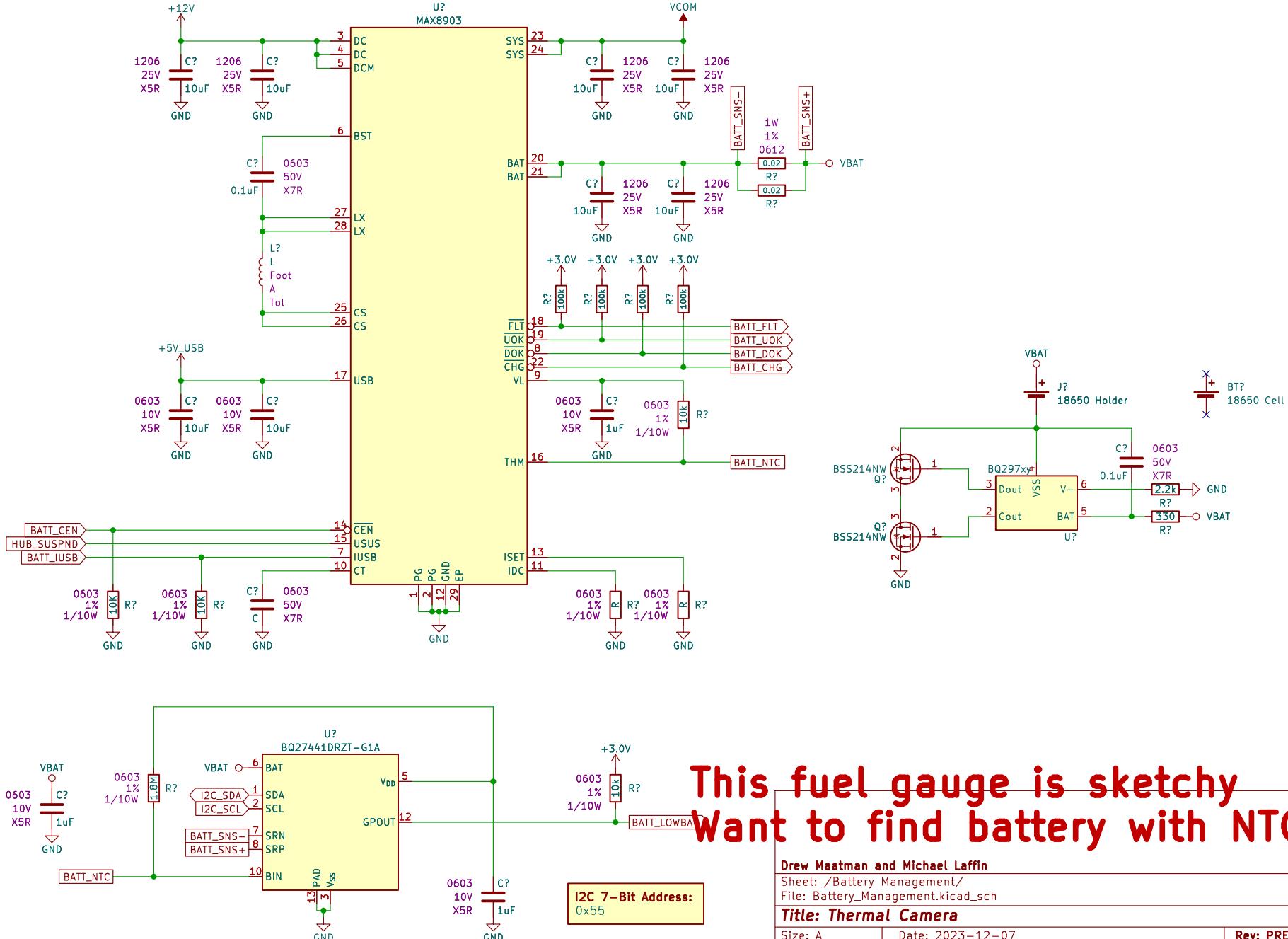
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File: LCD\_Backlight\_Telemetry.kicad\_sch

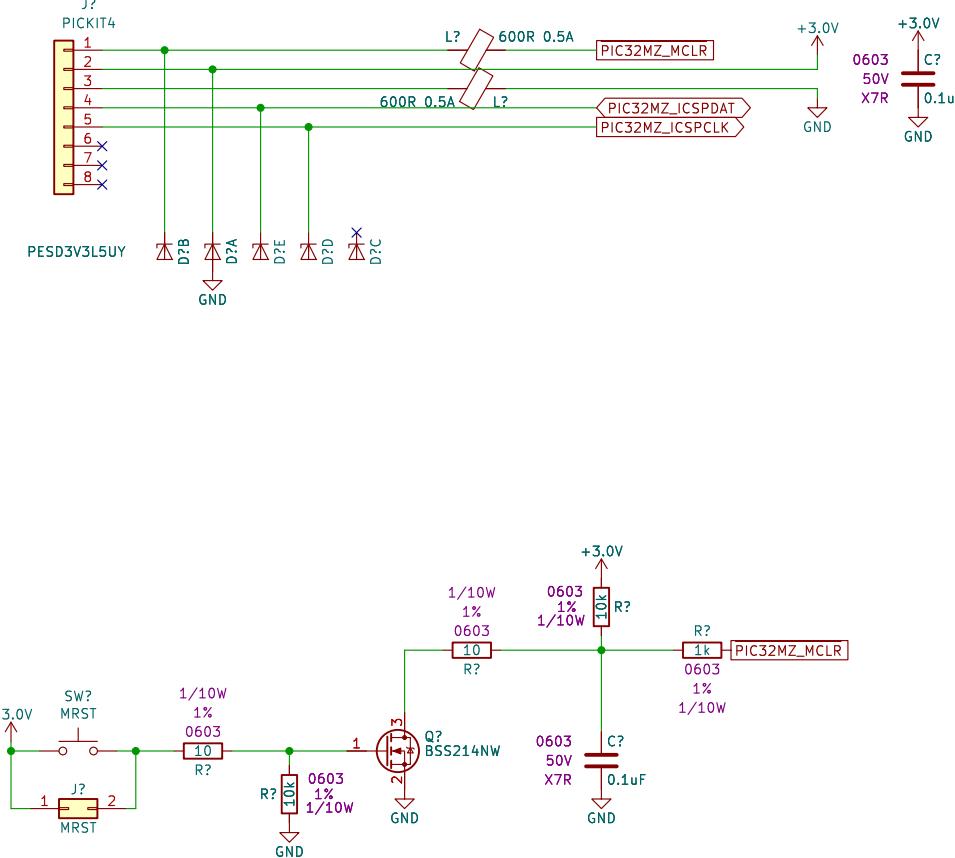
Title: Thermal Camera

Size: A | Date: 2023-12-07  
KiCad E.D.A. kicad 7.0.1

Rev: PRELIM  
Id: 13/29

# Determine specific version of each chip to use





**Drew Maatman and Michael Laffin**

Sheet: /PIC32MZ DA Programming/  
File: PIC32MZ\_DA\_Programming.kicad\_sch

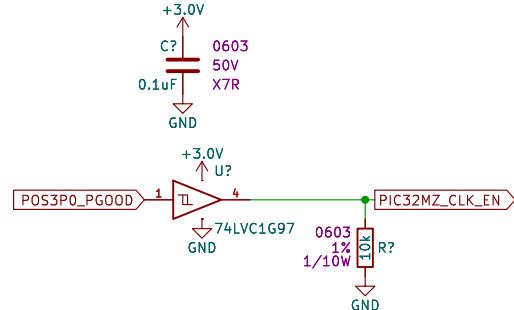
## Title: Thermal Camera

Size: A Date: 2023-12-07  
KiCad E.D.A. kicad 7.0.1

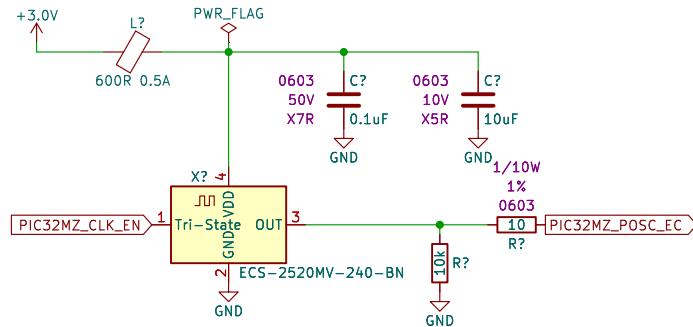
Rev: PRELIM  
Id: 15/29

1 2 3 4 5

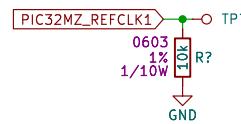
A



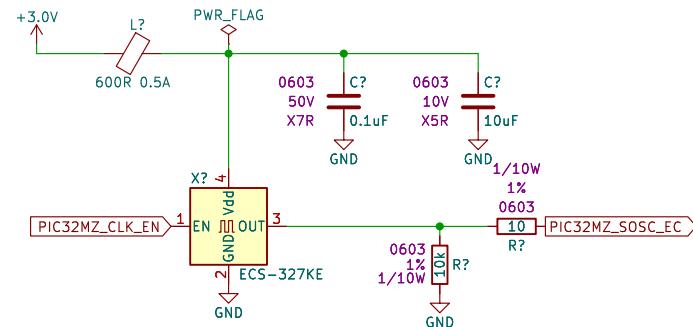
B



C



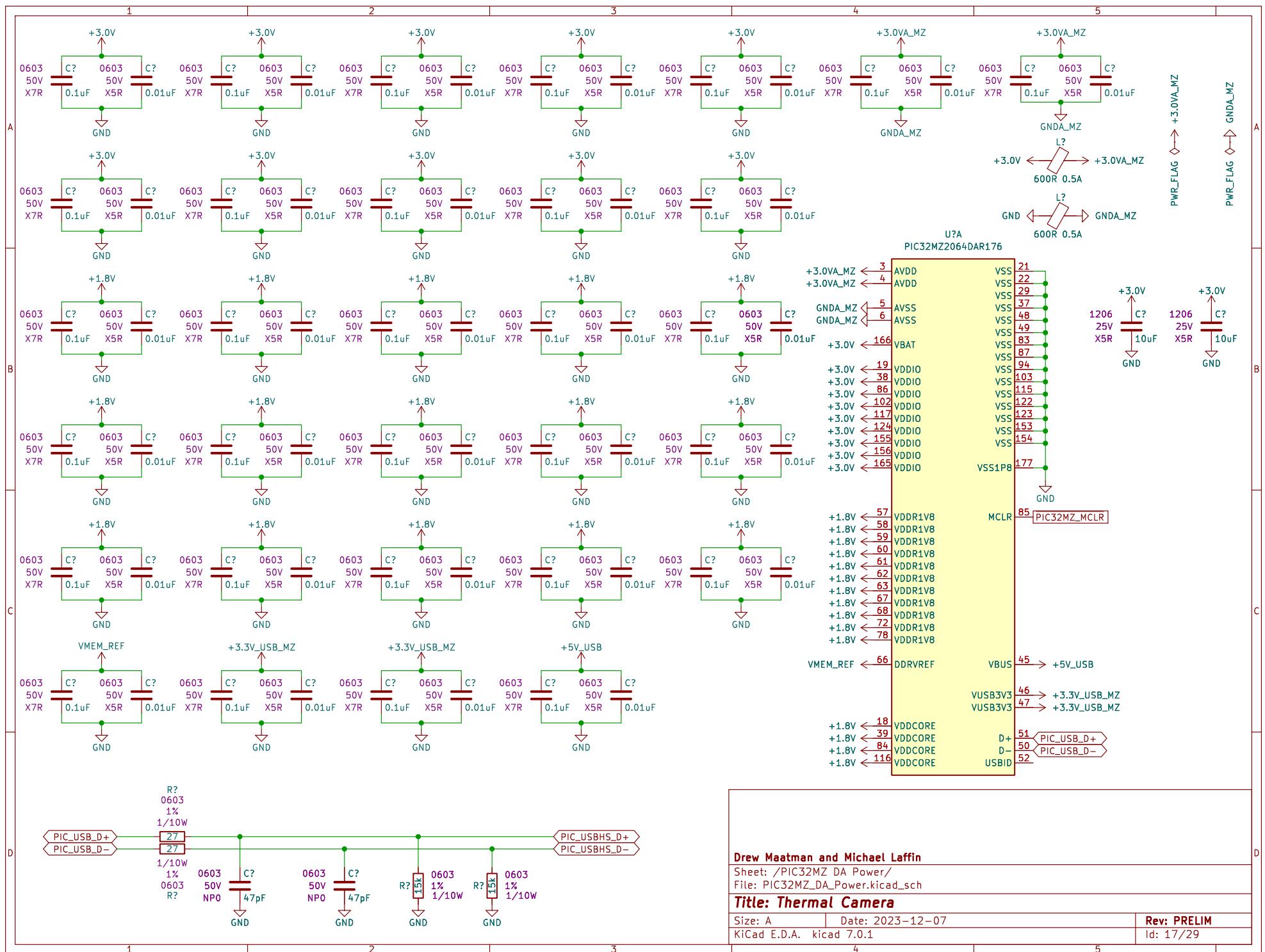
D



Drew Maatman and Michael Laffin

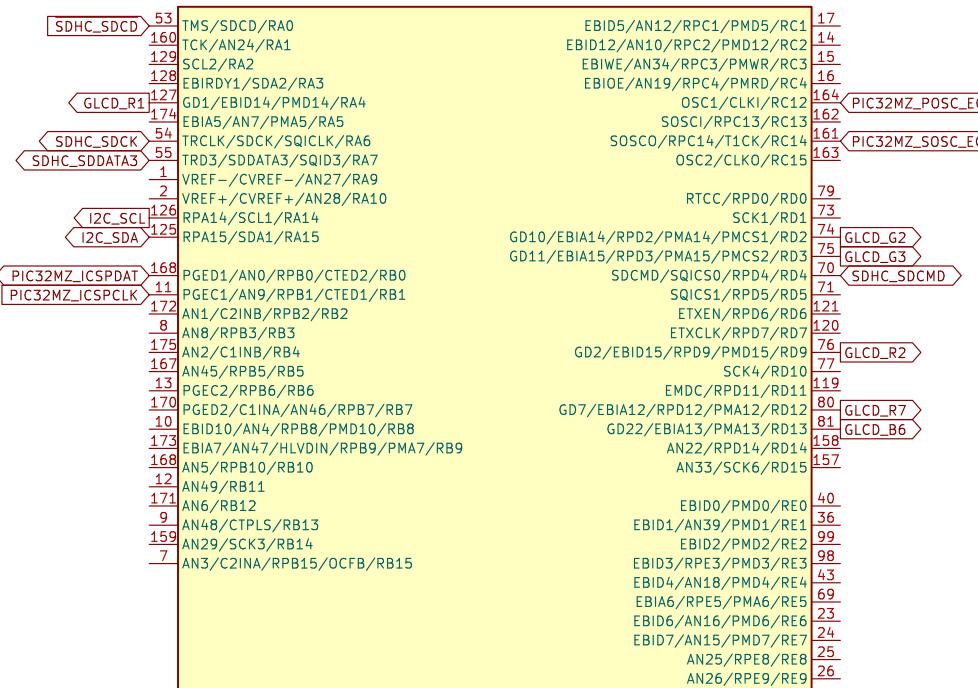
Sheet: /PIC32MZ DA Clocking/  
File: PIC32MZ\_DA\_Clocking.kicad\_sch**Title: Thermal Camera**Size: A Date: 2023-12-07  
KiCad E.D.A. kicad 7.0.1Rev: PRELIM  
Id: 16/29

1 2 3 4 5

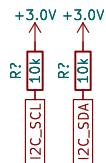


See TABLE 36-1:RGB COLOR MAPPING for Graphic LCD Pin Mapping

U?B  
PIC32MZ2064DAR176



DOUBLE CHECK  
SOSC PIN



Drew Maatman and Michael Laffin

Sheet: /PIC32MZ\_DA\_1/  
File: PIC32MZ\_DA\_1.kicad\_sch

Title: Thermal Camera

Size: A Date: 2023-12-07

KiCad E.D.A. kicad 7.0.1

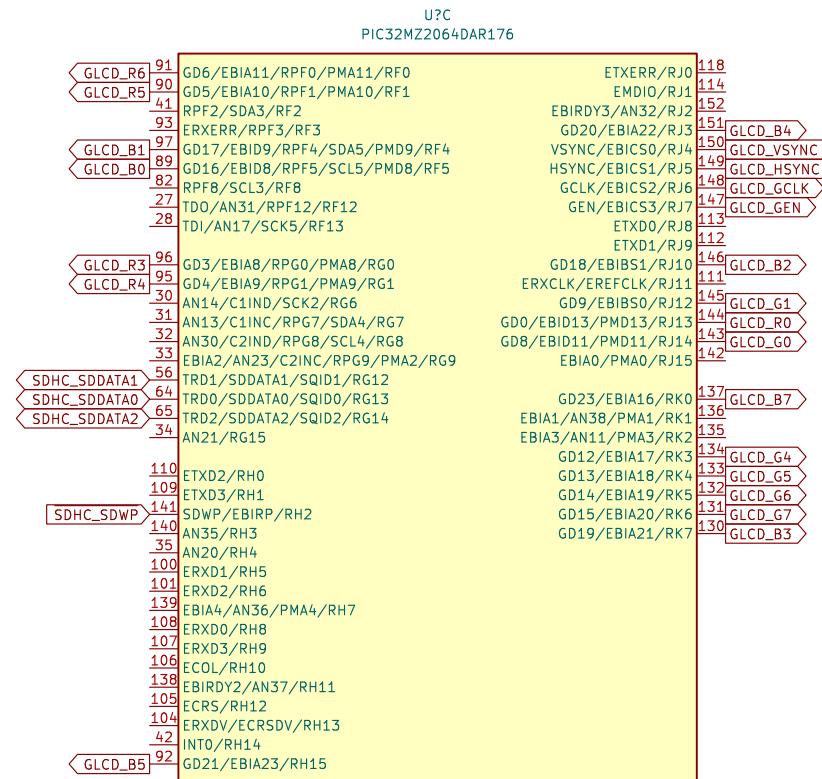
Rev: PRELIM

Id: 18/29

See TABLE 36-1:RGB COLOR MAPPING for Graphic LCD Pin Mapping

A

A



B

B

C

C

D

D

Drew Maatman and Michael Laffin

Sheet: /PIC32MZ DA 2/

File: PIC32MZ\_DA\_2.kicad\_sch

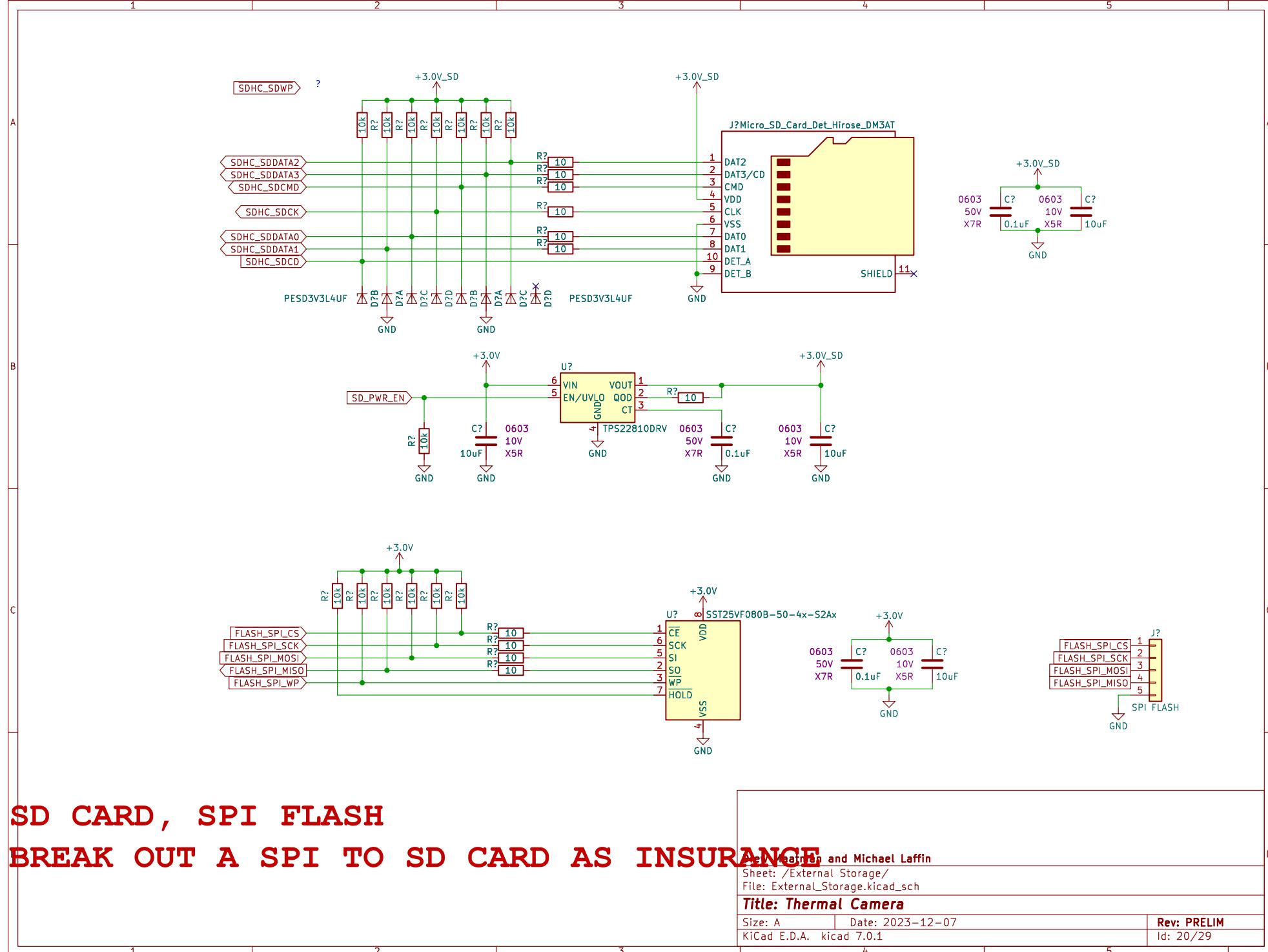
**Title: Thermal Camera**

Size: A Date: 2023-12-07

KiCad E.D.A. kicad 7.0.1

Rev: PRELIM

Id: 19/29



## SD CARD , SPI FLASH

## BREAK OUT A SPI TO SD CARD AS INSURANCE

John Barron and Michael Laffin

Sheet: /External Storage/  
File: External\_Storage.kicad\_sch

Title: Thermal Camera

Size: A Date: 2023-12-07

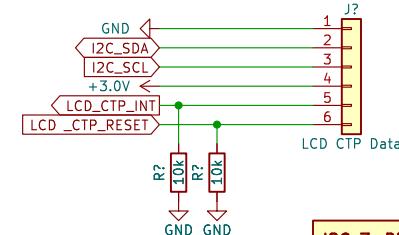
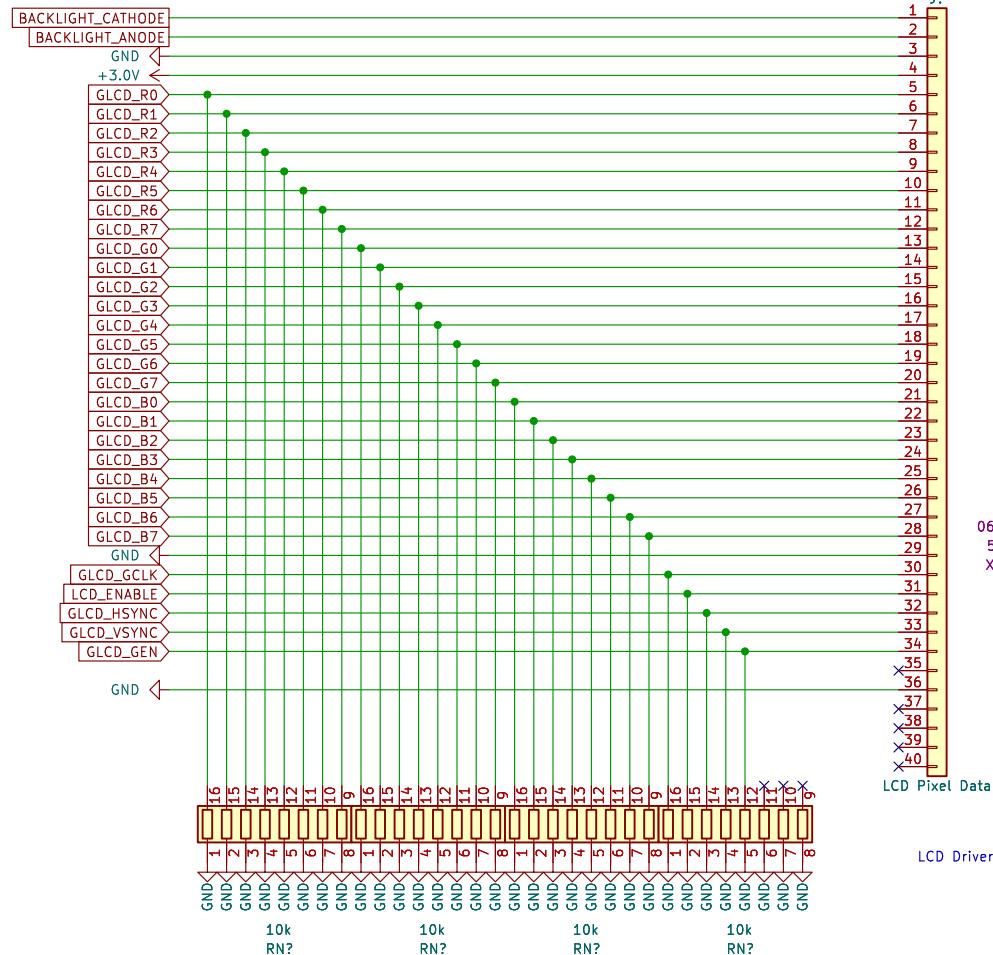
KiCad E.D.A. kicad 7.0.1

Rev: PRELIM

Id: 20/29

1 2 3 4 5

GLT043800480IS1-CTP



LCD Driver: HX8264-D06 + HX8664-B

Drew Maatman and Michael Laffin

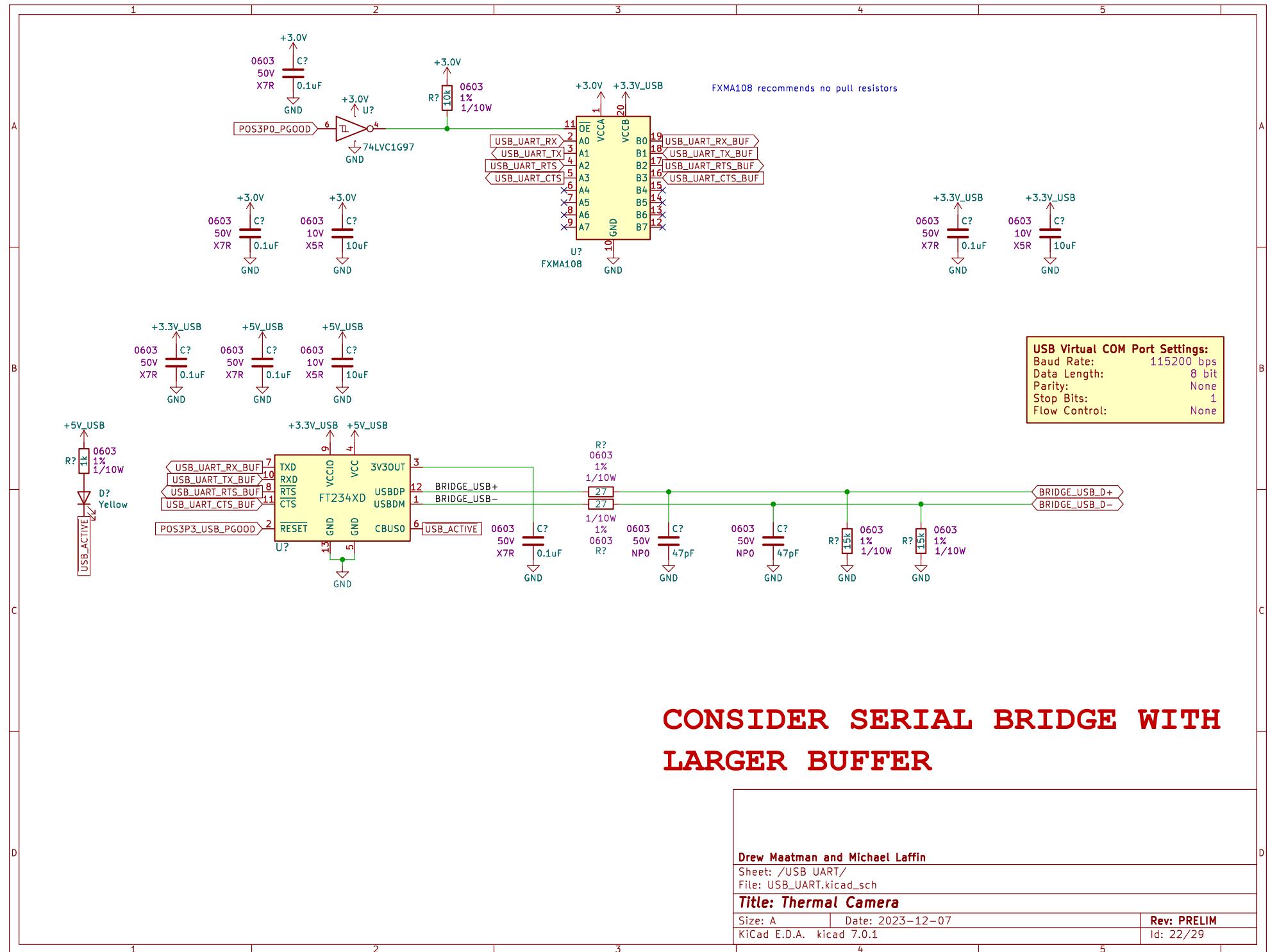
Sheet: /Graphic LCD/  
File: Graphic\_LCD.kicad\_sch

Title: Thermal Camera

Size: A Date: 2023-12-07  
KiCad E.D.A. kicad 7.0.1

Rev: PRELIM  
Id: 21/29

1 2 3 4 5



A

A

B

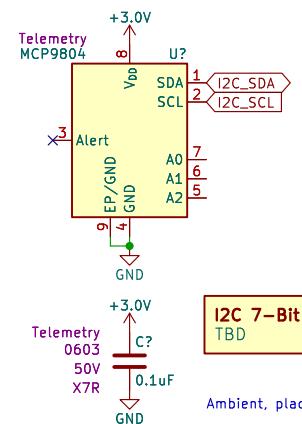
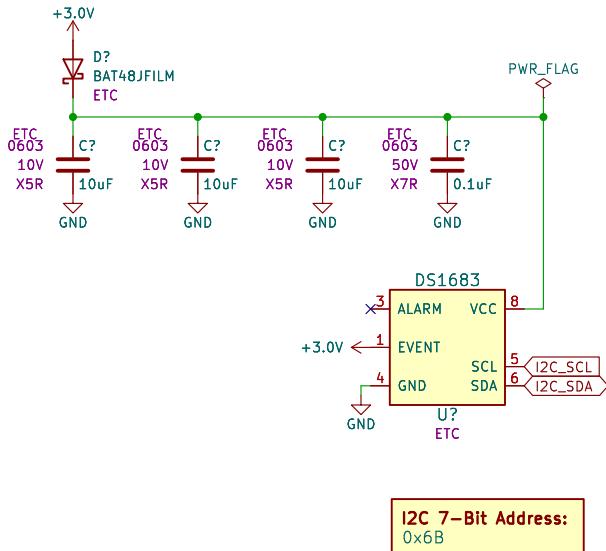
B

C

C

D

D



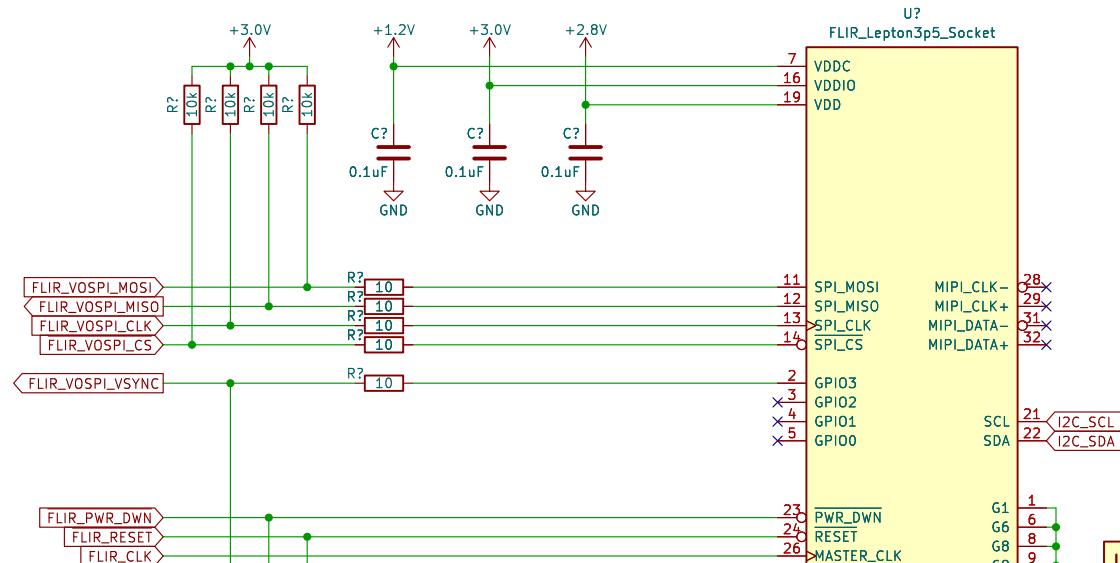
Drew Maatman and Michael Laffin

Sheet: /Elapsed Time Counter/  
File: Elapsed\_Time\_Counter.kicad\_sch**Title: Thermal Camera**Size: A | Date: 2023-12-07  
KiCad E.D.A. kicad 7.0.1Rev: PRELIM  
Id: 23/29

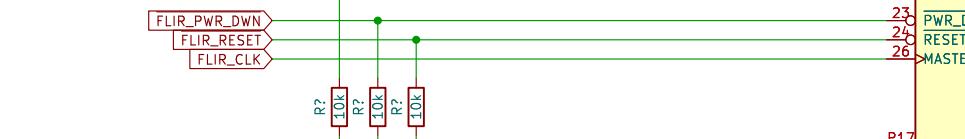
1 2 3 4 5

**Power Supply Considerations:**  
 VDDC: 1.20V (1.14V min, 1.26V max), 50mVpp max ripple, 110mA max draw  
 VDD: 2.80V (2.72V min, 2.88V max), 30mVpp max ripple, 16mA max draw  
 VDDIO: 2.8V min, 3.1V max, 50mVpp max ripple, 310mA max draw

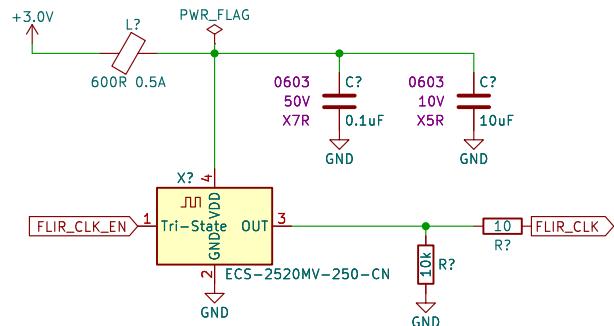
A



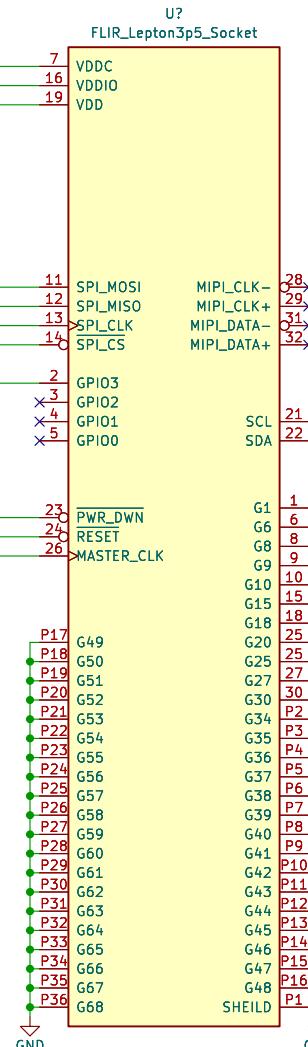
B



C



D



See FLIR document #110-0144-04 for I2C register map



Drew Maatman and Michael Laffin

Sheet: /FLIR Lepton Sensor/  
 File: FLIR\_Lepton\_Sensor.kicad\_sch

**Title: Thermal Camera**

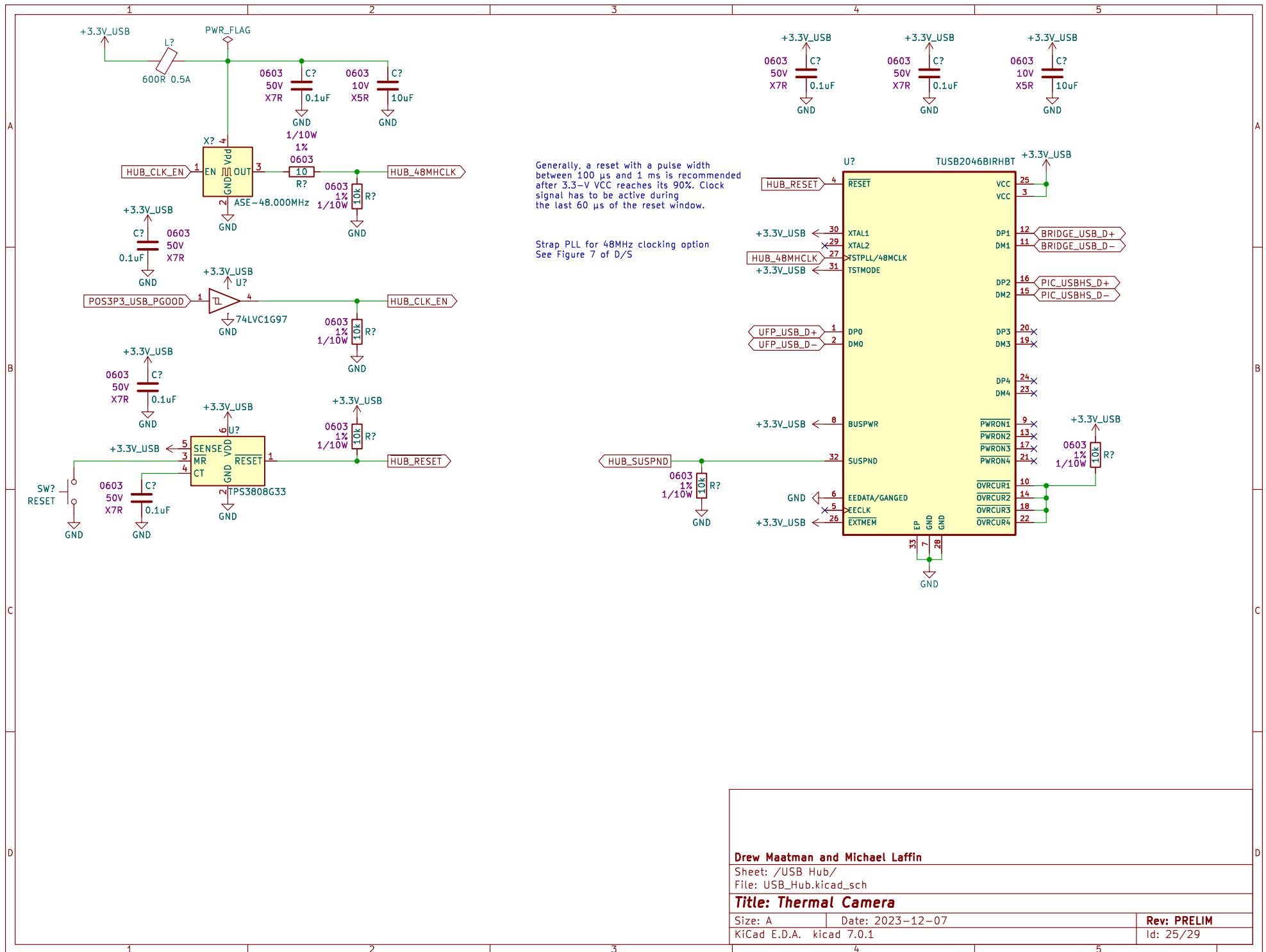
Size: A Date: 2023-12-07

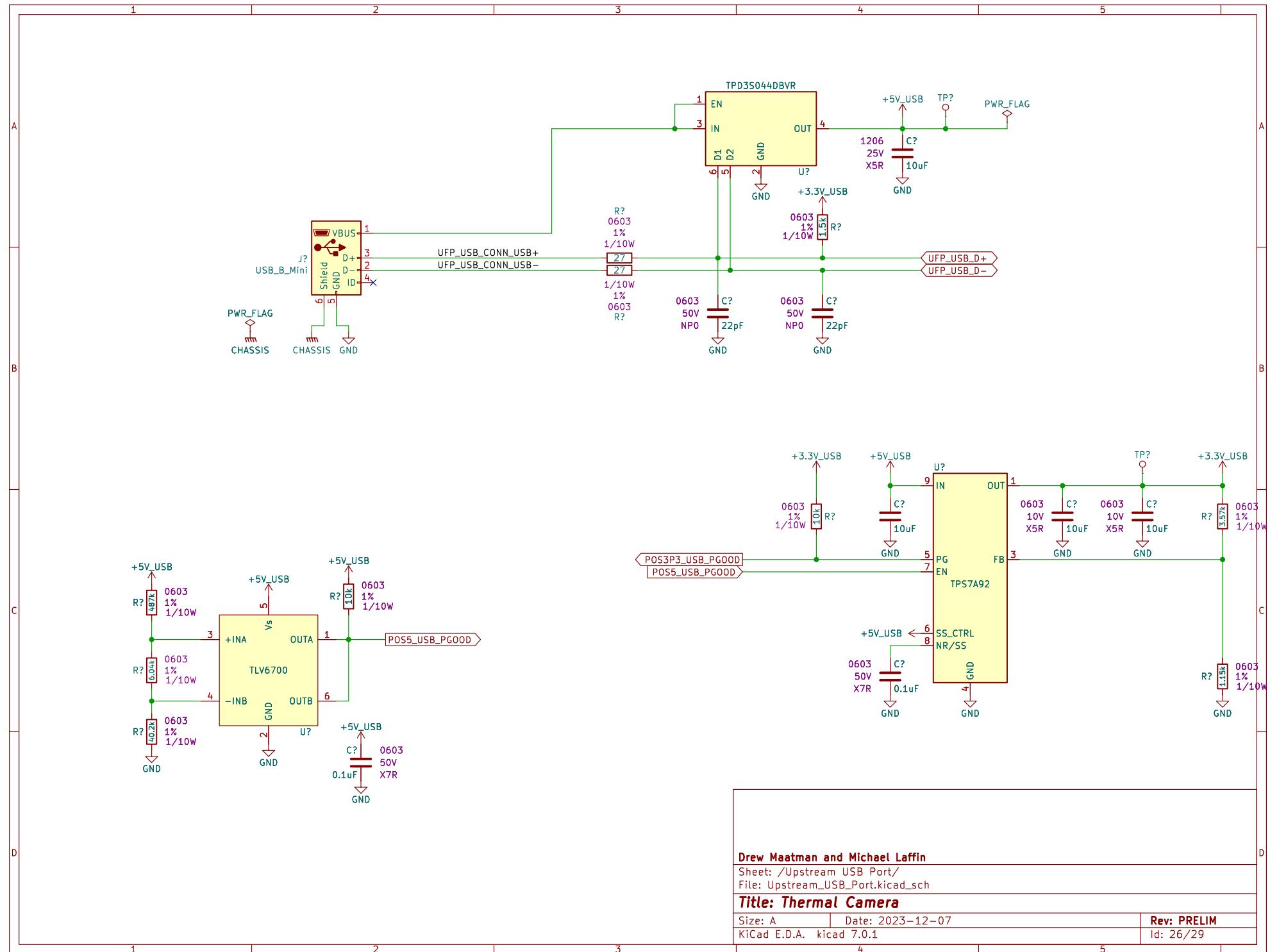
KiCad E.D.A. kicad 7.0.1

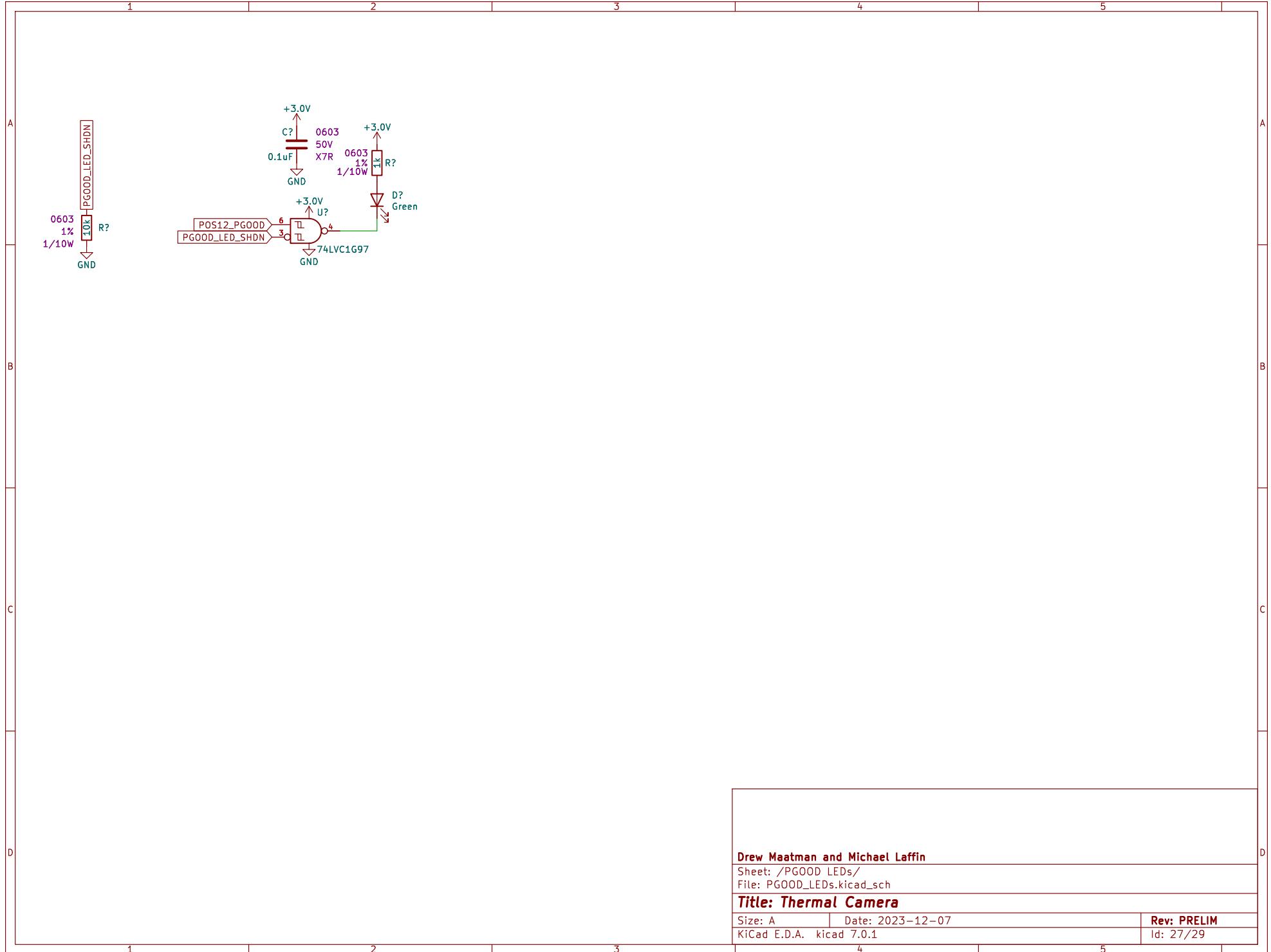
Rev: PRELIM

Id: 24/29

1 2 3 4 5







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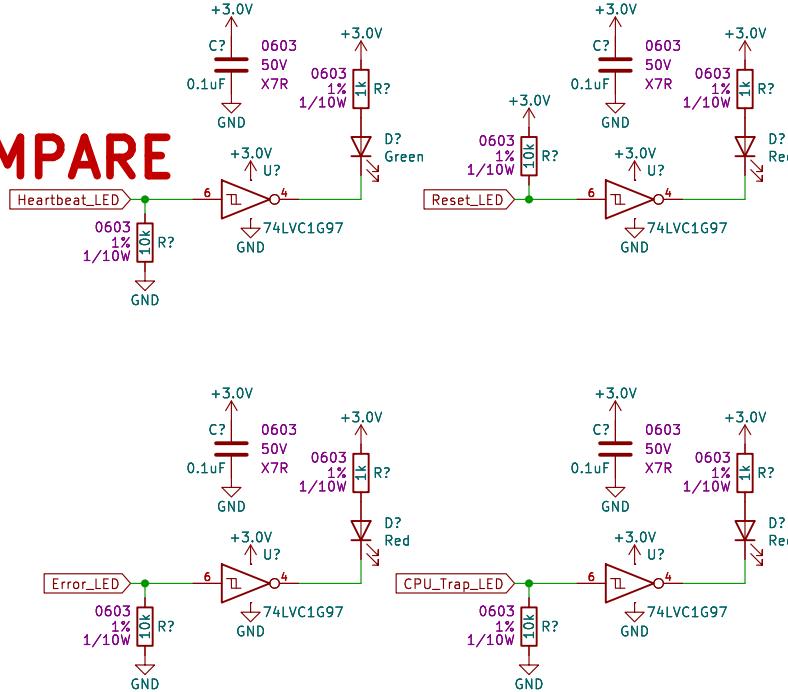
Sheet: /PGOOD LEDs/  
File: PGOOD\_LEDs.kicad\_sch

**Title: Thermal Camera**

Size: A	Date: 2023-12-07
KiCad E.D.A.	kicad 7.0.1

Rev: PRELIM
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# MUST USE OUTPUT COMPARE PIN



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Sheet: /Status LEDs/  
File: Status\_LEDs.kicad\_sch

Title: Thermal Camera

Size: A | Date: 2023-12-07  
KiCad E.D.A. kicad 7.0.1

Rev: PRELIM  
Id: 28/29

1

2

3

4

5

A

A

B

B

C

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D



Drew Maatman and Michael Laffin

Sheet: /Mechanical/  
File: Mechanical.kicad\_sch

**Title: Thermal Camera**

Size: A | Date: 2023-12-07  
KiCad E.D.A. kicad 7.0.1

**Rev: PRELIM**  
Id: 29/29

1

2

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4

5