

Thermal Camera

https://github.com/drewsum/THERMAL_Camera

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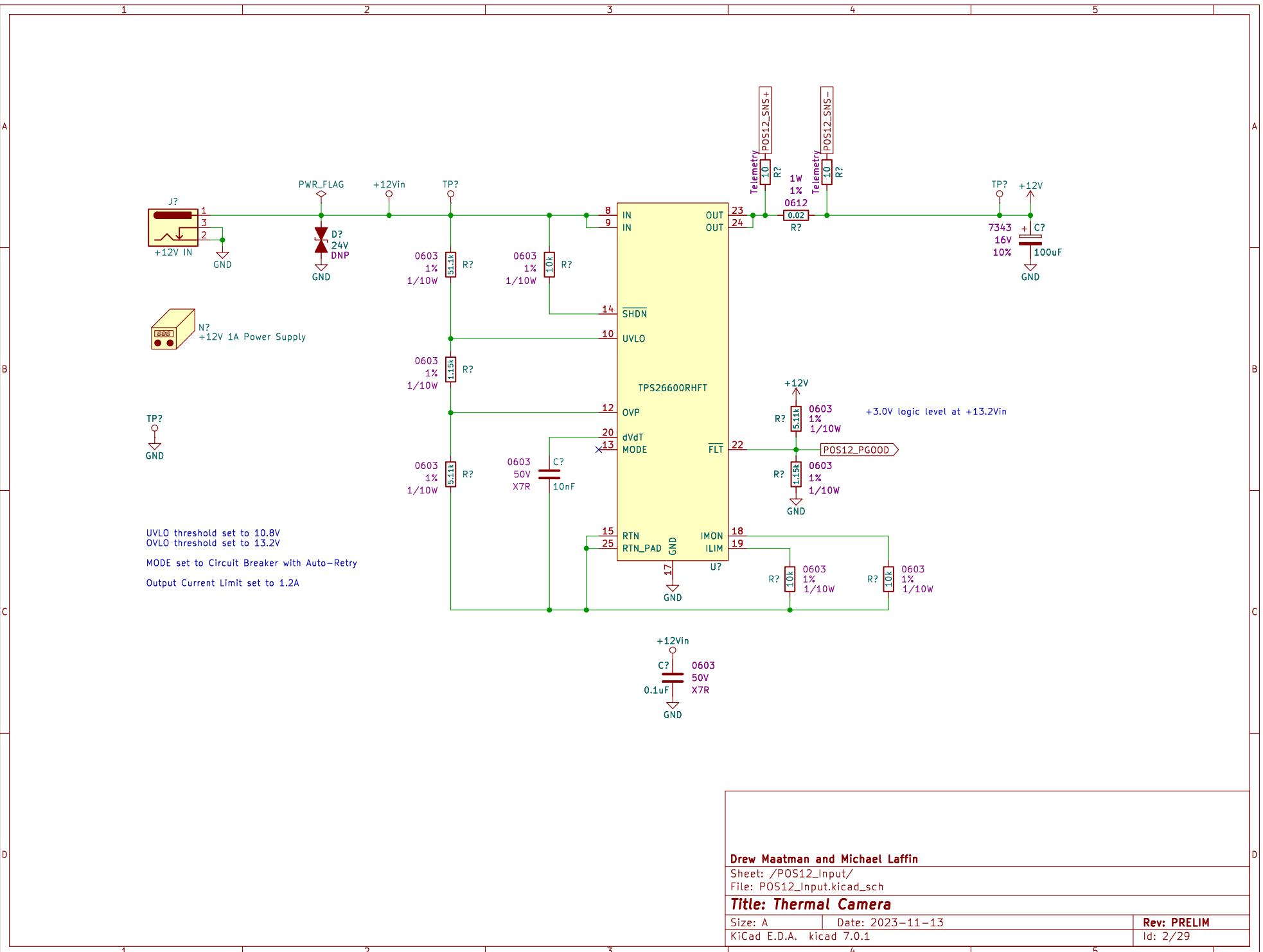
Drew Maatman and Michael Laffin

Sheet: /
File: Thermal_Camera.kicad_sch

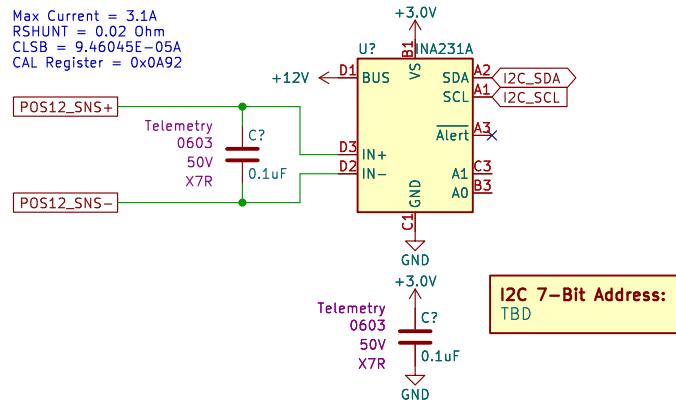
Title: Thermal Camera

Size: A | Date: 2023-11-13
KiCad E.D.A. kicad 7.0.1

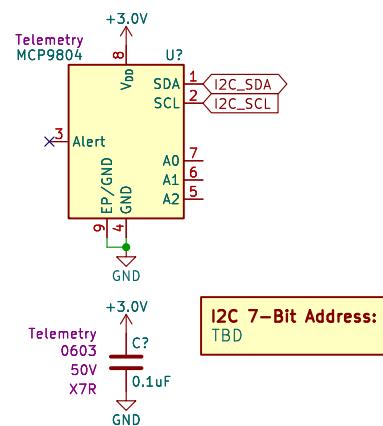
Rev: PRELIM
Id: 1/29



A



B

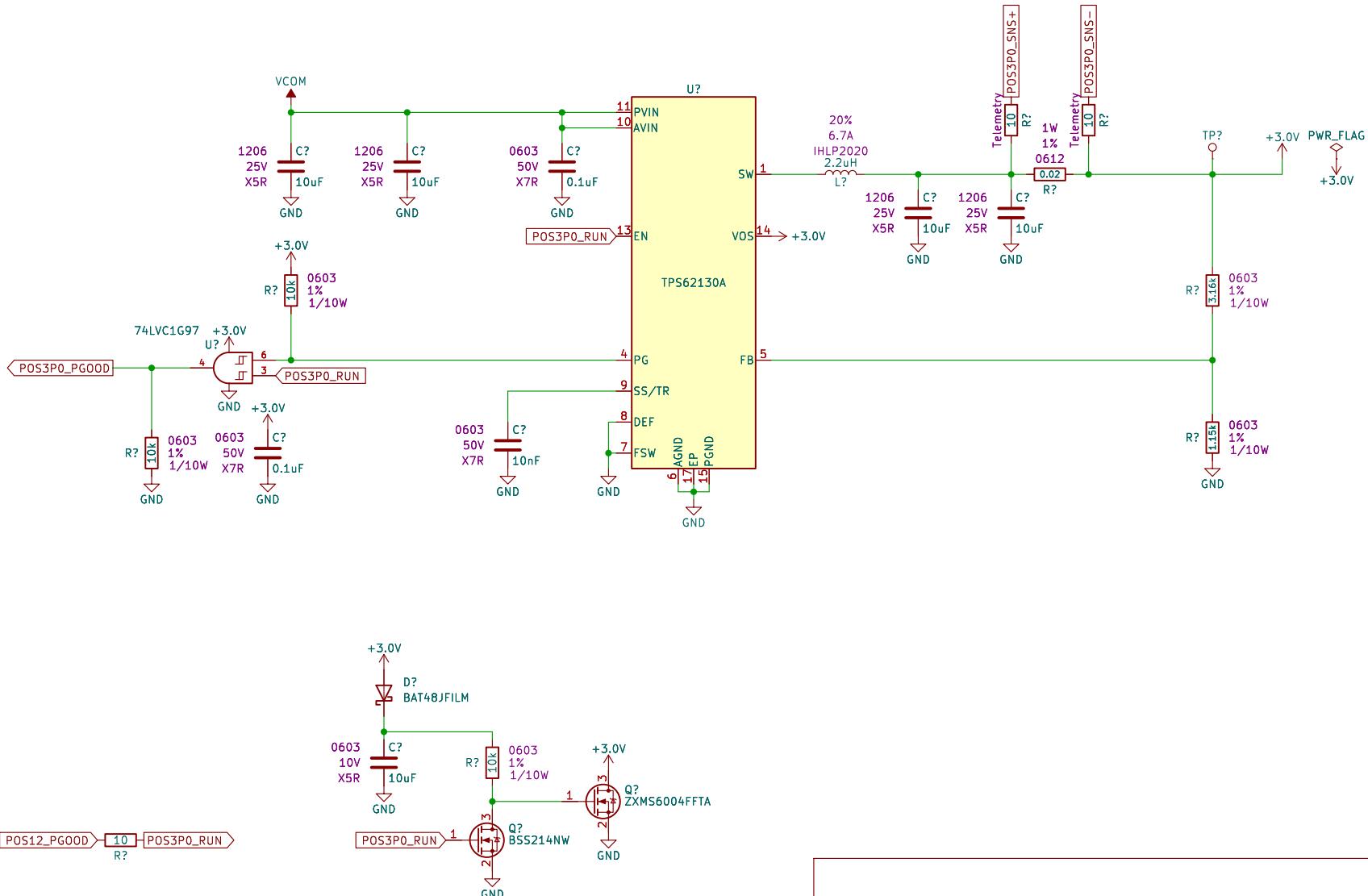


C

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Sheet: /POS12_Telemetry/
File: POS12_Telemetry.kicad_sch**Title: Thermal Camera**Size: A | Date: 2023-11-13
KiCad E.D.A. kicad 7.0.1Rev: PRELIM
Id: 3/29

figure out sequencing



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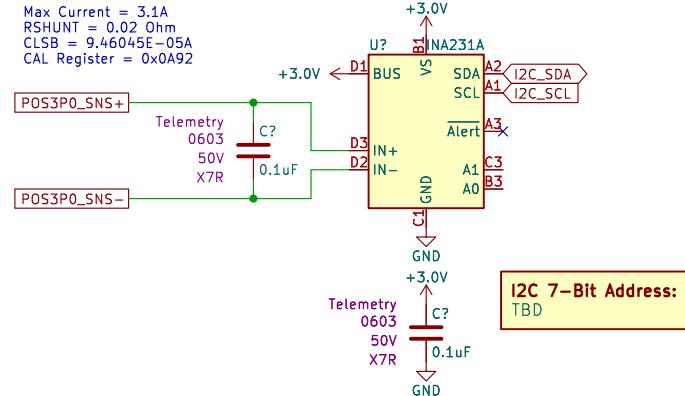
Sheet: /POS3P0 Power Supply/
File: POS3P0_Power_Supply.kicad_sch

Title: Thermal Camera

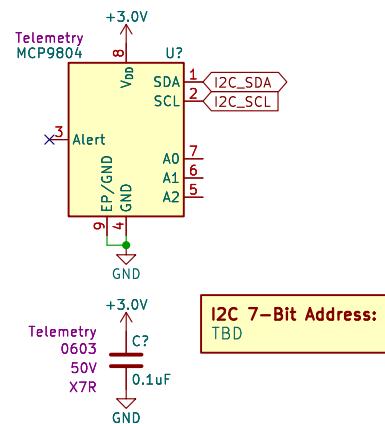
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KiCad E.D.A. kicad 7.0.1

Rev: PRELIM
Id: 4/29

A



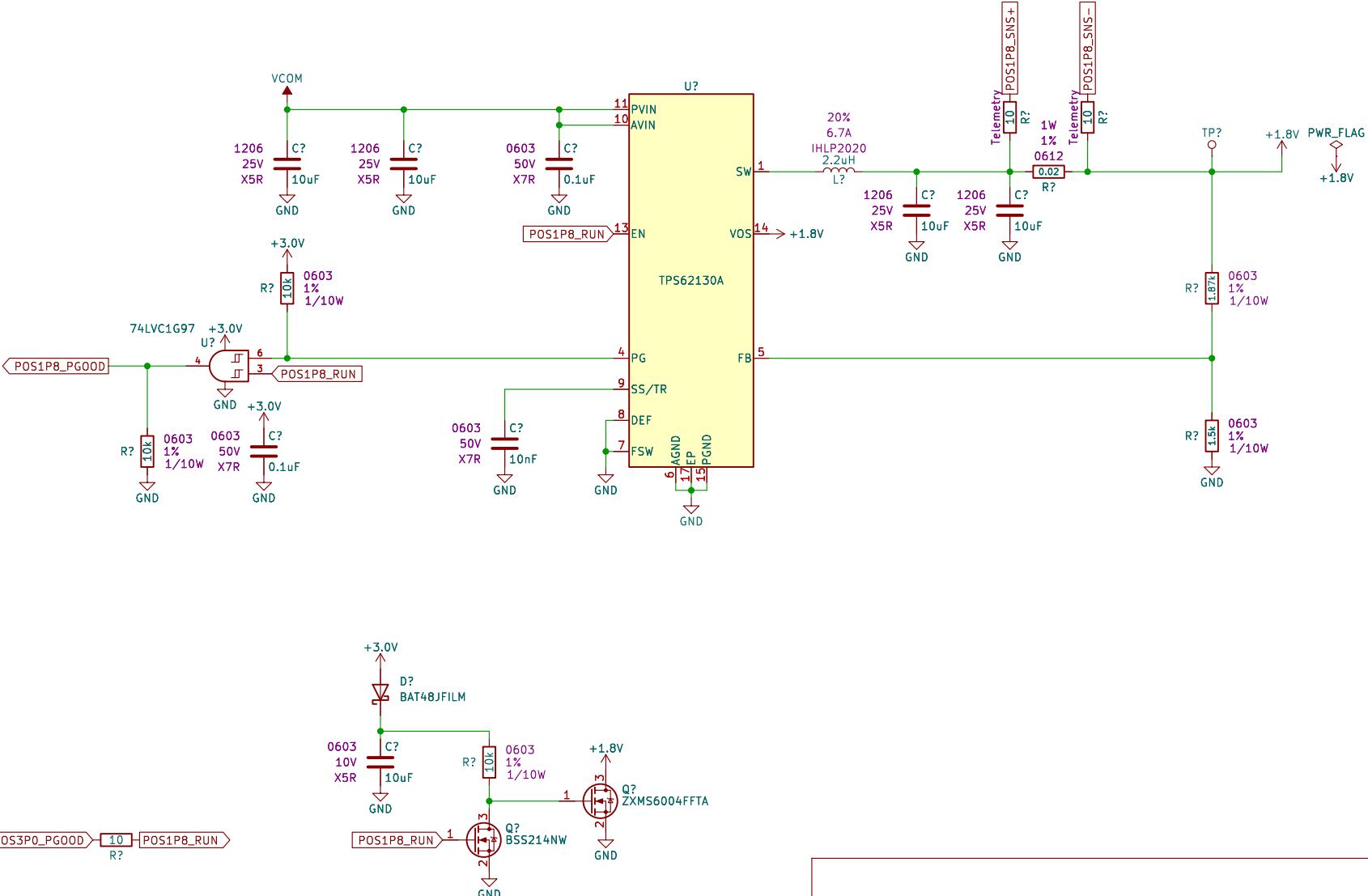
B



C

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Sheet: /POS3PO_Telemetry/
File: POS3PO_Telemetry.kicad_sch**Title: Thermal Camera**Size: A | Date: 2023-11-13
KiCad E.D.A. kicad 7.0.1Rev: PRELIM
Id: 5/29



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Sheet: /POS1P8 Power Supply/
File: POS1P8_Power_Supply.kicad_sch

Title: Thermal Camera

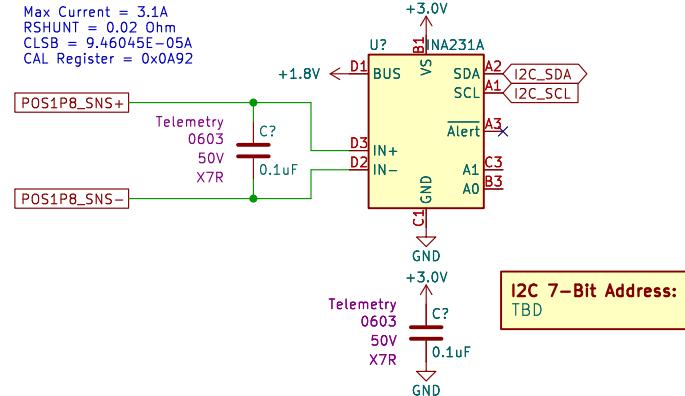
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KiCad E.D.A. kicad 7.0.1

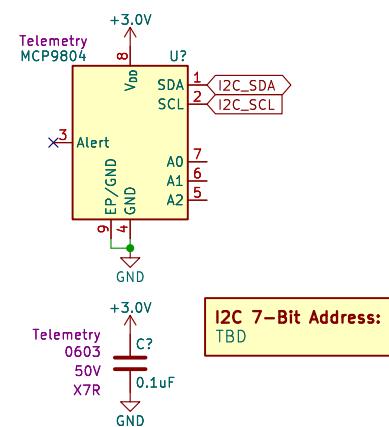
Rev: PRELIM

Id: 6/29

A



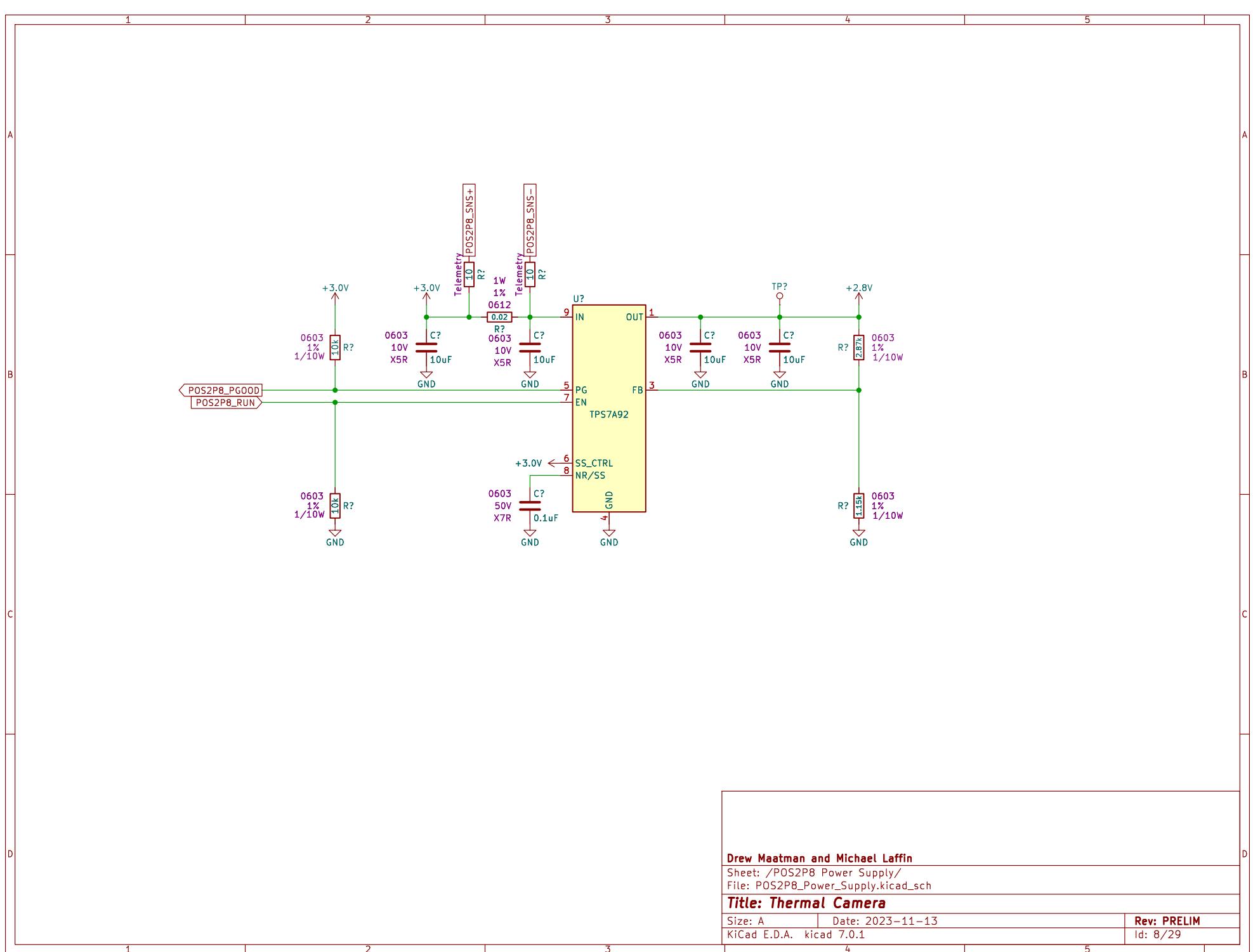
B



C

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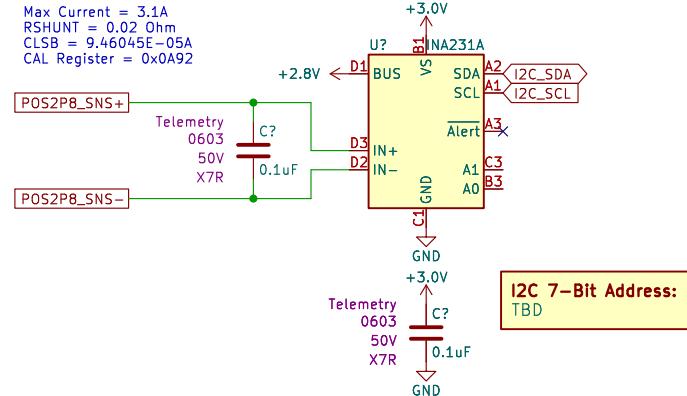
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KiCad E.D.A. kicad 7.0.1Rev: PRELIM
Id: 7/29



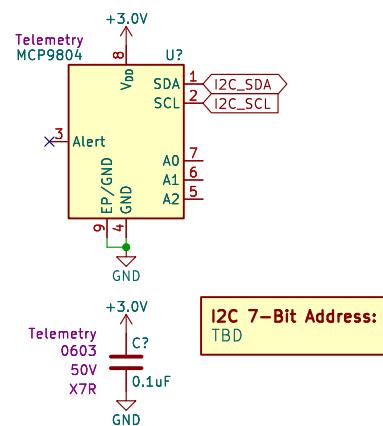
Drew Maatman and Michael Laffin

Sheet: /POS2P8 Power Supply/
File: POS2P8_Power_Supply.kicad_sch**Title: Thermal Camera**Size: A | Date: 2023-11-13
KiCad E.D.A. kicad 7.0.1Rev: PRELIM
Id: 8/29

A



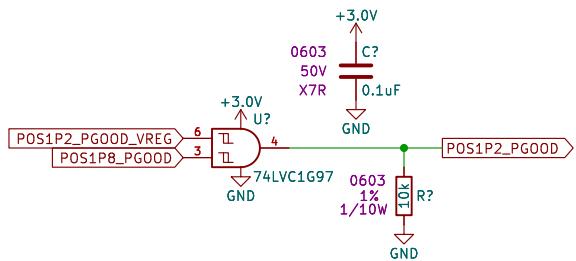
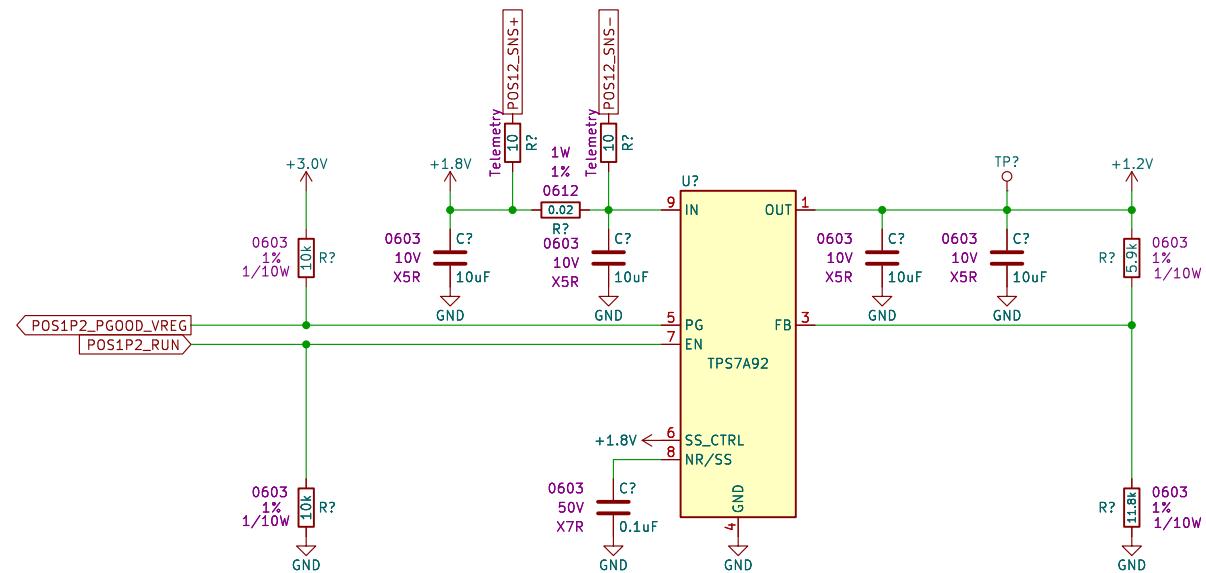
B



C

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Sheet: /POS2P8_Telemetry/
File: POS2P8_Telemetry.kicad_sch**Title: Thermal Camera**Size: A | Date: 2023-11-13
KiCad E.D.A. kicad 7.0.1Rev: PRELIM
Id: 9/29



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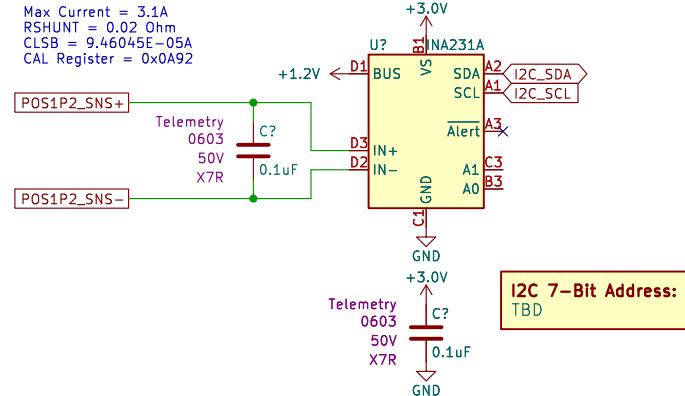
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File: POS1P2_Power_Supply.kicad_sch

Title: Thermal Camera

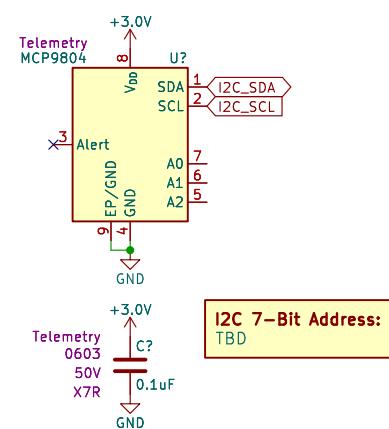
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KiCad E.D.A. kicad 7.0.1

Rev: PRELIM
Id: 10/29

A



B



C

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Sheet: /POS1P2_Telemetry/
File: POS1P2_Telemetry.kicad_sch**Title: Thermal Camera**

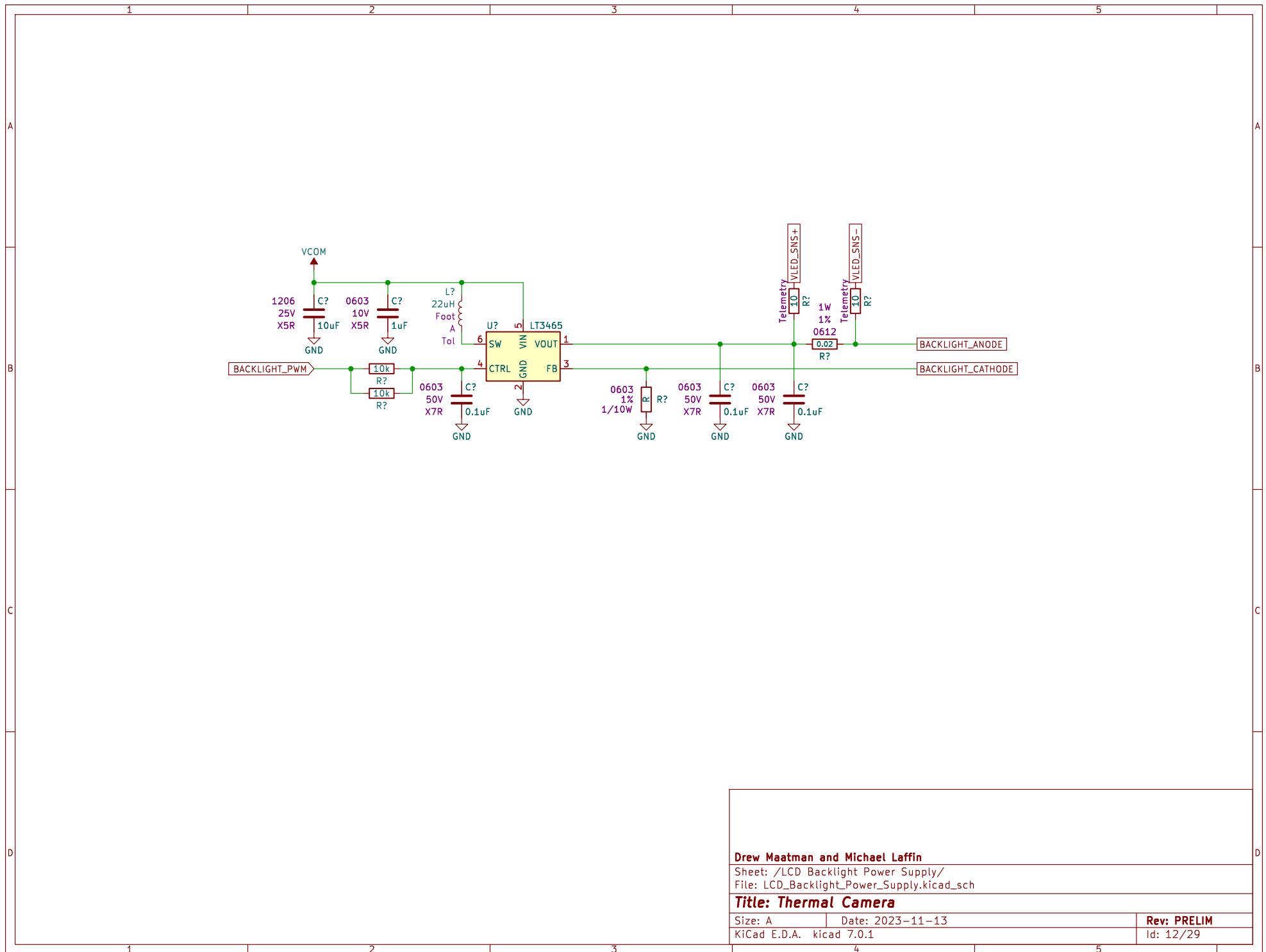
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KiCad E.D.A. kicad 7.0.1

Rev: PRELIM

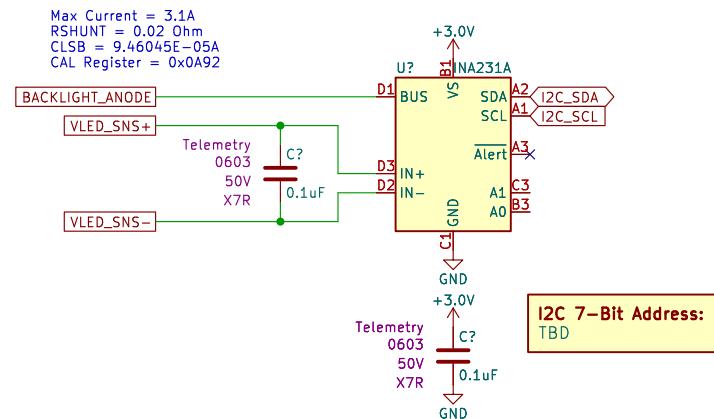
Id: 11/29

1 2 3 4 5

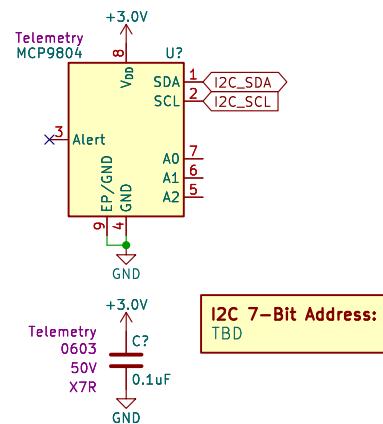


1 2 3 4 5

A



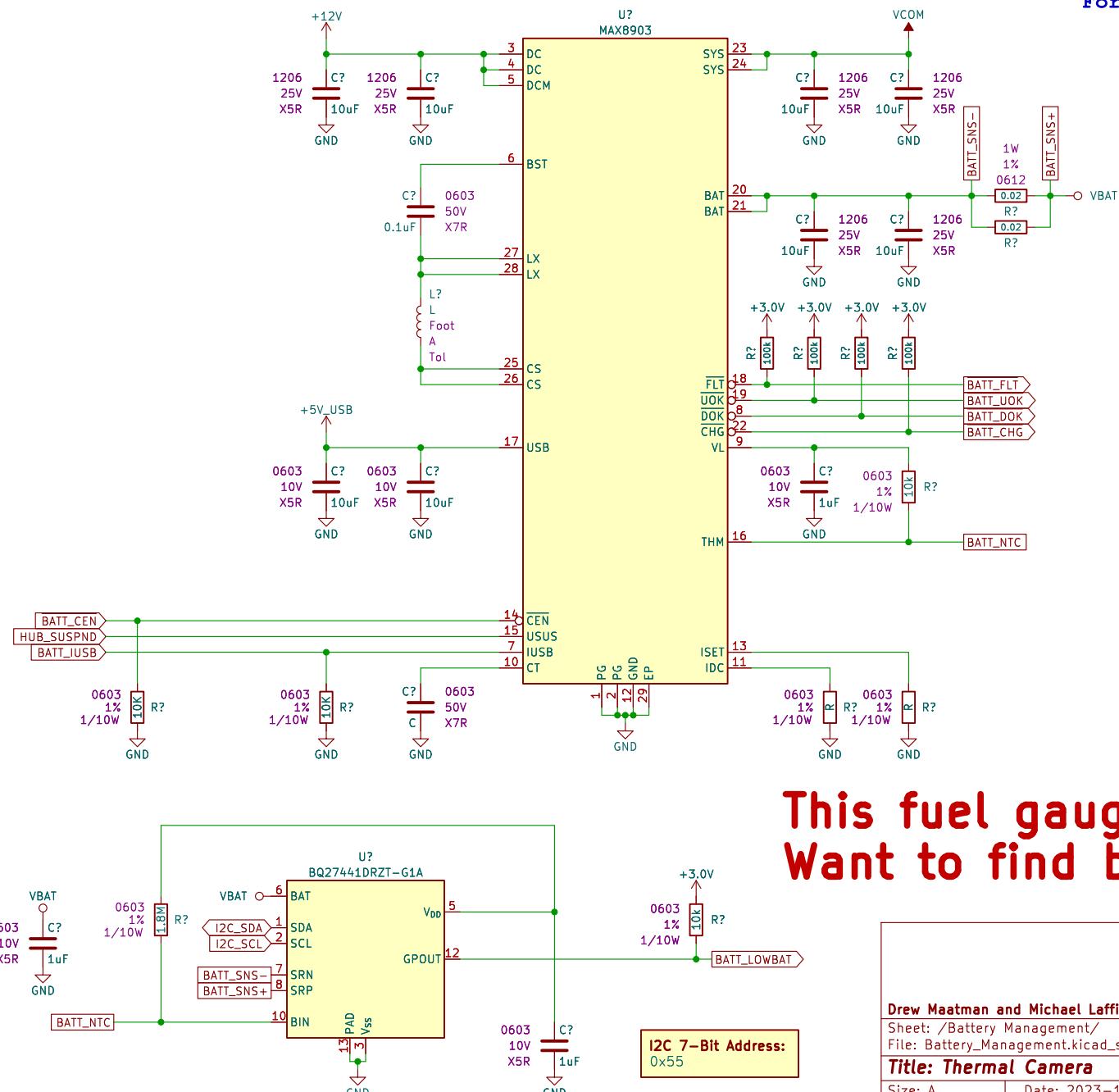
B



C

Drew Maatman and Michael Laffin

Sheet: /LCD Backlight Telemetry/
File: LCD_Backlight_Telemetry.kicad_sch**Title: Thermal Camera**Size: A | Date: 2023-11-13
KiCad E.D.A. kicad 7.0.1Rev: PRELIM
Id: 13/29



This fuel gauge is sketchy
Want to find battery with NTC

Drew Maatman and Michael Laffin

Sheet: /Battery Management/

File: Battery_Management.kicad

Title: Thermal Camera

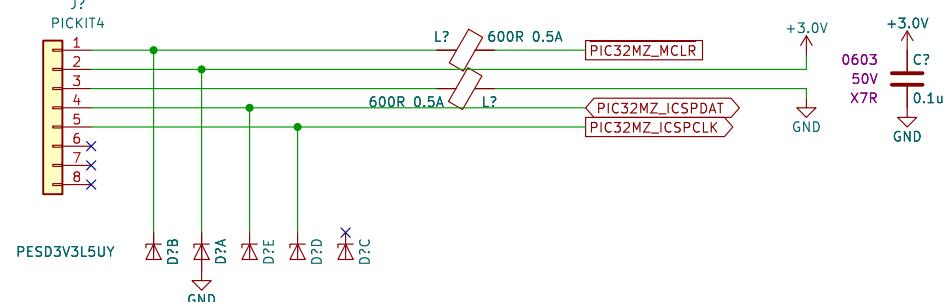
KiCad EDA - kicad_7.0.1

KiCad E.D.A. kiCad 7.0.1

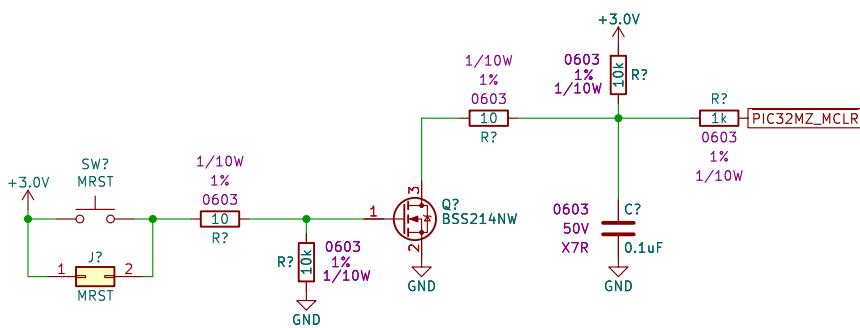
4

1 2 3 4 5

A



B



C



SW?
MRST

D

Drew Maatman and Michael Laffin

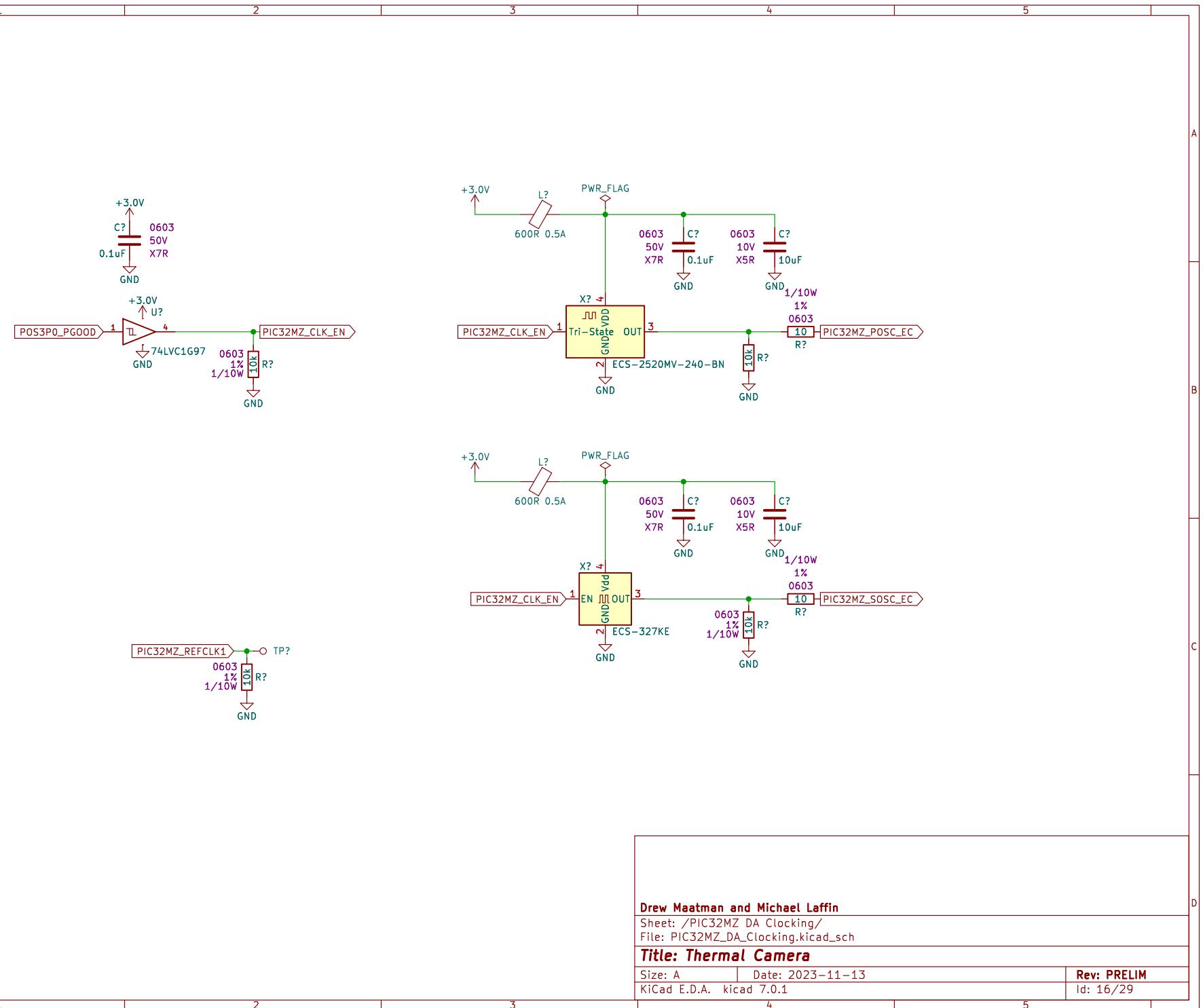
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File: PIC32MZ_DA_Programming.kicad_sch

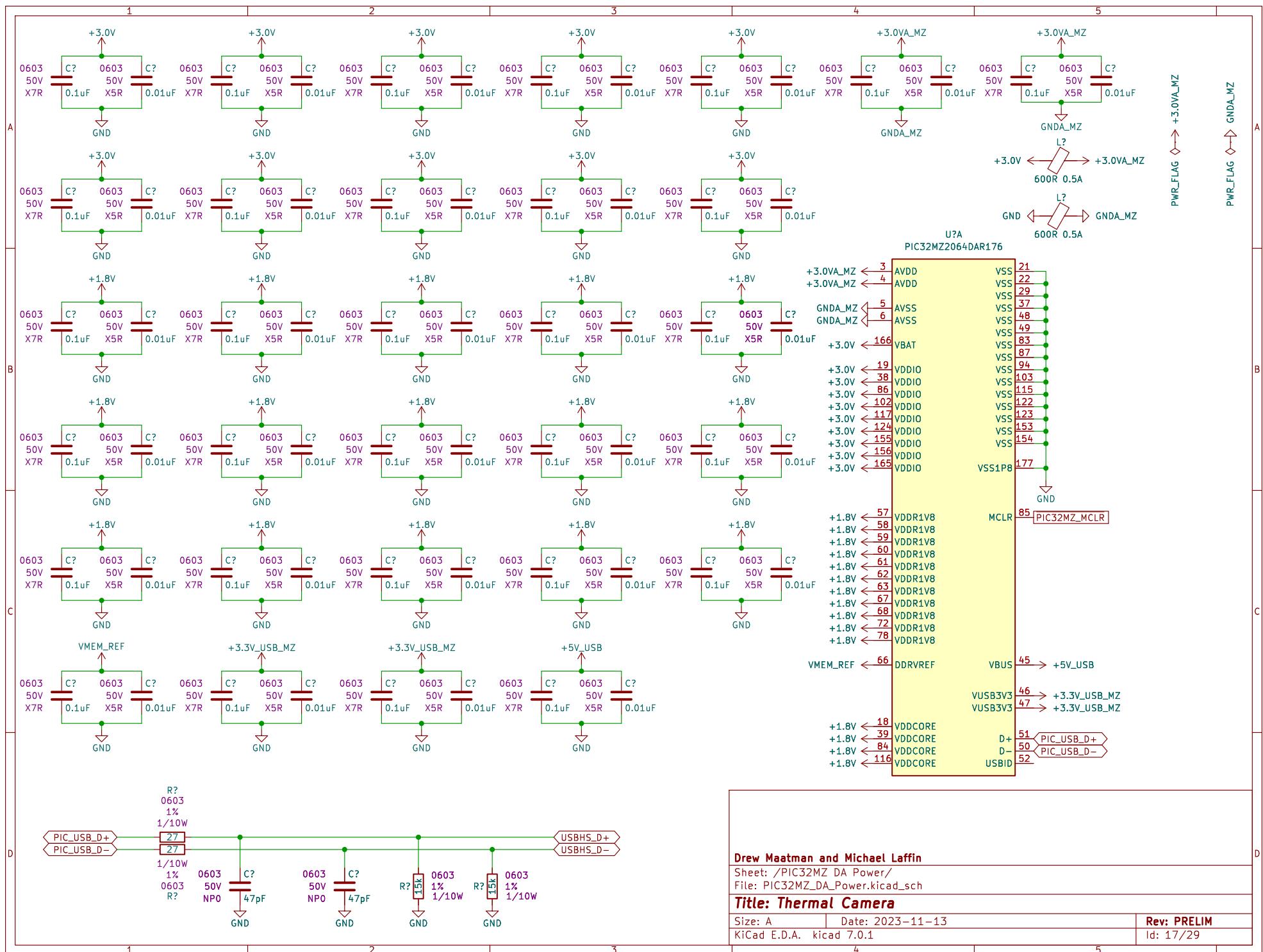
Title: Thermal Camera

Size: A Date: 2023-11-13
KiCad E.D.A. kicad 7.0.1

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Id: 15/29

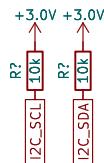
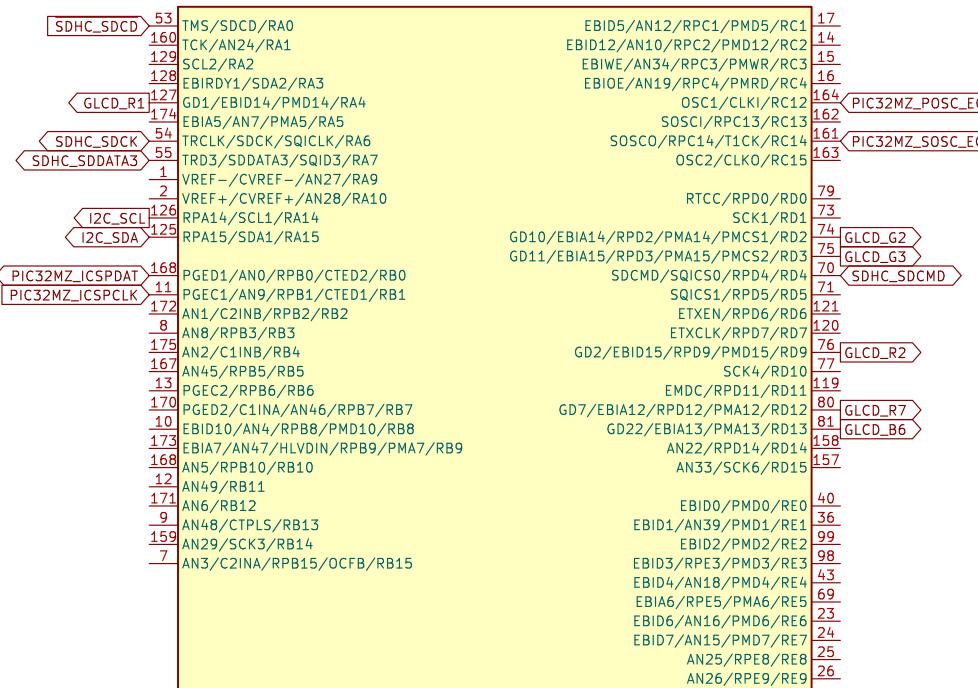
1 2 3 4 5





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

U?B
PIC32MZ2064DAR176



Drew Maatman and Michael Laffin

Sheet: /PIC32MZ_DA_1/
File: PIC32MZ_DA_1.kicad_sch

Title: Thermal Camera

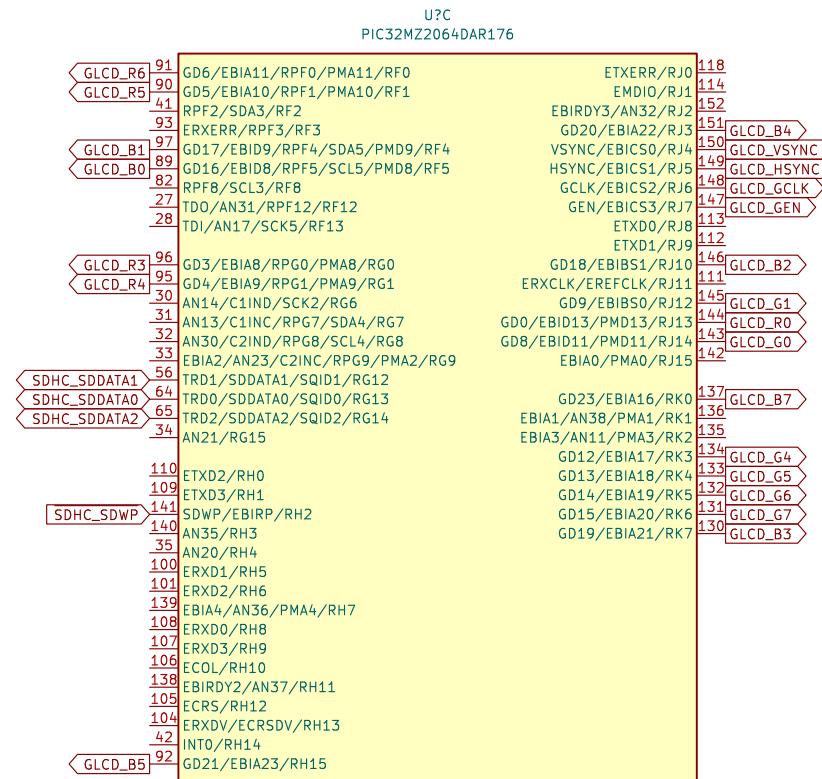
Size: A Date: 2023-11-13
KiCad E.D.A. kicad 7.0.1

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

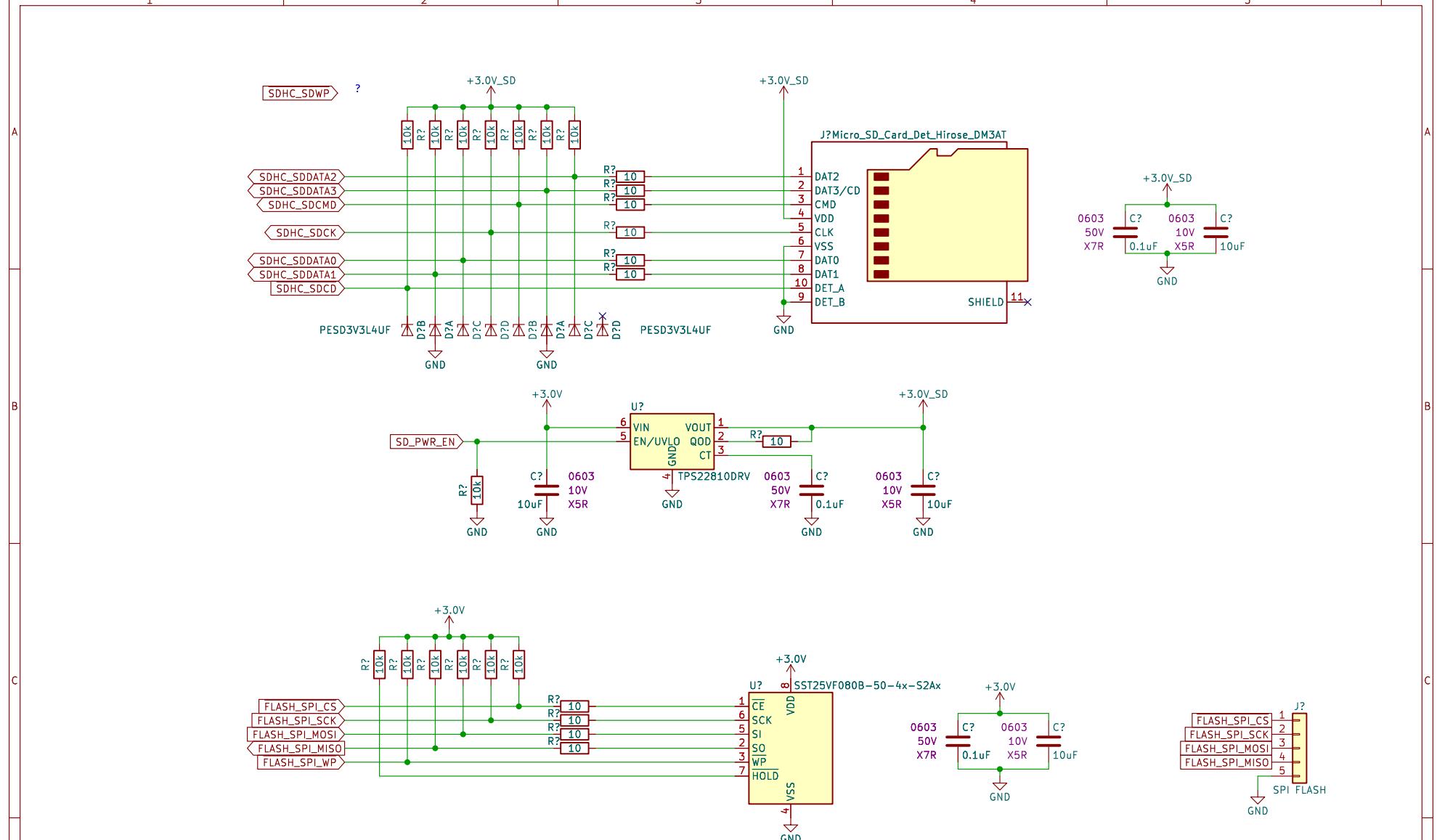
Size: A Date: 2023-11-13

KiCad E.D.A. kicad 7.0.1

Rev: PRELIM

Id: 19/29

1 2 3 4 5



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: 2023-11-13

KiCad E.D.A. kicad 7.0.1

Rev: PRELIM

Id: 20/29

1 2 3 4 5

A

GLCD_VSYNC
GLCD_HSYNC
GLCD_GCLK
GLCD_GEN

A

GLCD_R0
GLCD_R1
GLCD_R2
GLCD_R3
GLCD_R4
GLCD_R5
GLCD_R6
GLCD_R7

B

GLCD_G0
GLCD_G1
GLCD_G2
GLCD_G3
GLCD_G4
GLCD_G5
GLCD_G6
GLCD_G7

B

GLCD_B0
GLCD_B1
GLCD_B2
GLCD_B3
GLCD_B4
GLCD_B5
GLCD_B6
GLCD_B7

C

C

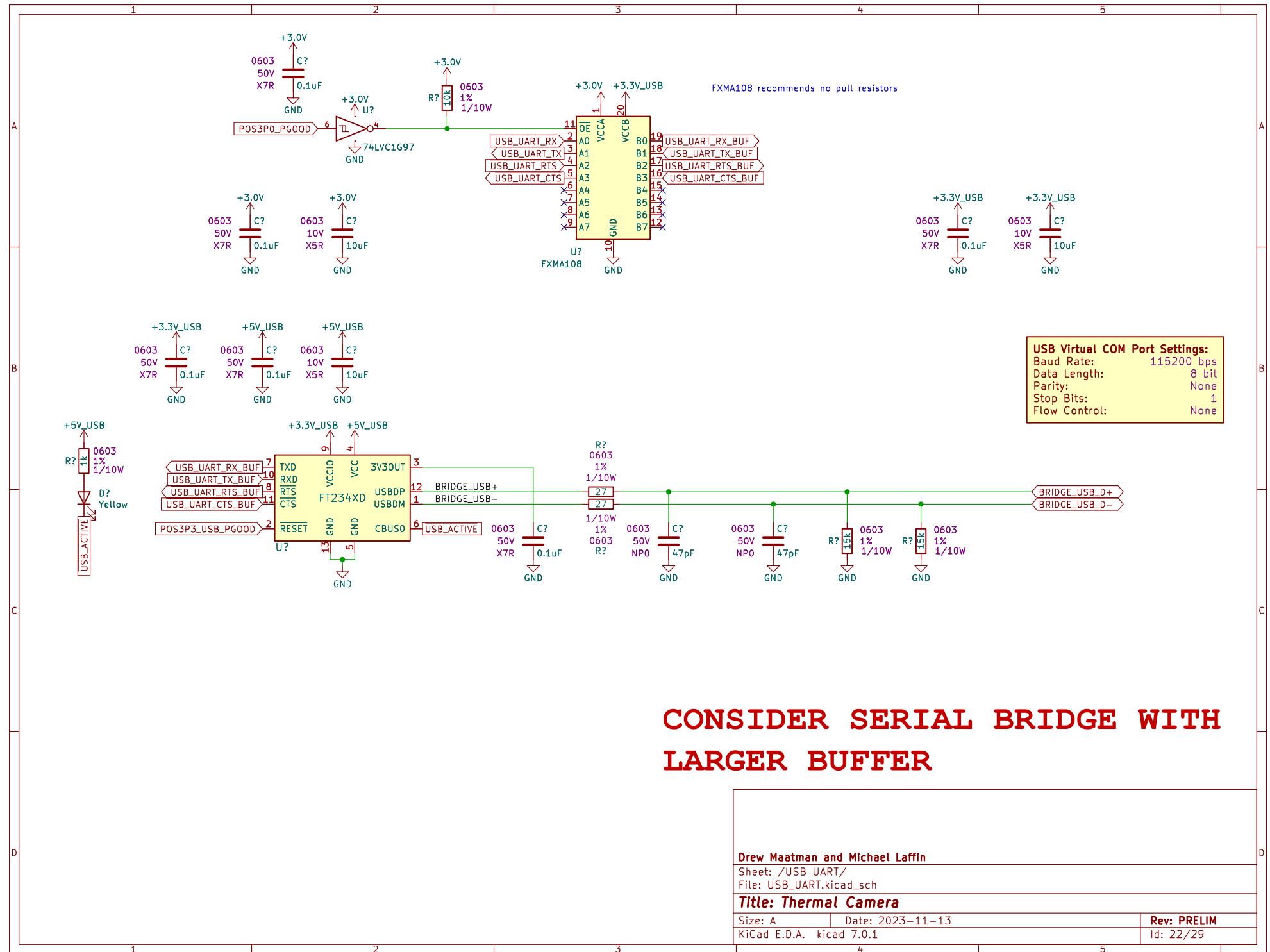
Drew Maatman and Michael Laffin

Sheet: /Graphic LCD/
File: Graphic_LCD.kicad_sch

Title: Thermal Camera

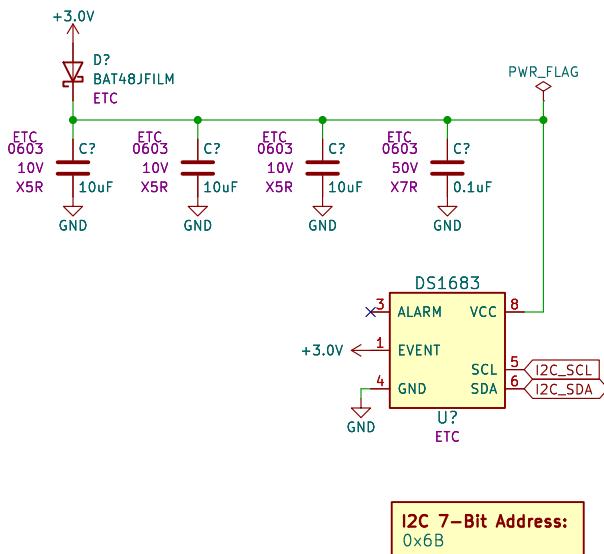
Size: A | Date: 2023-11-13
KiCad E.D.A. kicad 7.0.1

Rev: PRELIM
Id: 21/29



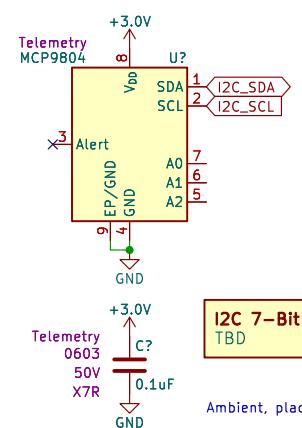
A

A



B

B



C

C

Drew Maatman and Michael Laffin

Sheet: /Elapsed Time Counter/
File: Elapsed_Time_Counter.kicad_sch

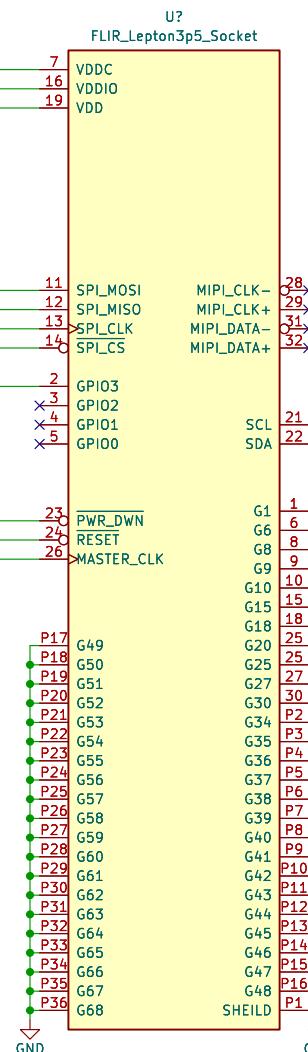
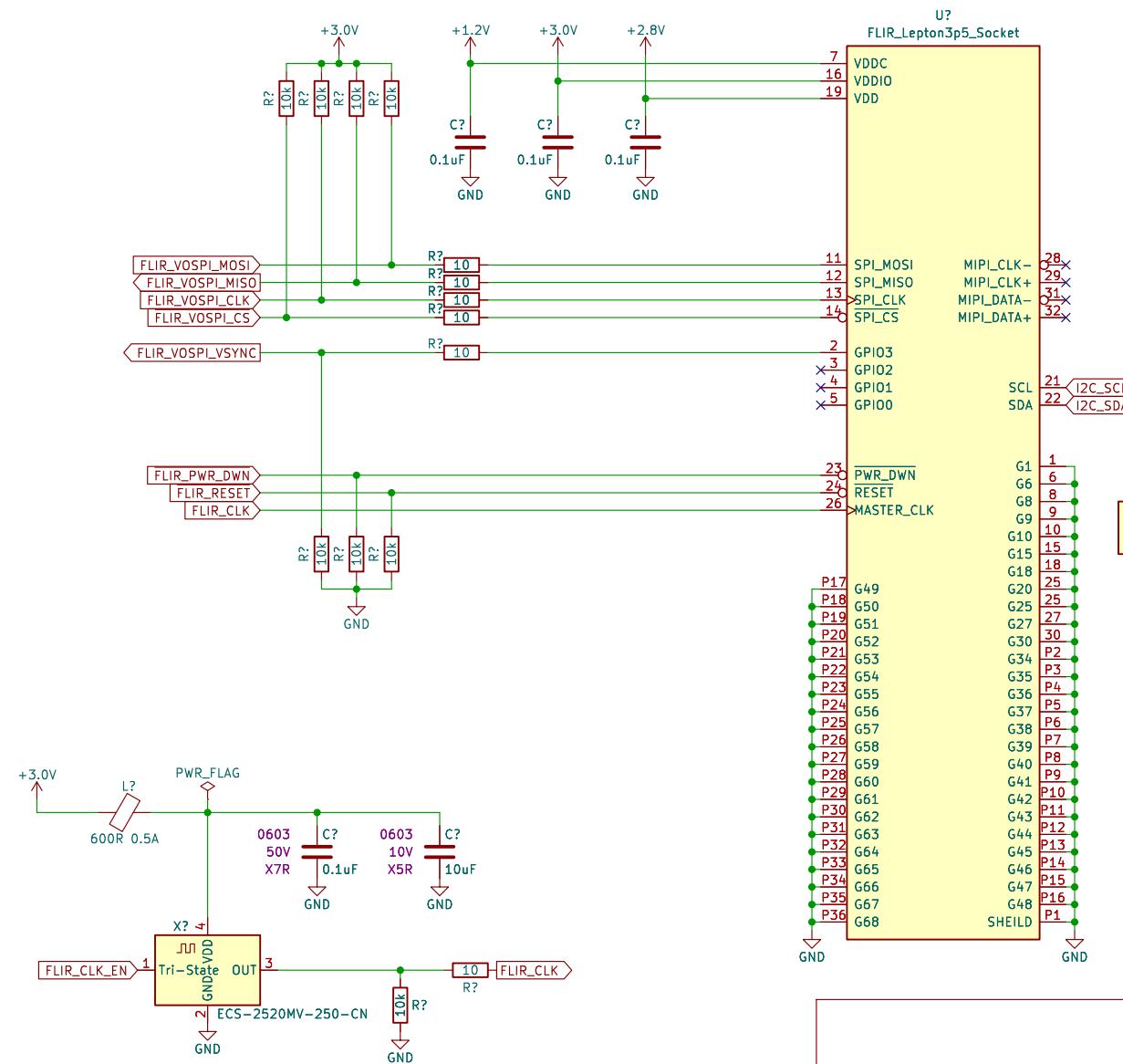
Title: Thermal Camera

| | |
|--------------|------------------|
| Size: A | Date: 2023-11-13 |
| KiCad E.D.A. | kicad 7.0.1 |

| |
|-------------|
| Rev: 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



I2C 7-Bit Address:
0x2A

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



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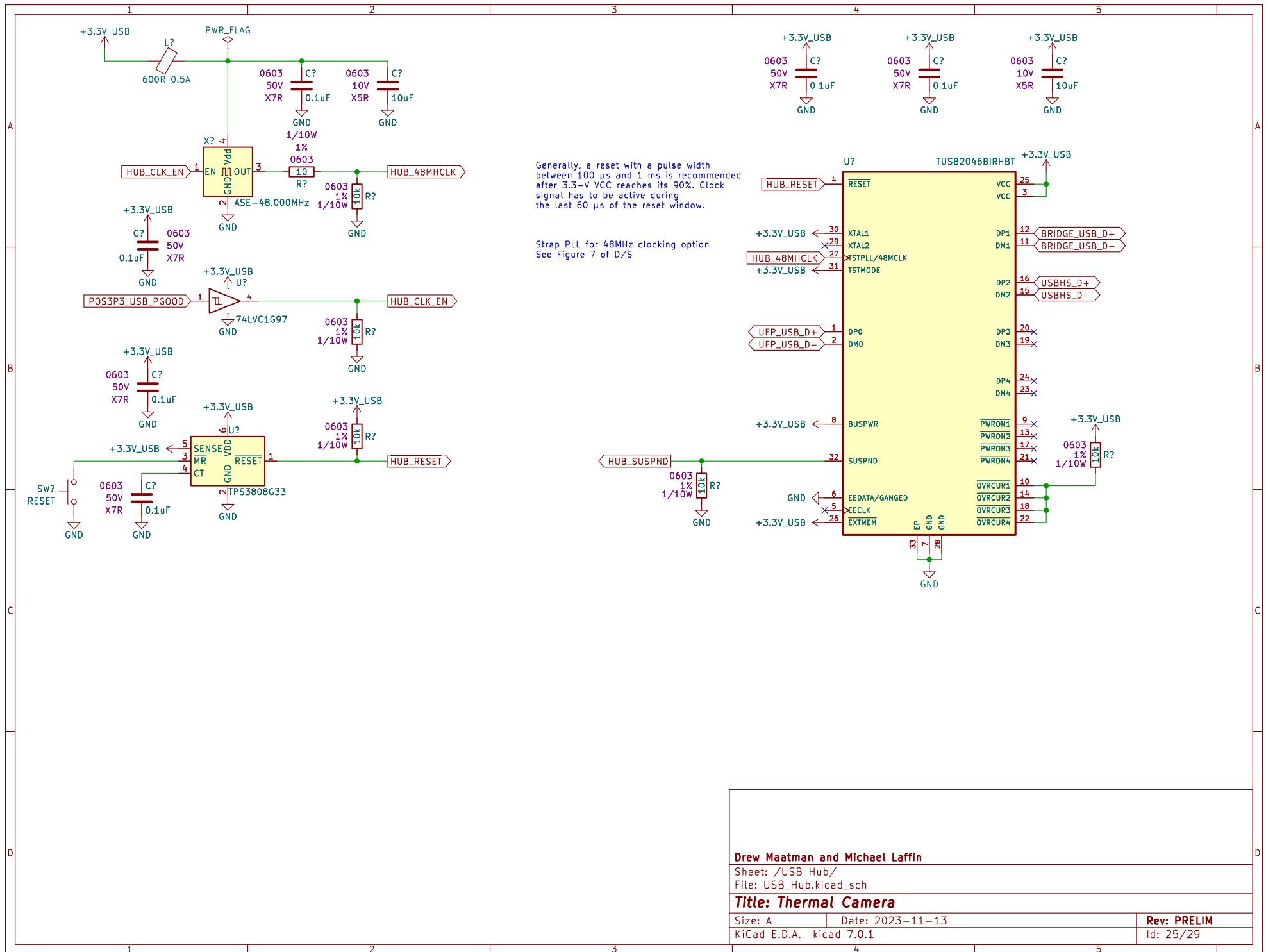
Sheet: /FLIR Lepton Sensor/
File: FLIR_Lepton_Sensor.kicad_sch

Title: Thermal Camera

Size: A | Date: 2023-11-13
KiCad E.D.A. kicad 7.0.1

Rev: PRELIM
Id: 24/29

1 2 3 4 5



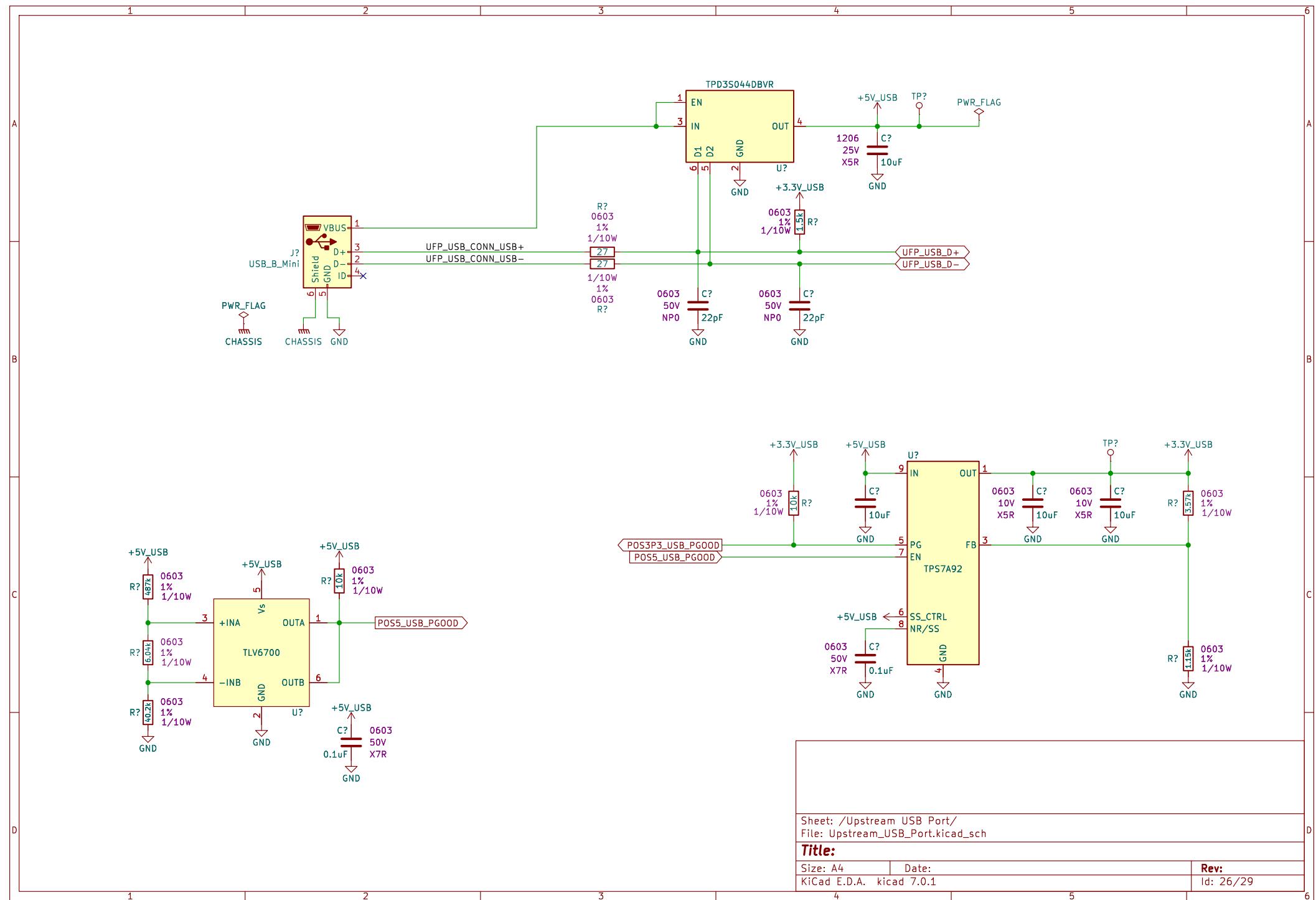
Drew Maatman and Michael Laffin

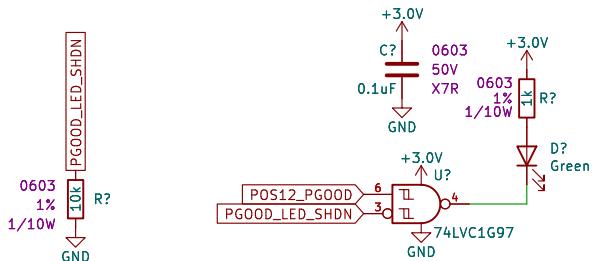
Sheet: /USB_Hub/
File: USB_Hub.kicad_sch

Title: Thermal Camera

Size: A | Date: 2023-11-13
KiCad E.D.A. kicad 7.0.1

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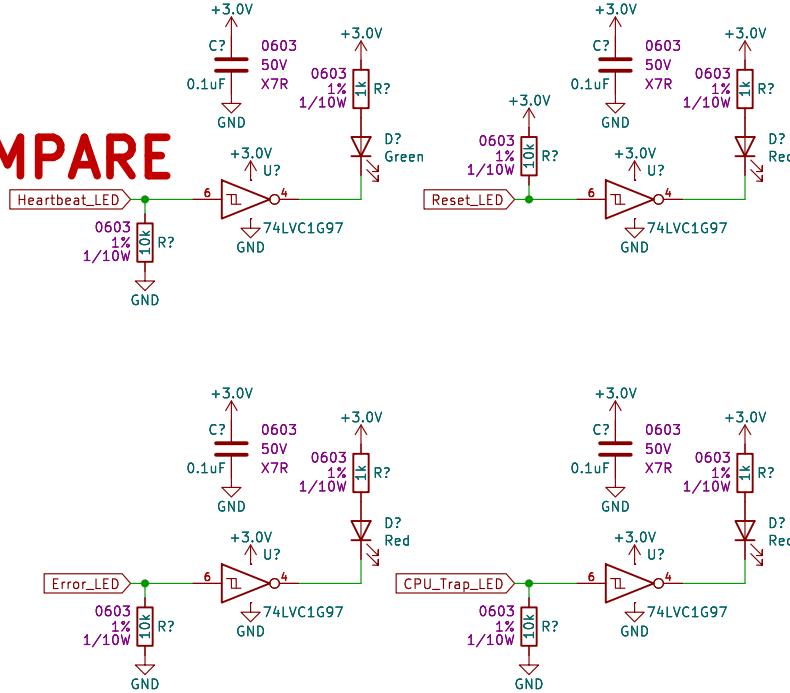
Sheet: /PGOOD LEDs/
File: PGOOD_LEDs.kicad_sch

Title: Thermal Camera

| | |
|--------------|------------------|
| Size: A | Date: 2023-11-13 |
| KiCad E.D.A. | kicad 7.0.1 |

| |
|-------------|
| Rev: PRELIM |
| Id: 27/29 |

MUST USE OUTPUT COMPARE PIN



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Sheet: /Status LEDs/
File: Status_LEDs.kicad_sch

Title: Thermal Camera

Size: A Date: 2023-11-13
KiCad E.D.A. kicad 7.0.1

Rev: PRELIM
Id: 28/29

1

2

3

4

5

A

A

B

B

C

C

D

D



Drew Maatman and Michael Laffin

Sheet: /Mechanical/
File: Mechanical.kicad_sch

Title: Thermal Camera

Size: A | Date: 2023-11-13
KiCad E.D.A. kicad 7.0.1

Rev: PRELIM
Id: 29/29

1

2

3

4

5