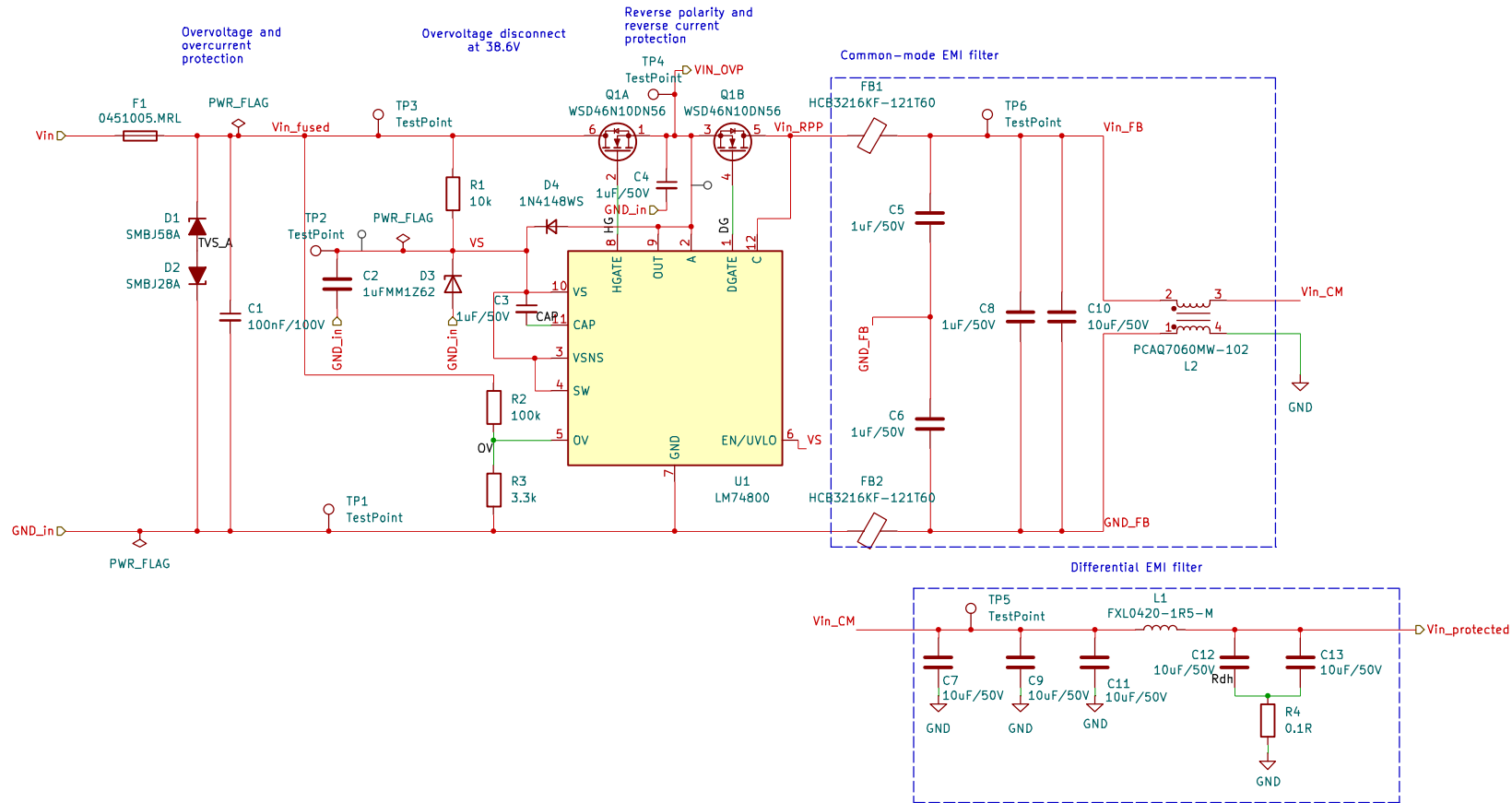


EMI pre-filter design taken from PMP15013 & 62AN101E.



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Hat Labs Oy

Sheet: /Power/Input Protection/
 File: protection.kicad_sch

Title: HALPI2

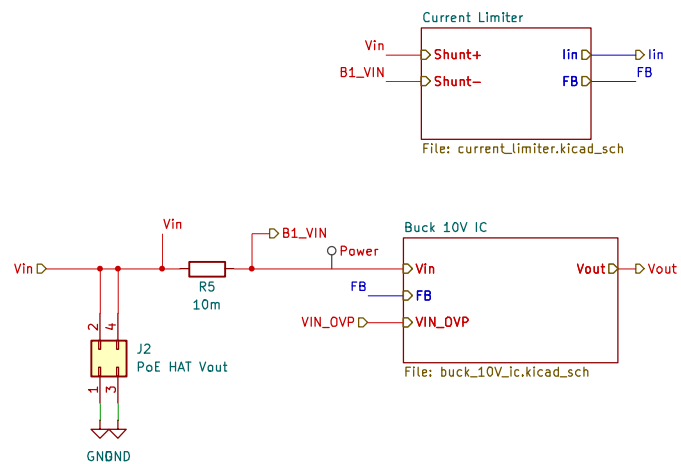
Size: A4

Date: 2025-06-08

Rev: v0.4.0

KiCad E.D.A. 9.0.4

Id: 3/38



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Hat Labs Oy

Sheet: /Power/Buck converter 10V/
File: buck_10V.kicad_sch

Title: HALPI2

Size: A4

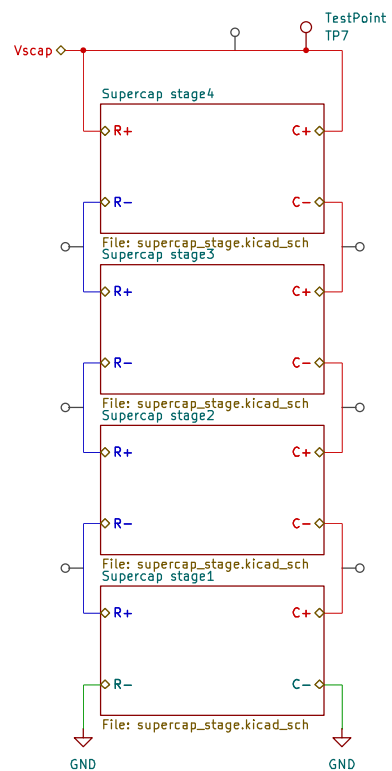
Date: 2025-06-08

Rev: v0.4.0

KICad E.D.A. 9.0.4

Id: 4/38

Supercapacitor balancing circuit modeled after
<https://www.eevblog.com/forum/renewable-energy/supercapacitor-balancer/>



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Hat Labs Oy

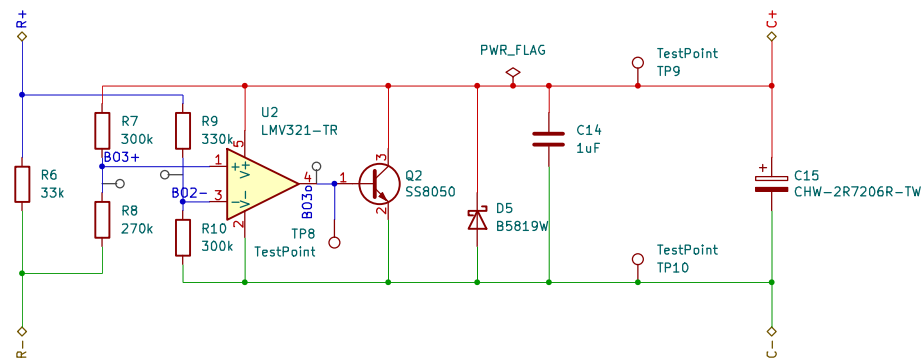
Sheet: /Power/Supercaps/
File: supercap.kicad_sch

Title: HALPI2

Size: A4
KiCad E.D.A. 9.0.4

Date: 2025-06-08

Rev: v0.4.0
Id: 5/38



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Hat Labs Oy

Sheet: /Power/Supercaps/Supercap stage1/

File: supercap_stage.kicad_sch

Title: HALPI2

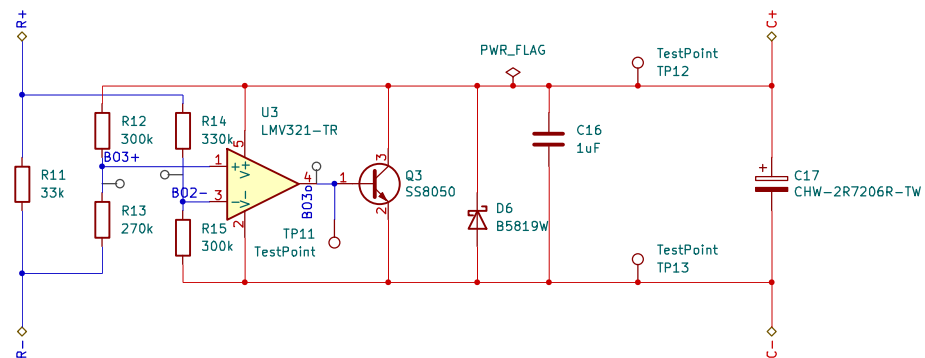
Size: A4

Date: 2025-06-08

Rev: v0.4.0

KICad E.D.A. 9.0.4

Id: 6/38



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Hat Labs Oy

Sheet: /Power/Supercaps/Supercap stage2/

File: supercap_stage.kicad_sch

Title: HALPI2

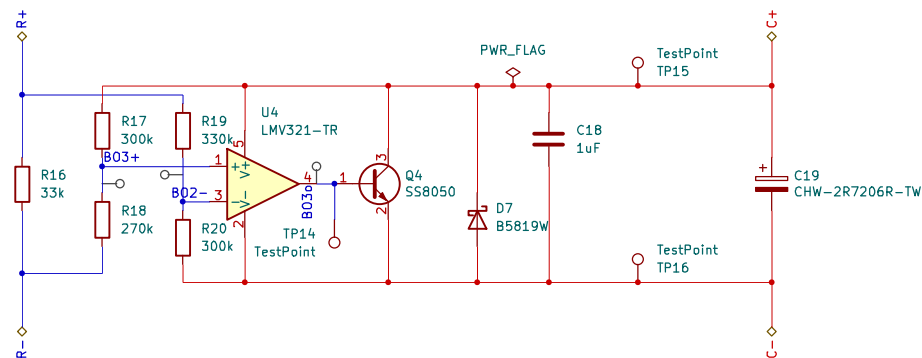
Size: A4

Date: 2025-06-08

Rev: v0.4.0

KiCad E.D.A. 9.0.4

Id: 7/38



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Hat Labs Oy

Sheet: /Power/Supercaps/Supercap stage3/

File: supercap_stage.kicad_sch

Title: HALPI2

Size: A4

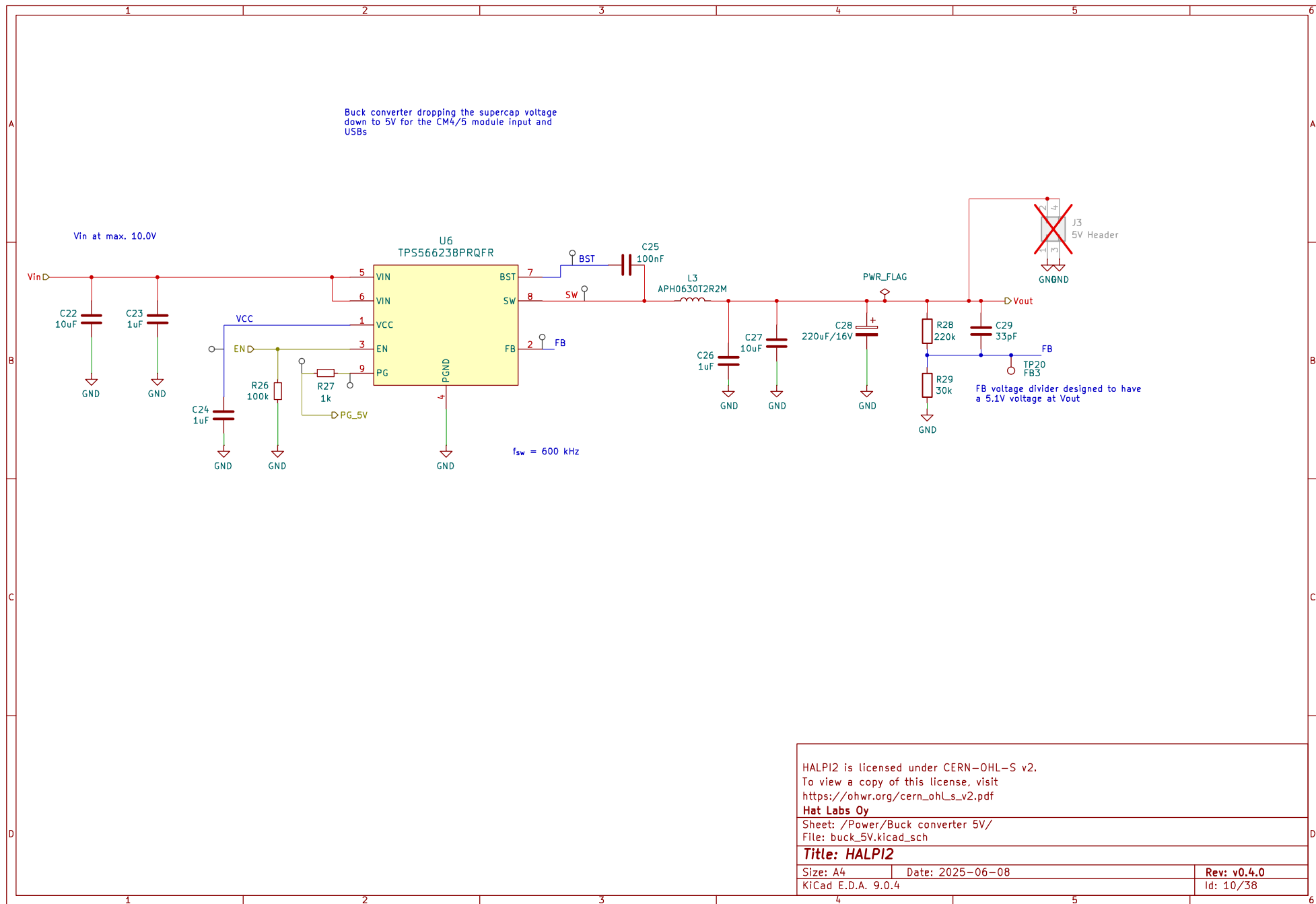
Date: 2025-06-08

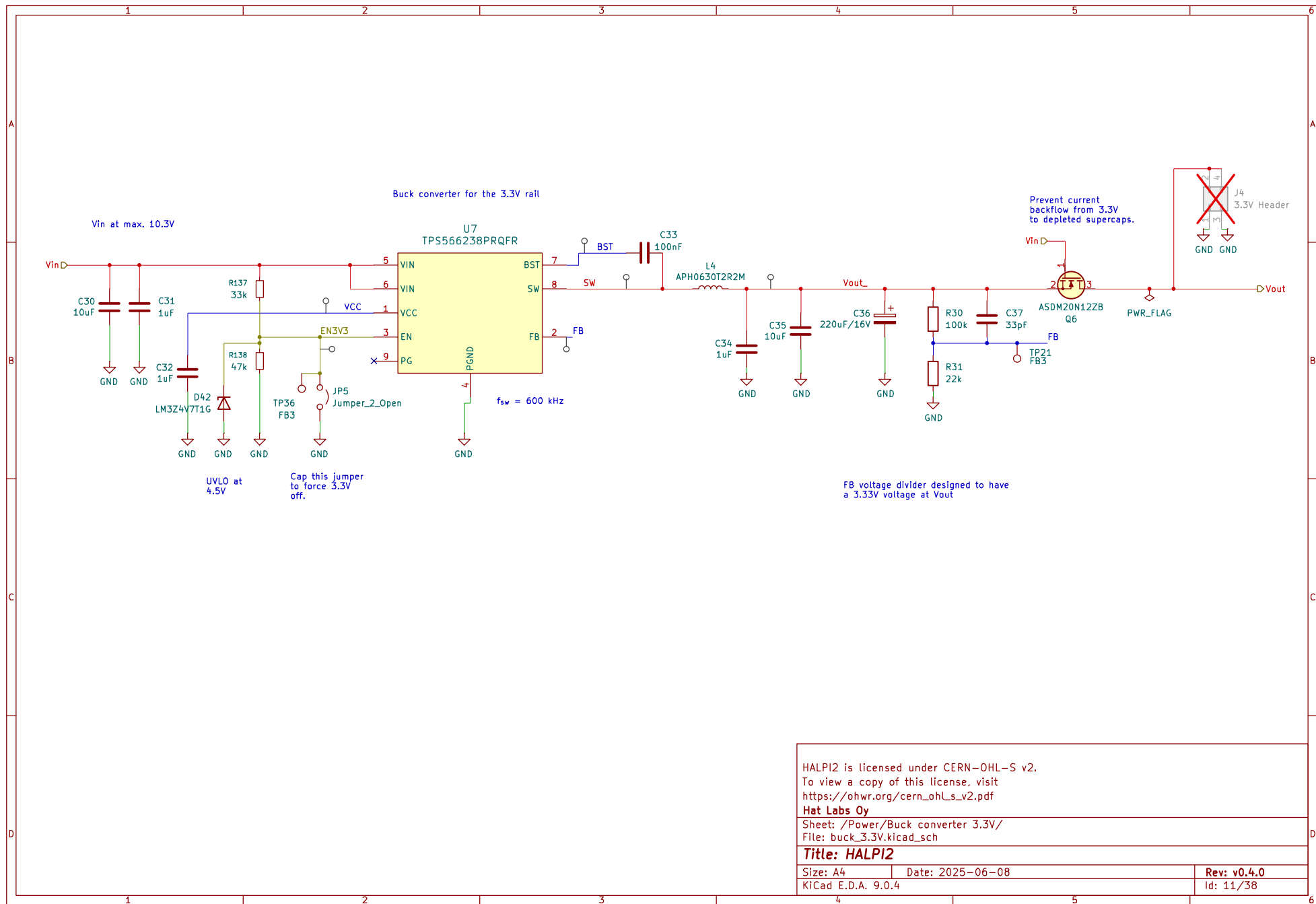
Rev: v0.4.0

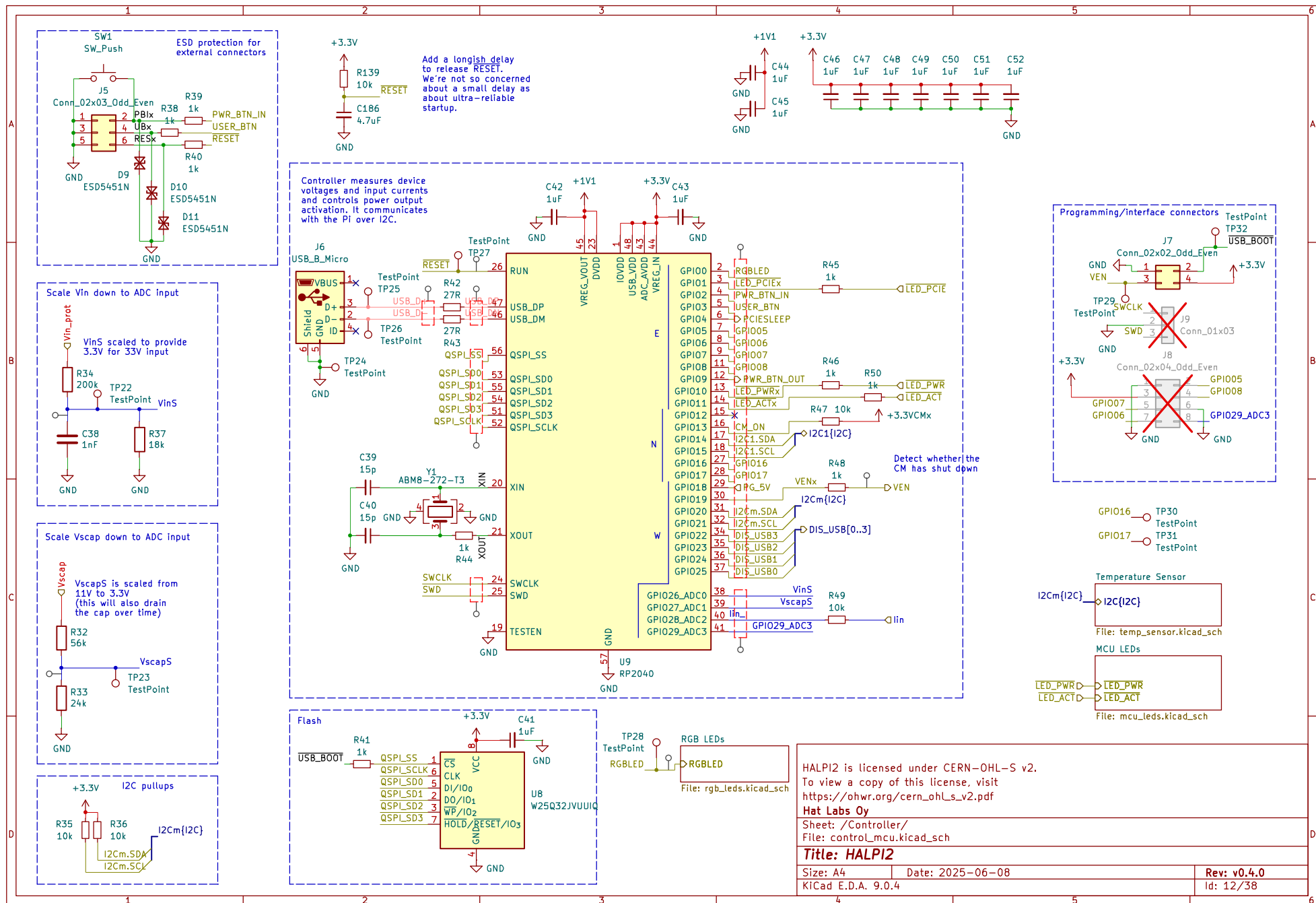
KiCad E.D.A. 9.0.4

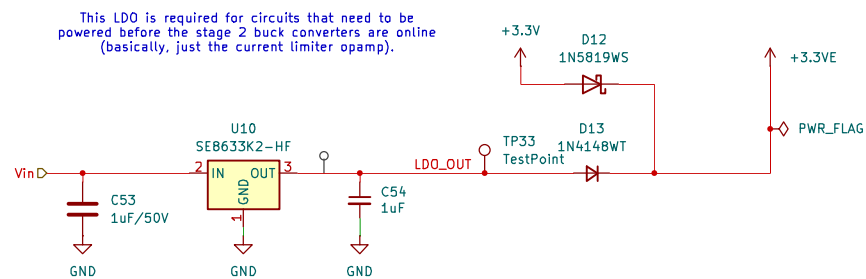
Id: 8/38







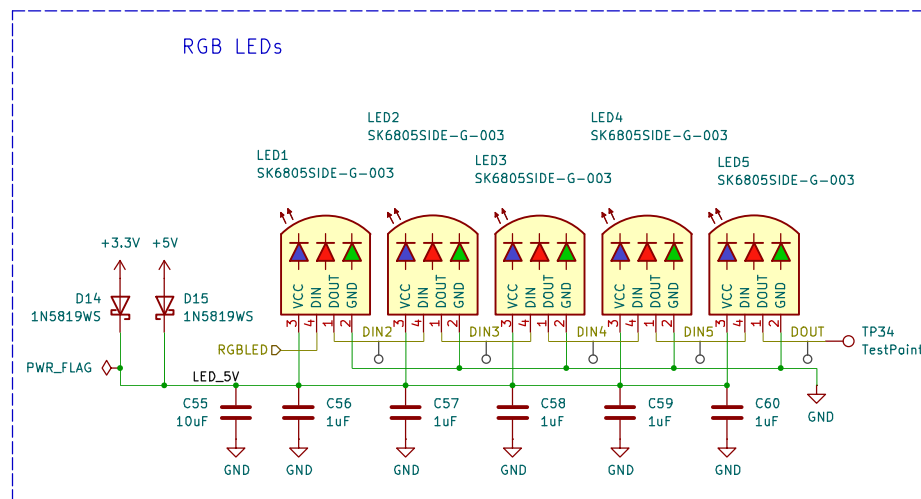




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Hat Labs Oy
Sheet: /Power/Early 3.3V/
File: early_3v3.kicad_sch

Title: HALPI2

Size: A4	Date: 2025-06-08	Rev: v0.4.0
KiCad E.D.A. 9.0.4		Id: 13/38



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Hat Labs Oy

Sheet: /Controller/RGB LEDs/
File: rgb_leds.kicad_sch

Title: HALPI2

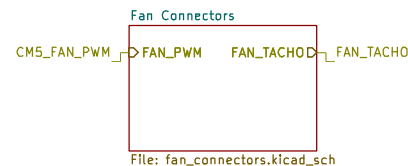
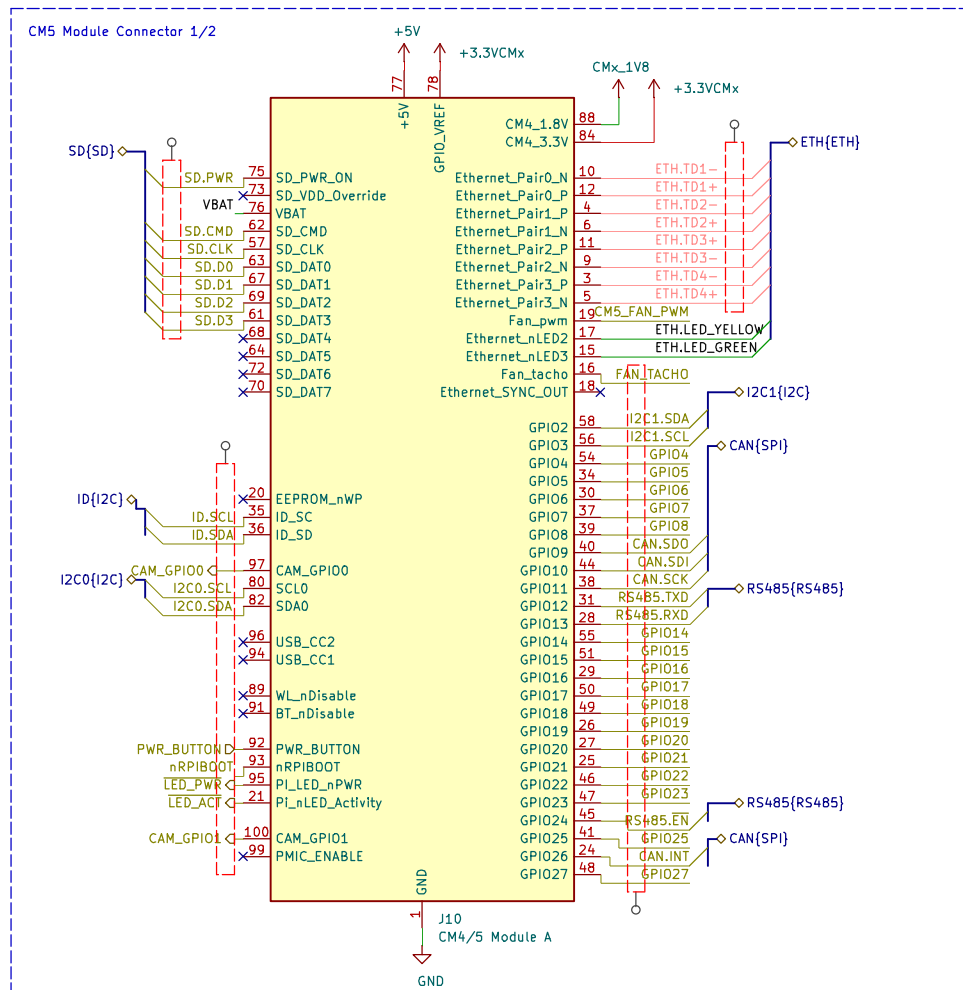
Size: A4

Date: 2025-06-08

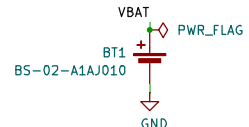
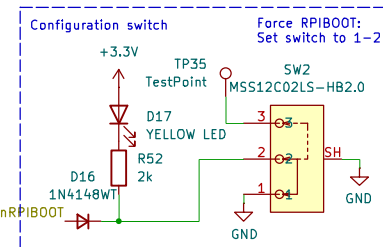
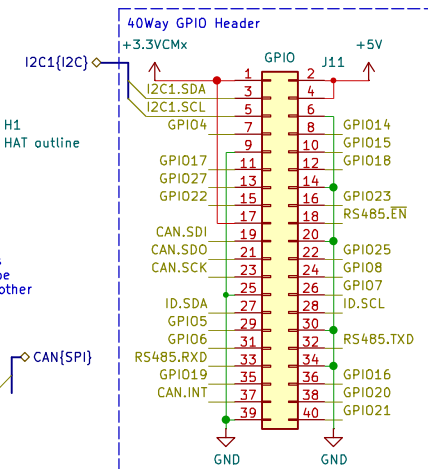
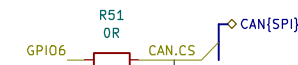
Rev: v0.4.0

KiCad E.D.A. 9.0.4

Id: 14/38



Note: using GPIO6 as CS requires DTB modifications (but allows the board to be used simultaneously with other devices requiring SPI)



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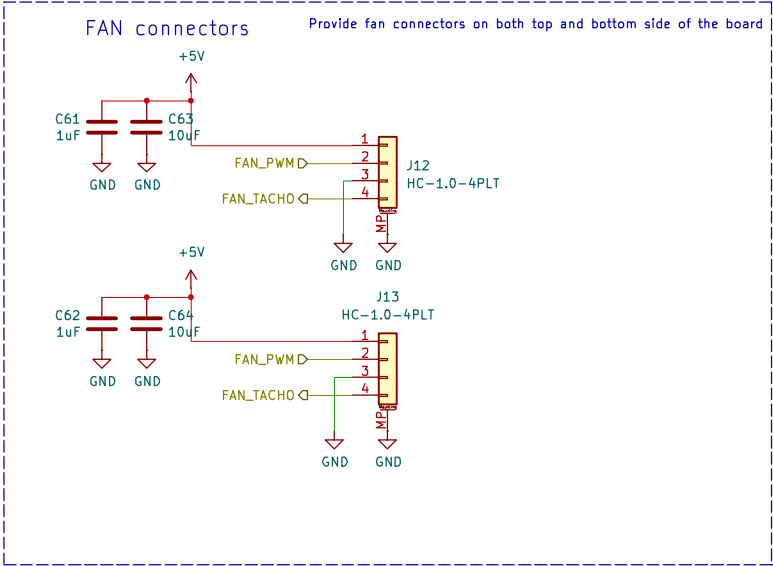
Hat Labs Oy

Sheet: /CM4 GPIO/
File: CM4_GPIO.kicad_sch

Title: HALPI2

Size: A4 Date: 2025-06-08
KiCad E.D.A. 9.0.4

Rev: v0.4.0
Id: 16/38



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Sheet: /CM4 GPIO/Fan Connectors/

File: fan_connectors.kicad_sch

Title: HALPI2

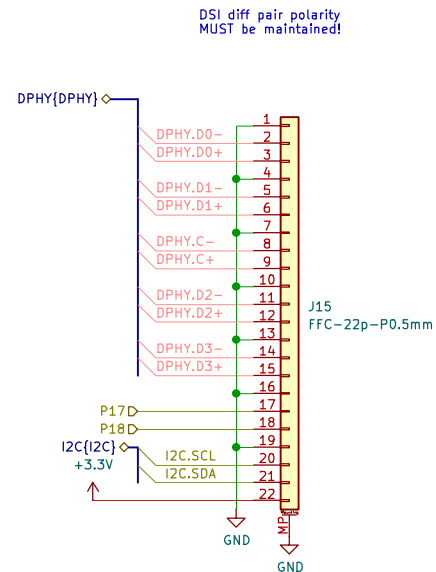
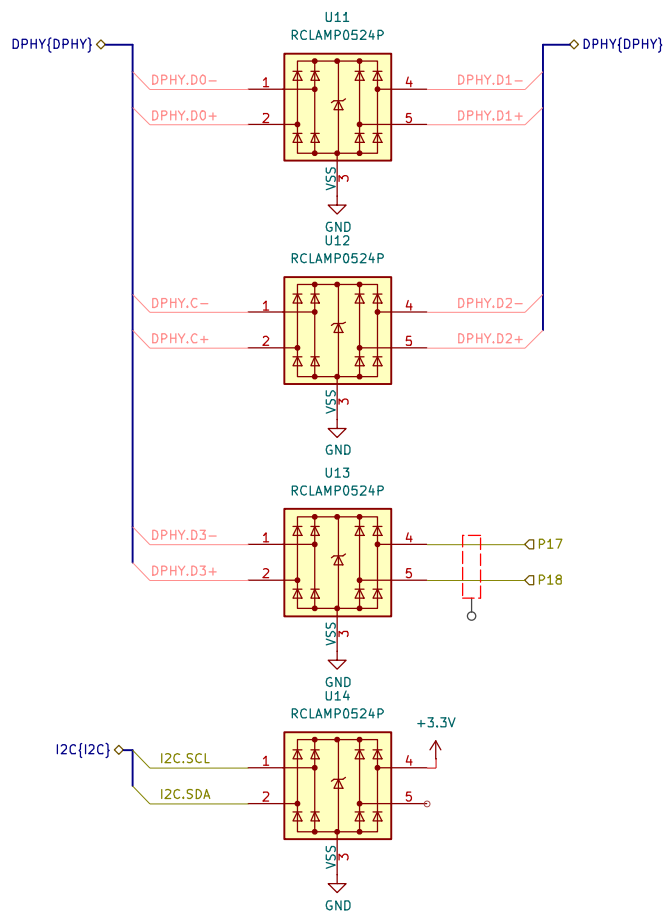
Size: A4

Date: 2025-06-08

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Sheet: /CM4 Highspeed/DPHY0/
File: dphy.kicad_sch

Title: HALPI2

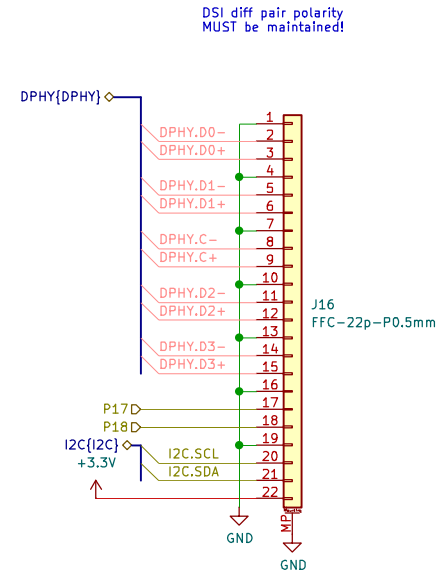
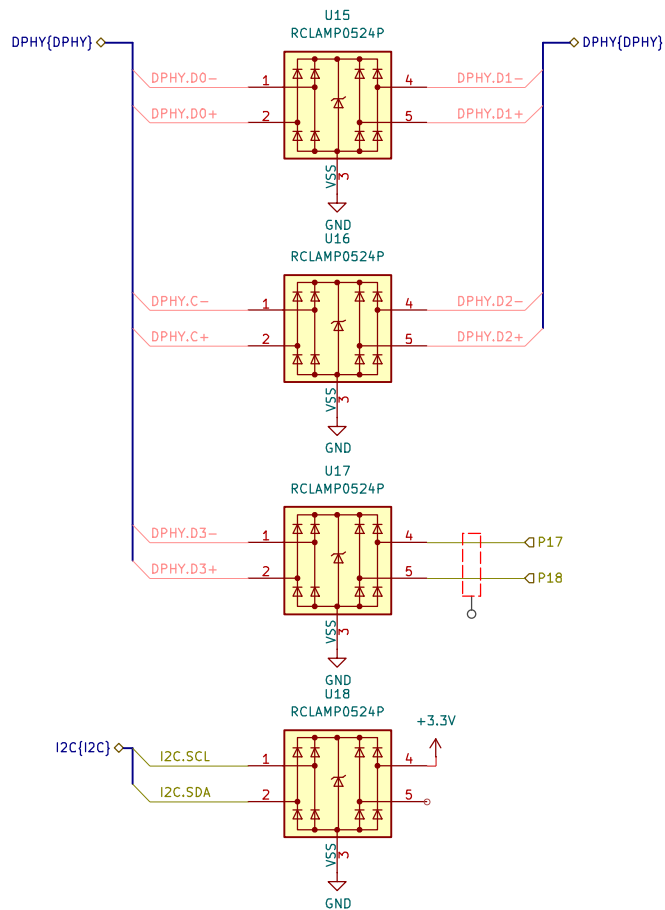
Size: A4

Date: 2025-06-08

Rev: v0.4.0

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Sheet: /CM4 Highspeed/DPHY1/
File: dphy.kicad_sch

Title: HALPI2

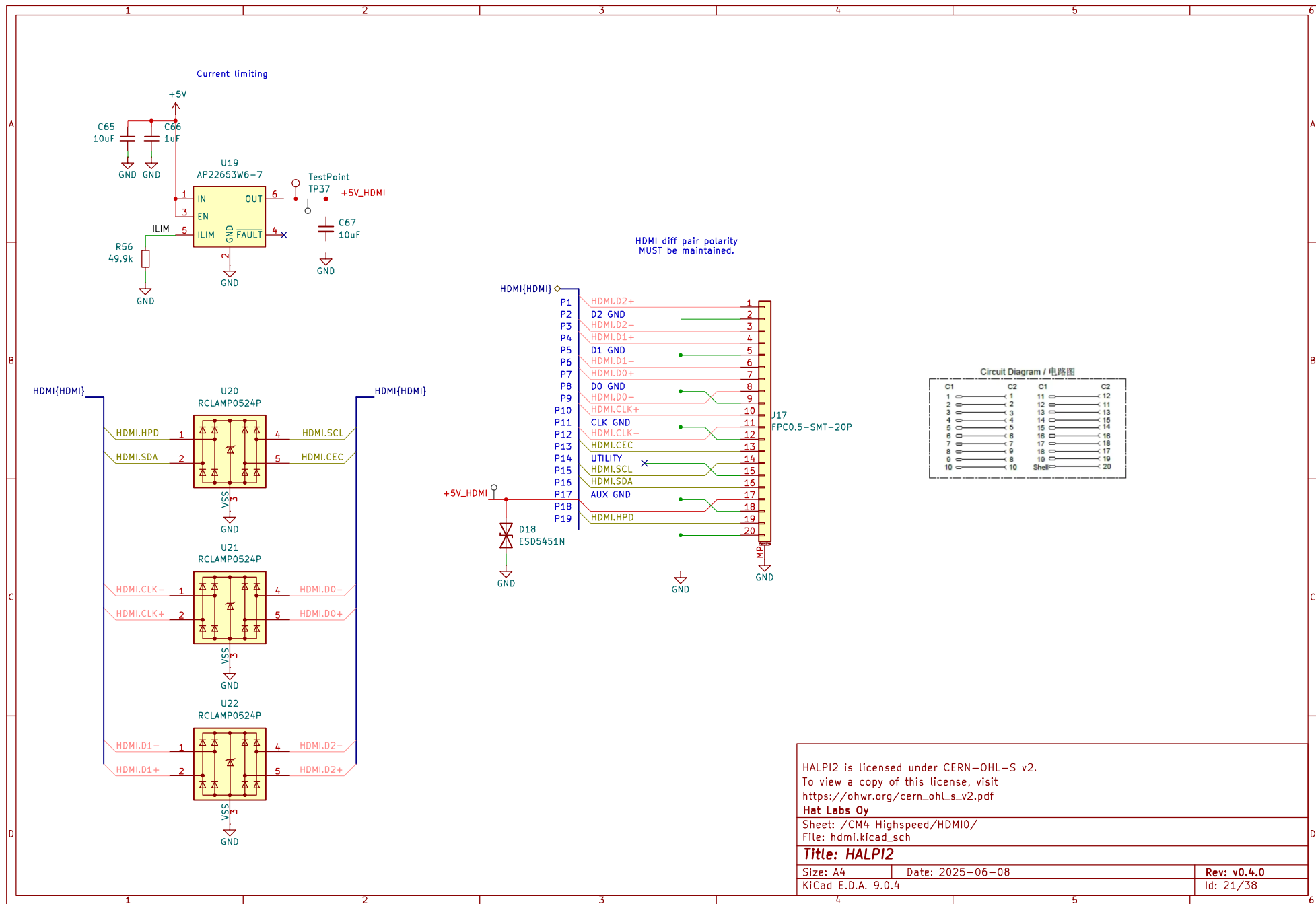
Size: A4

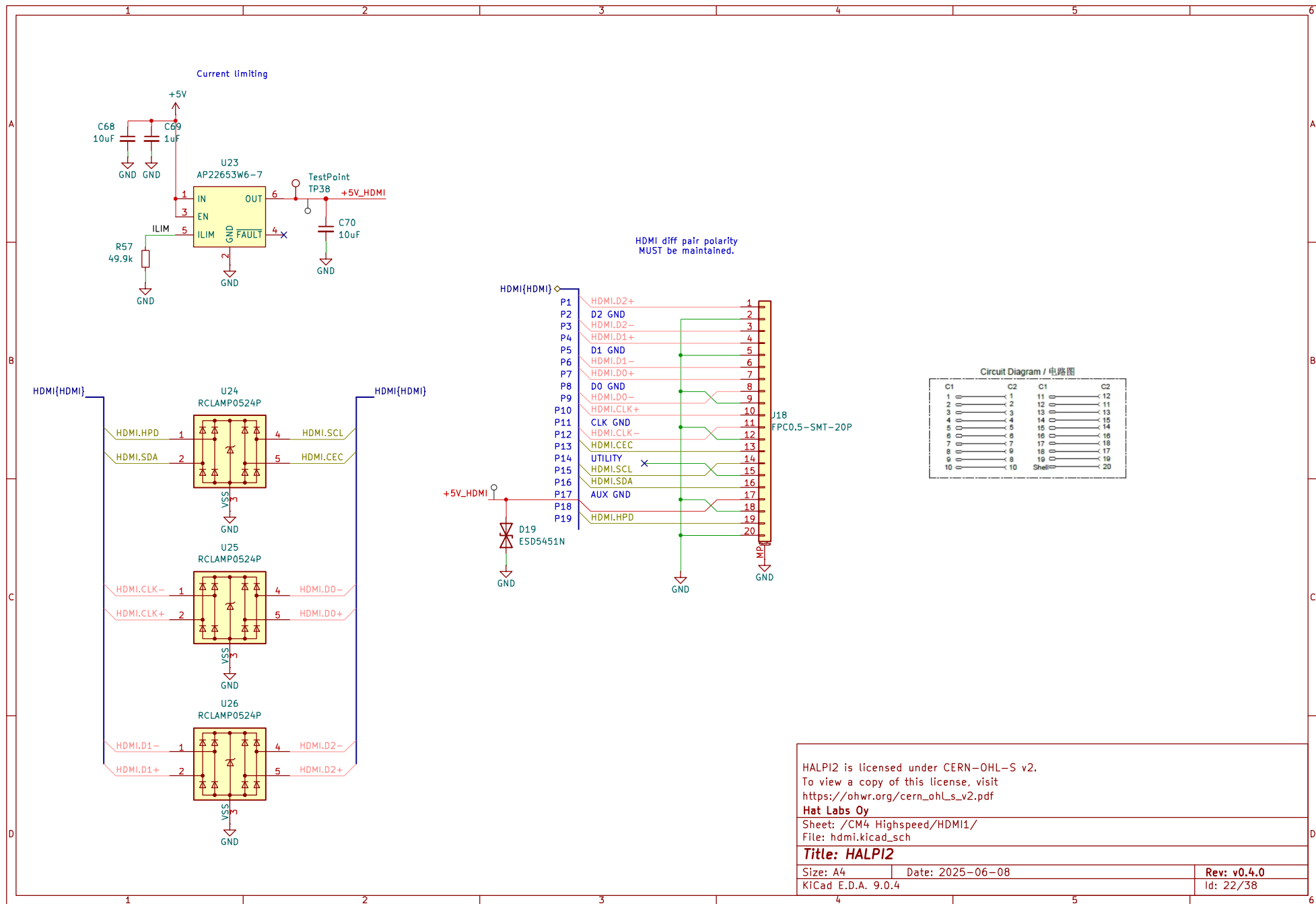
Date: 2025-06-08

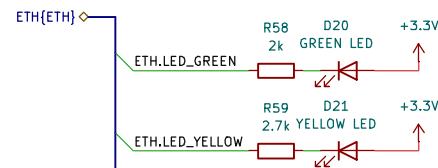
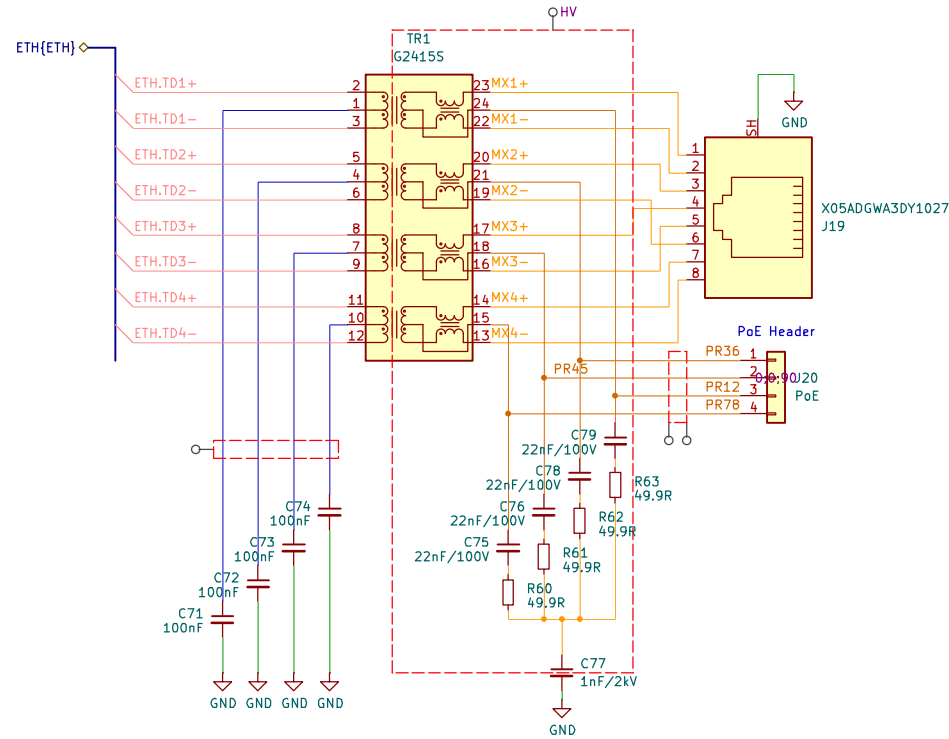
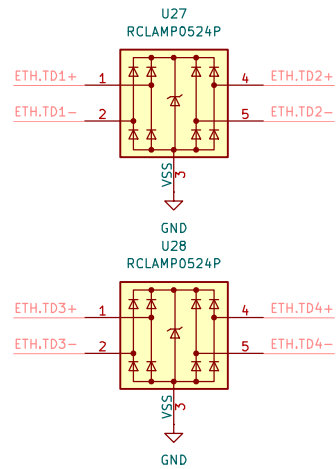
Rev: v0.4.0

KiCad E.D.A. 9.0.4

Id: 20/38







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Sheet: /Ethernet/
 File: Ethernet.kicad_sch

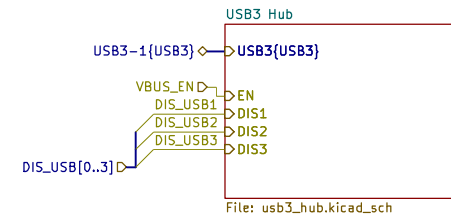
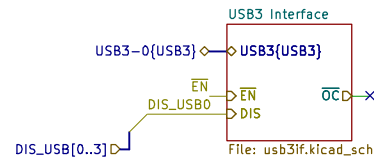
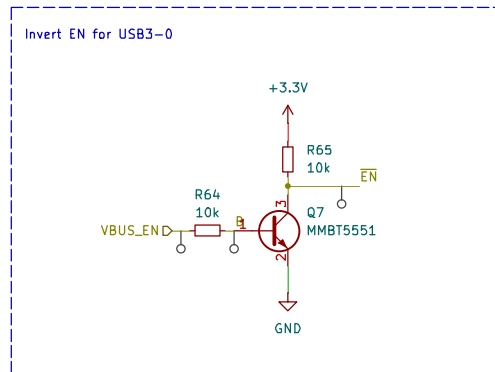
Title: HALPI2

Size: A4 Date: 2025-06-08

Rev: v0.4.0

KiCad E.D.A. 9.0.4

Id: 23/38



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Sheet: /USB3/
File: USB3.kicad_sch

Title: HALPI2

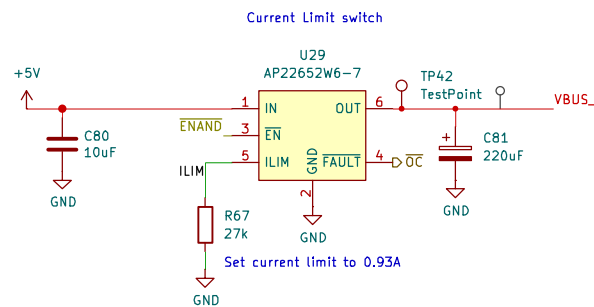
Size: A4

Date: 2025-06-08

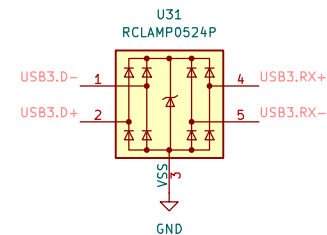
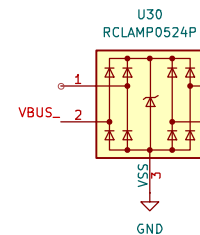
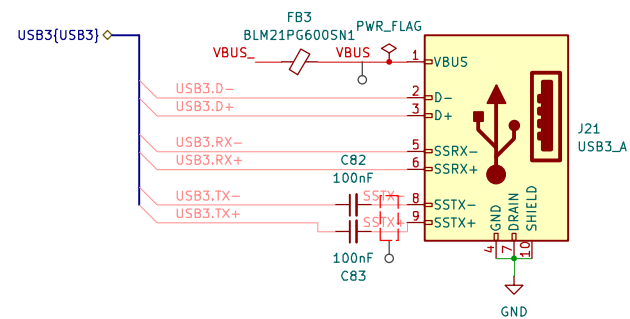
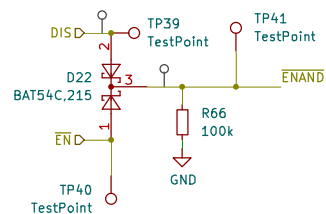
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Pull DIS up to disable current limit switch
regardless of EN state



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Hat Labs Oy

Sheet: /USB3/USB3 Interface/
File: usb3if.kicad_sch

Title: HALPI2

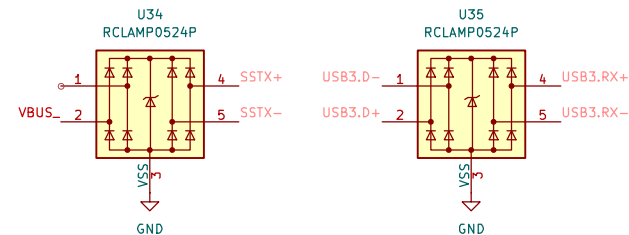
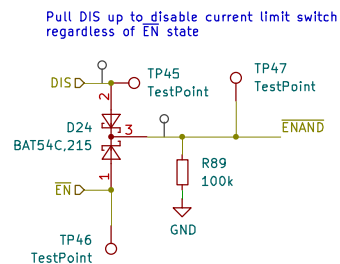
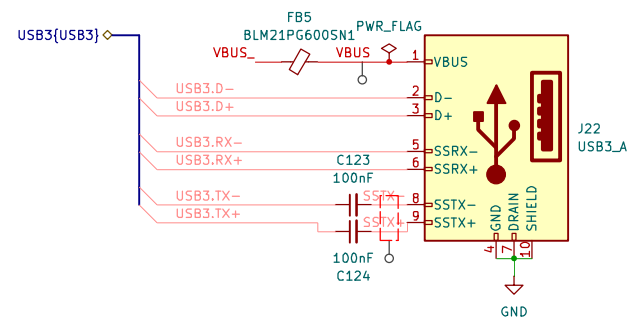
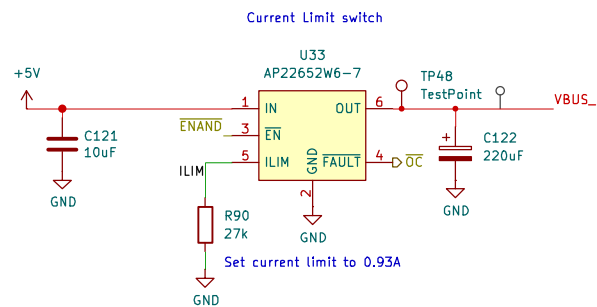
Size: A4

Date: 2025-06-08

Rev: v0.4.0

KiCad E.D.A. 9.0.4

Id: 25/38



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Hat Labs Oy

Sheet: /USB3/USB3 Hub/USB3 Interface1/
 File: usb3if.kicad_sch

Title: HALPI2

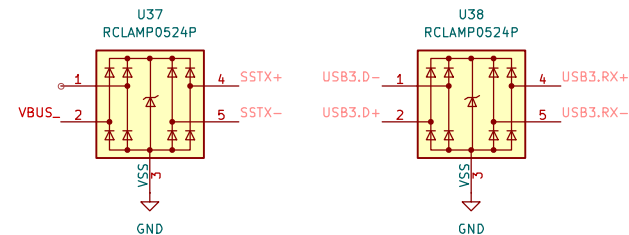
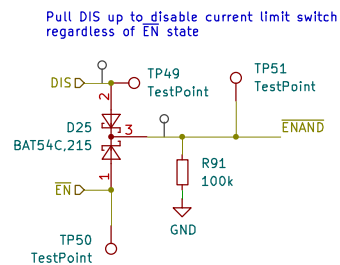
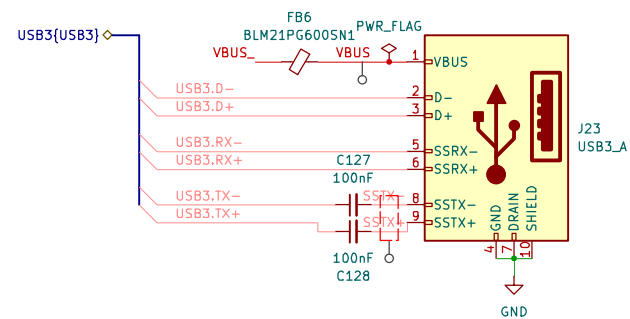
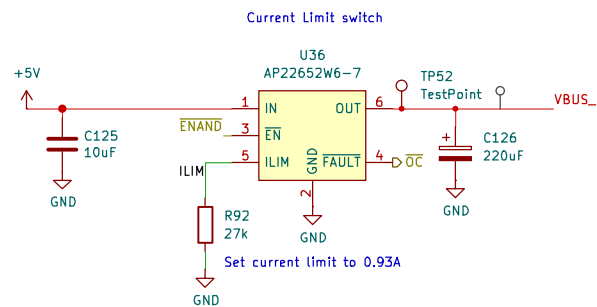
Size: A4

Date: 2025-06-08

Rev: v0.4.0

KiCad E.D.A. 9.0.4

Id: 27/38



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Sheet: /USB3/USB3 Hub/USB3 Interface2/
File: usb3if.kicad_sch

Title: HALPI2

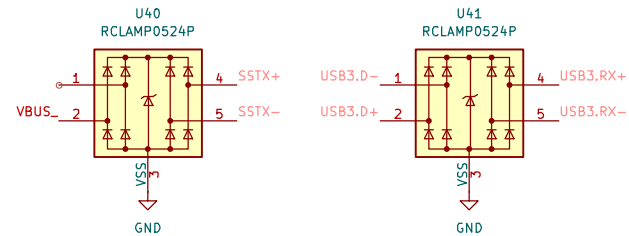
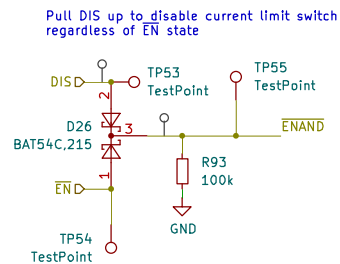
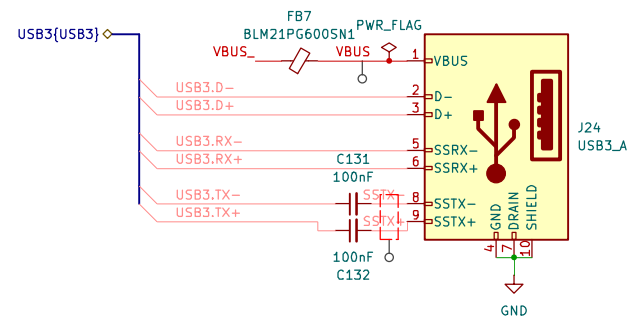
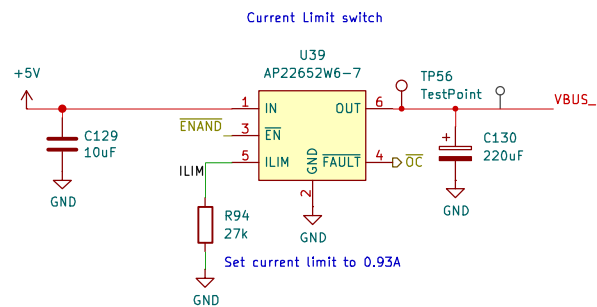
Size: A4

Date: 2025-06-08

Rev: v0.4.0

KiCad E.D.A. 9.0.4

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Sheet: /USB3/USB3 Hub/USB3 Interface3/
File: usb3if.kicad_sch

Title: HALPI2

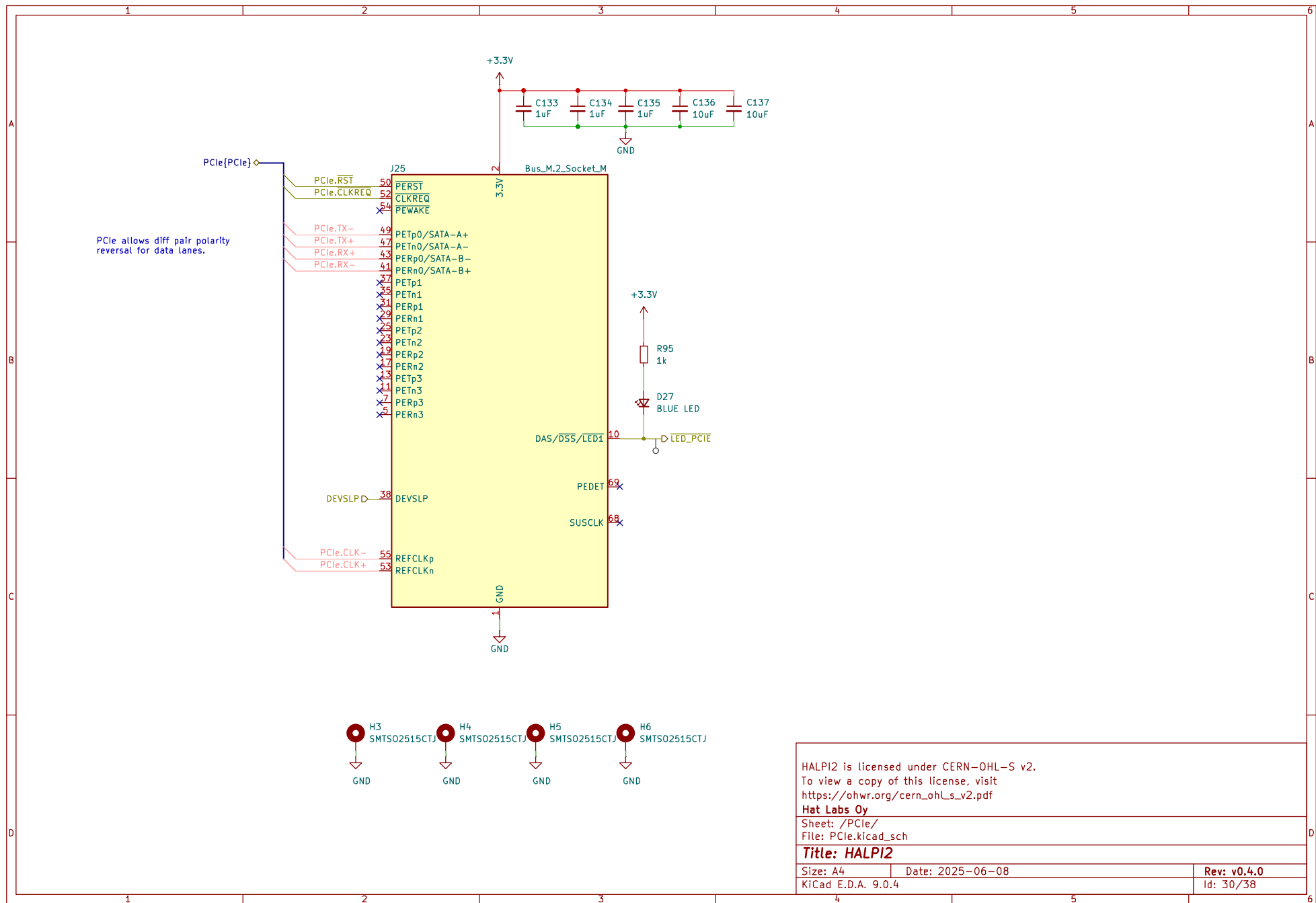
Size: A4

Date: 2025-06-08

Rev: v0.4.0

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Sheet: /PCIe/
 File: PCIe.kicad_sch

Title: HALPI2

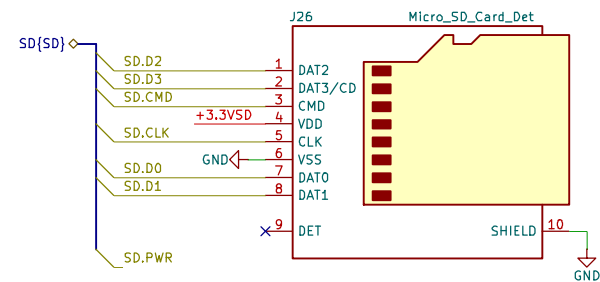
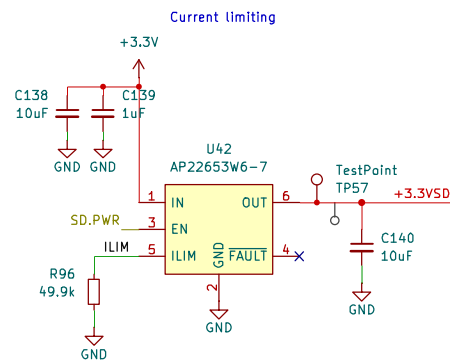
Size: A4

Date: 2025-06-08

Rev: v0.4.0

KICad E.D.A. 9.0.4

Id: 30/38



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Sheet: /SDCard/
File: SDCard.kicad_sch

Title: HALPI2

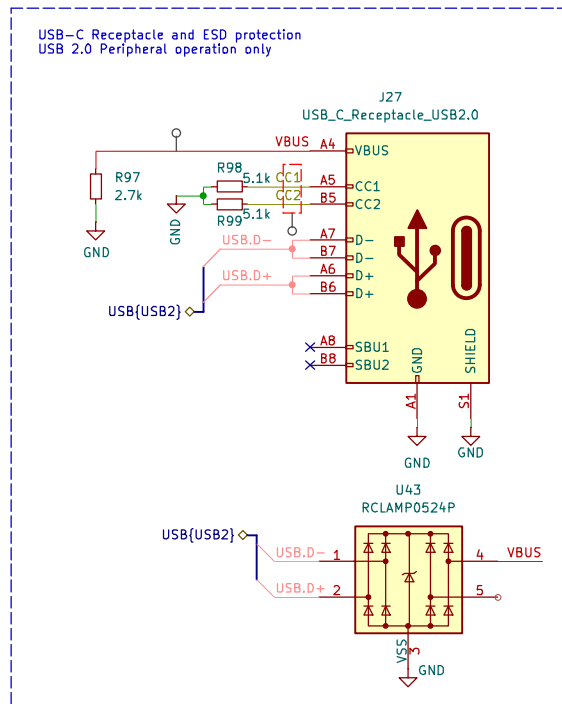
Size: A4

Date: 2025-06-08

Rev: v0.4.0

KiCad E.D.A. 9.0.4

Id: 31/38



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Hat Labs Oy

Sheet: /USB 2.0 Peripheral Interface/

File: USB2.kicad_sch

Title: HALPI2

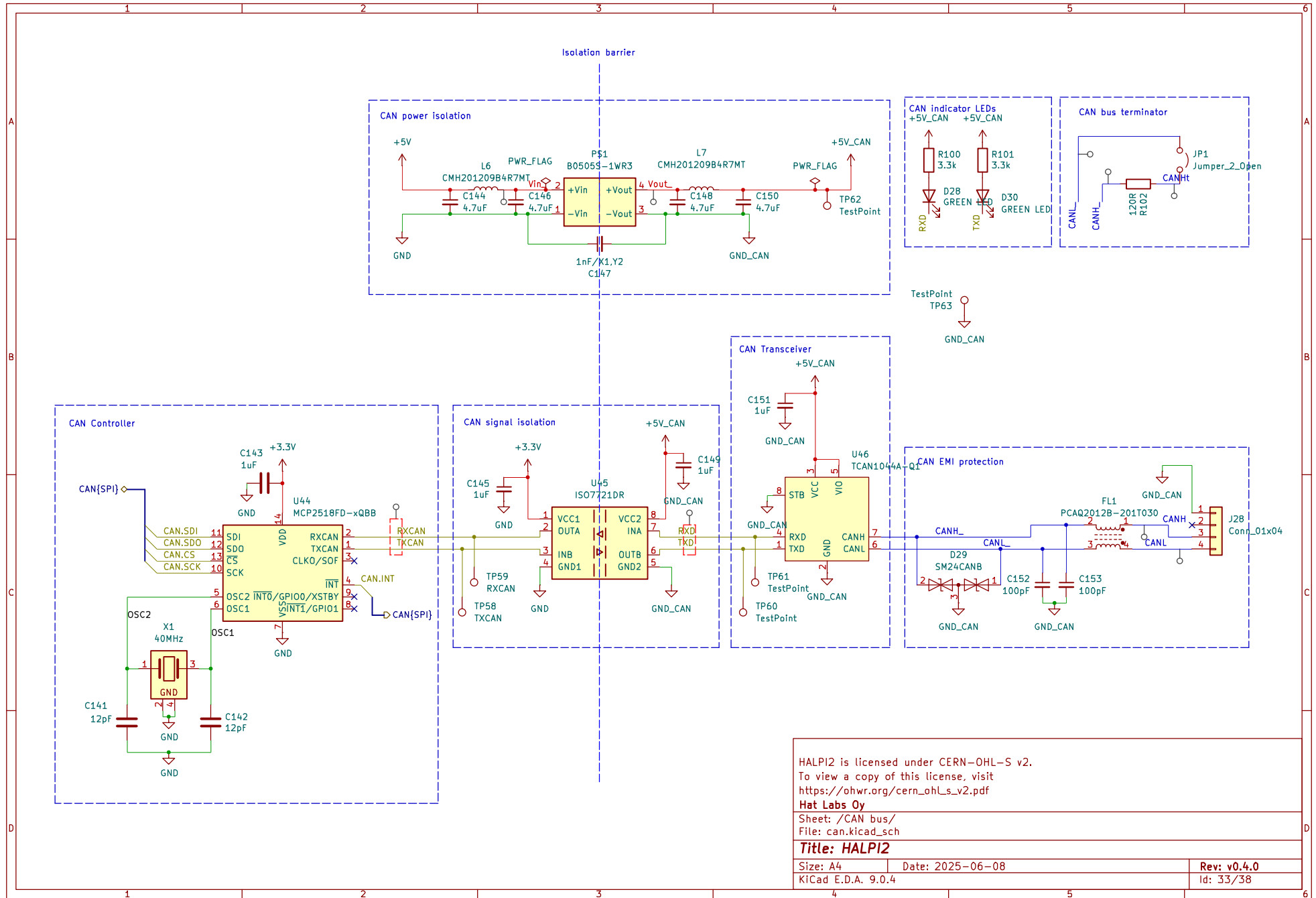
Size: A4

Date: 2025-06-08

Rev: v0.4.0

KiCad E.D.A. 9.0.4

Id: 32/38



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Hat Labs Oy

Sheet: /CAN bus/
 File: can.kicad_sch

Title: HALPI2

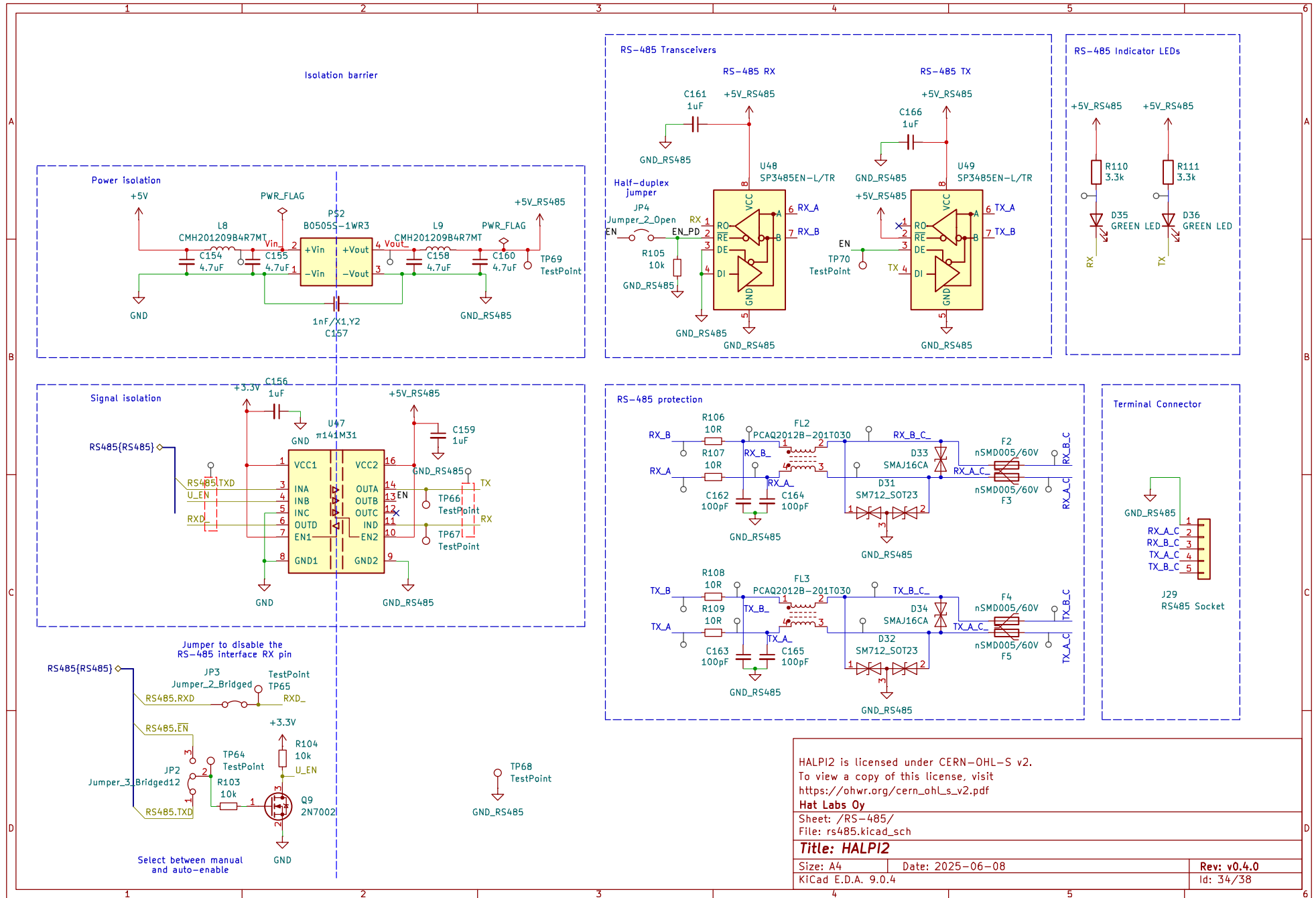
Size: A4

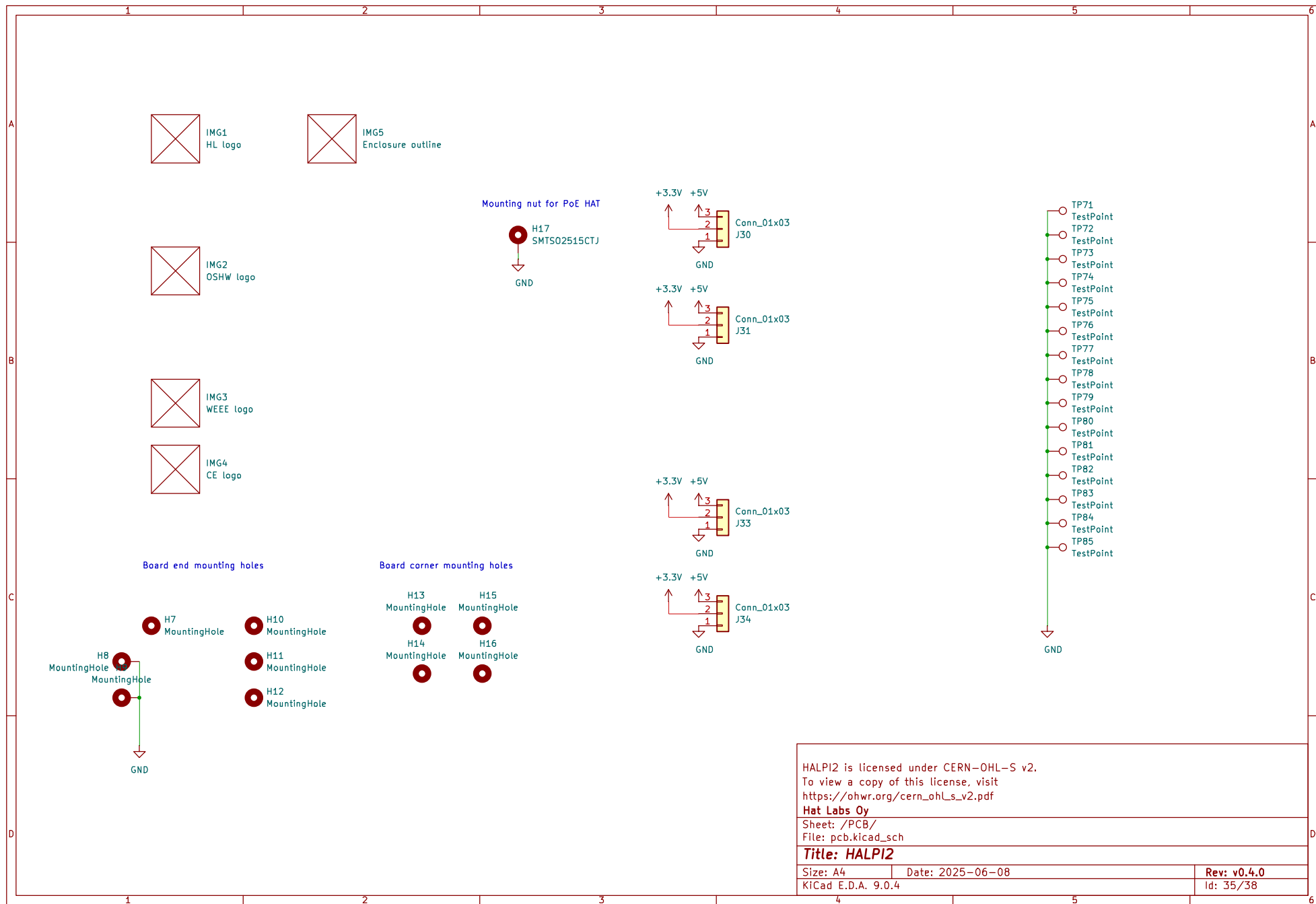
Date: 2025-06-08

Rev: v0.4.0

KiCad E.D.A. 9.0.4

Id: 33/38





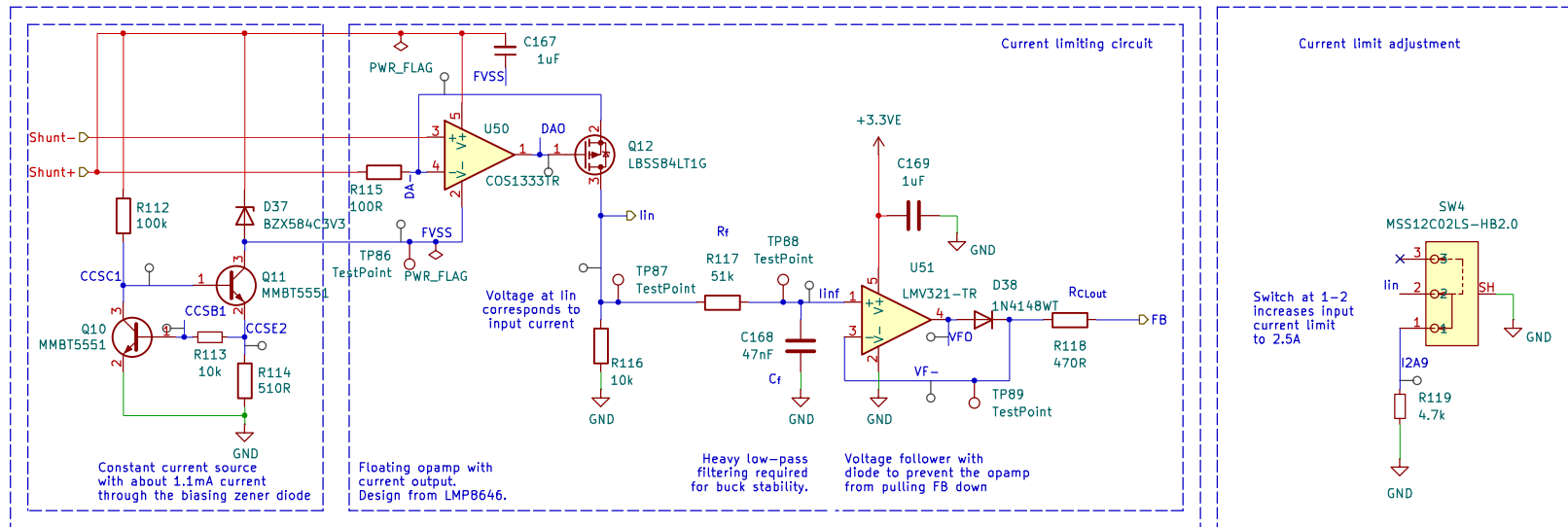
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Sheet: /PCB/
 File: pcb.kicad_sch

Title: HALPI2

Size: A4	Date: 2025-06-08	Rev: v0.4.0
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Sheet: /Power/Buck converter 10V/Current Limiter/
 File: current_limiter.kicad_sch

Title: HALPI2

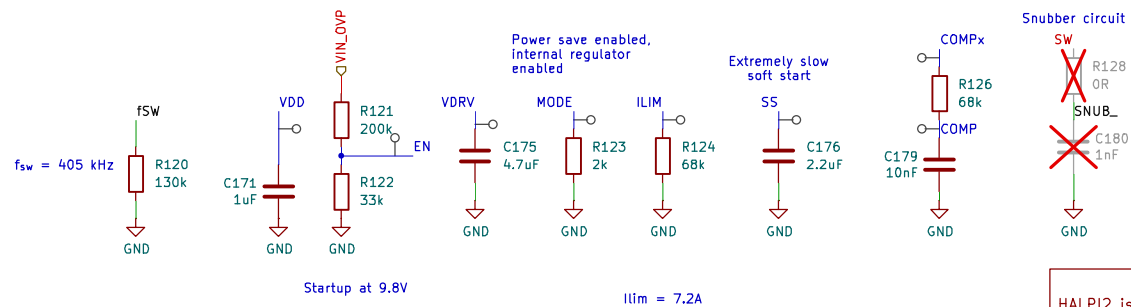
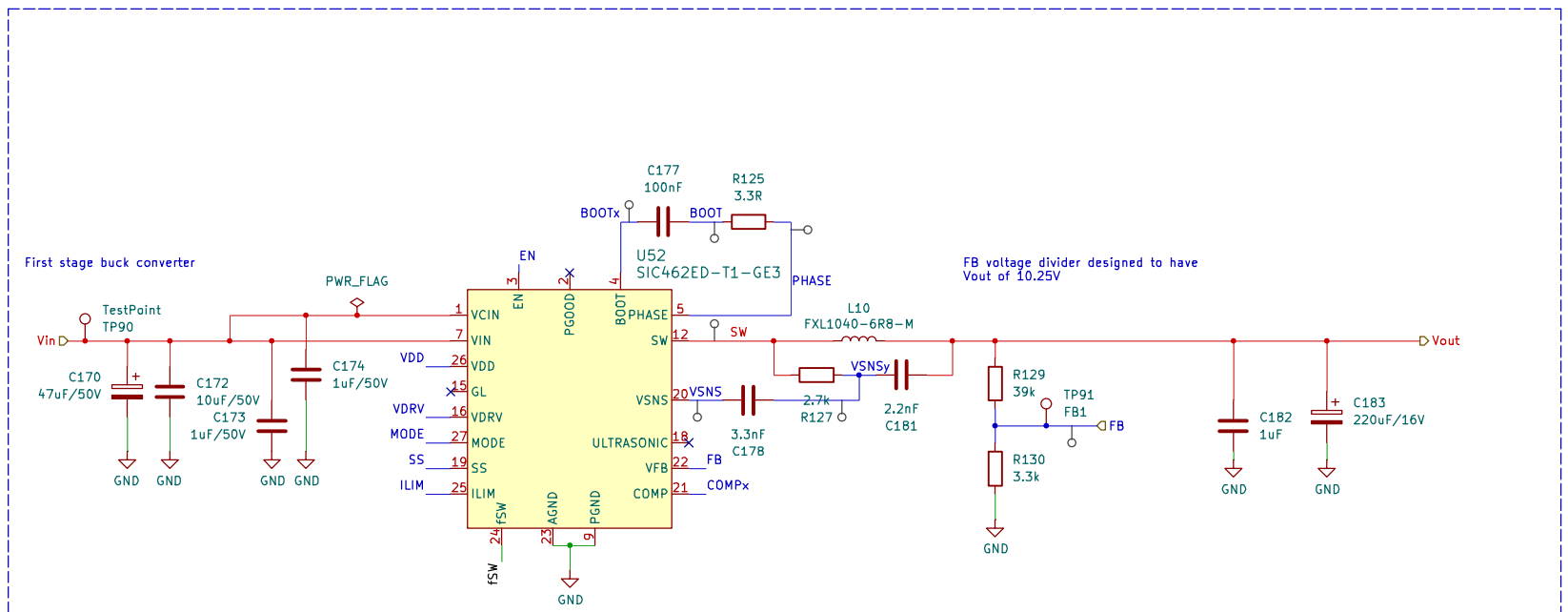
Size: A4

Date: 2025-06-08

Rev: v0.4.0

KiCad E.D.A. 9.0.4

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Hat Labs Oy

Sheet: /Power/Buck converter 10V/Buck 10V IC/
 File: buck_10V_ic.kicad_sch

Title: HALPI2

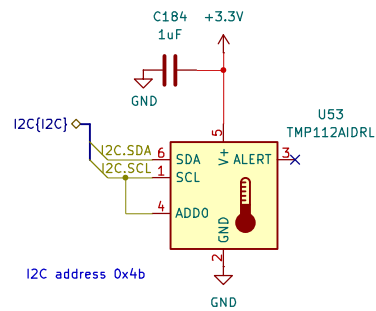
Size: A4

Date: 2025-06-08

Rev: v0.4.0

KiCad E.D.A. 9.0.4

Id: 38/38



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Hat Labs Oy

Sheet: /Controller/Temperature Sensor/

File: temp_sensor.kicad_sch

Title: HALPI2

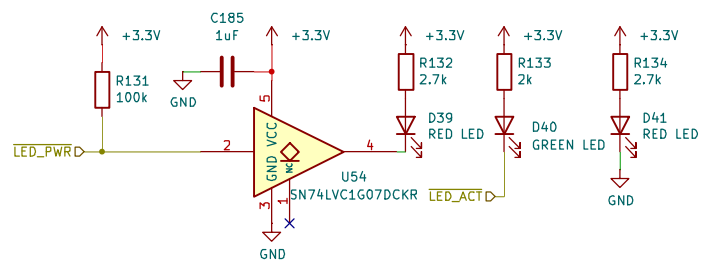
Size: A4

Date: 2025-06-08

Rev: v0.4.0

KiCad E.D.A. 9.0.4

Id: 39/38



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Hat Labs Oy

Sheet: /Controller/MCU LEDs/

File: mcu_leds.kicad_sch

Title: HALPI2

Size: A4

Date: 2025-06-08

Rev: v0.4.0

KiCad E.D.A. 9.0.4

Id: 39/38