

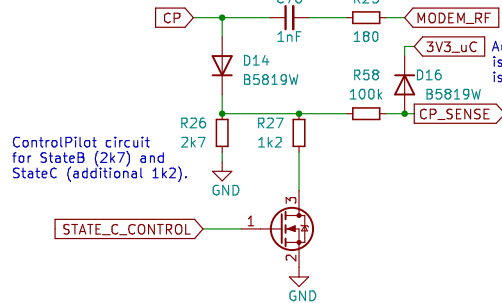
Sheet: /powersupply/
File: powersupply.kicad_sch

Title: Power Supply

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Todo: TVS etc for protecting the CP

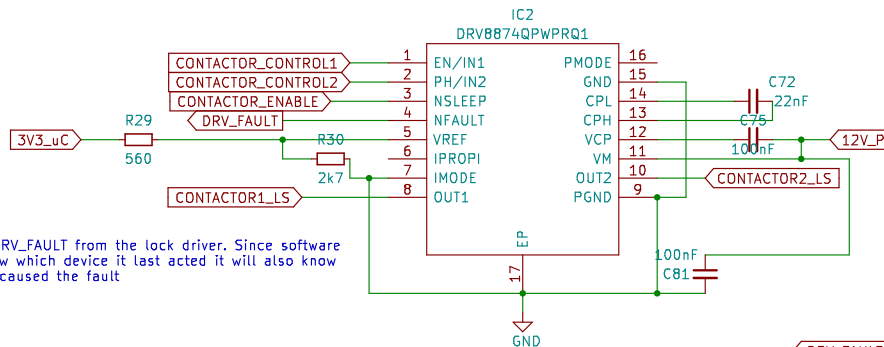
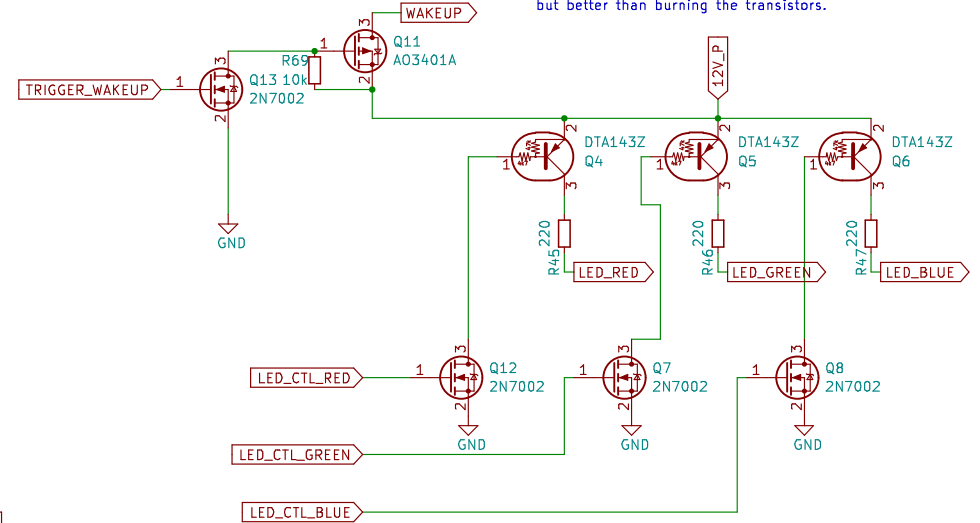


ControlPilot circuit for StateB (2k7) and StateC (additional 1k2).

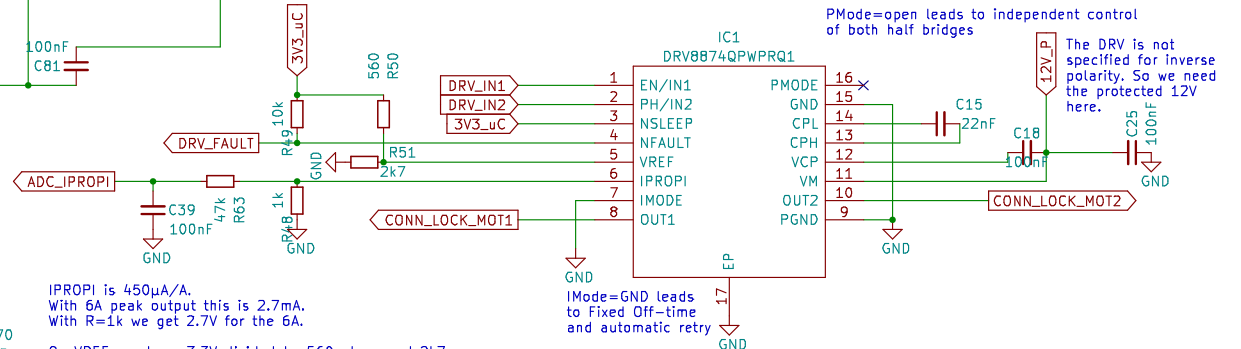
According to data sheet stm32f103re.pdf, positive injection is not allowed, and max voltage on 5V tolerant pins is VDD+4V. So we limit the voltage here with diode to 3V3.

12V highside outputs for the LEDs in the button.
(or low-current-general-purpose)

Series resistors to protect the output in case of short circuit. With 12V and 220ohms we get 54mA and 0.6W. This may burn the resistors after a short time, but better than burning the transistors.



We reuse DRV_FAULT from the lock driver. Since software should know which device it last acted it will also know which one caused the fault



PMODE=open leads to independent control of both half bridges

The DRV is not specified for inverse polarity. So we need the protected 12V here.

IPROPI is 450μA/A.
With 6A peak output this is 2.7mA.
With R=1k we get 2.7V for the 6A.

On VREF, we have 3.3V divided by 560 ohms and 2k7, this results in 2.73V.

This means, the current limitation will jump in when the output current is above 6A.

The bulk capacitor is especially important when switching high currents, see DRV8874 data sheet.

Sheet: /outputdrivers/
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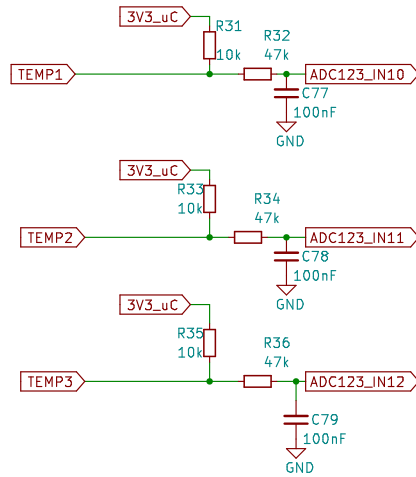
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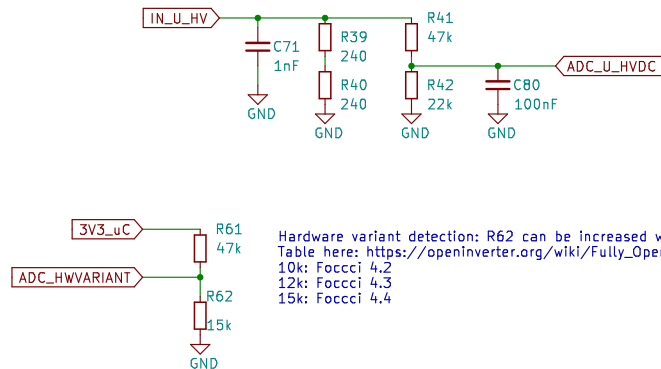
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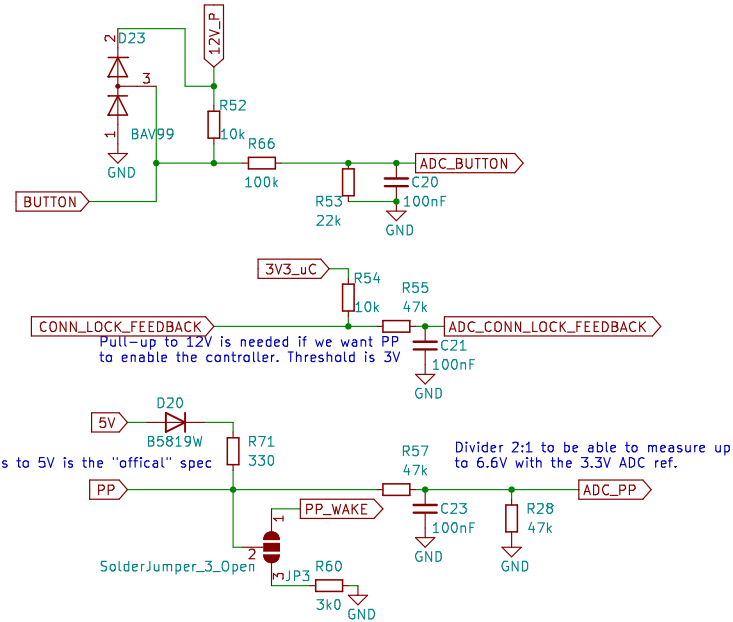
Analog inputs, e.g. for use with NTCs to ground
for temperature measurement
or analog feedback contacts or switches.



Current input for HV DC voltage
measurement as done in LIM, see
<https://openinverter.org/forum/viewtopic.php?p=58839#p58839>



Hardware variant detection: R62 can be increased with each hardware version
Table here: [https://openinverter.org/wiki/Fully_Open_CCS_Charge_Controller_\(FOCCC\)](https://openinverter.org/wiki/Fully_Open_CCS_Charge_Controller_(FOCCC))
10k: Foccci 4.2
12k: Foccci 4.3
15k: Foccci 4.4



330 ohms to 5V is the "official" spec
Divider 2:1 to be able to measure up to 6.6V with the 3.3V ADC ref.

PlugPresent:

- 1k5 to ground for CCS2
- 100 ohm to 1k5 for AC (current limit of the cable)
- 150 ohm (button idle) or 480 ohm (button pressed) for CCS1

Some inlets may contain 2k7 or 3k0 to ground. The optional R60 can be used if no external pull down is present.
Discussion here: <https://openinverter.org/forum/viewtopic.php?p=66305#p66305>

Wakeup via PP only works without any pull-down resistor

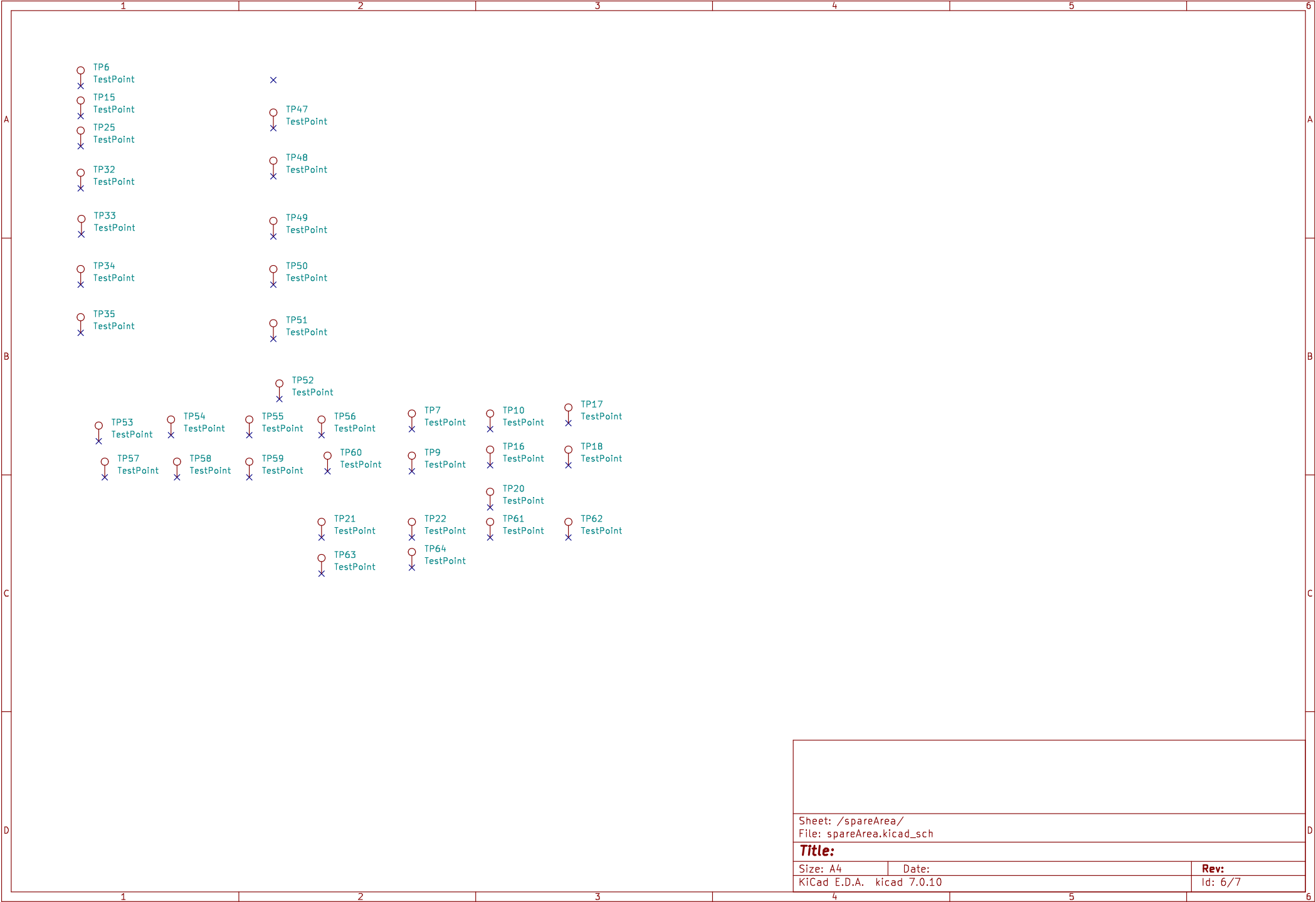
Sheet: /inputs/
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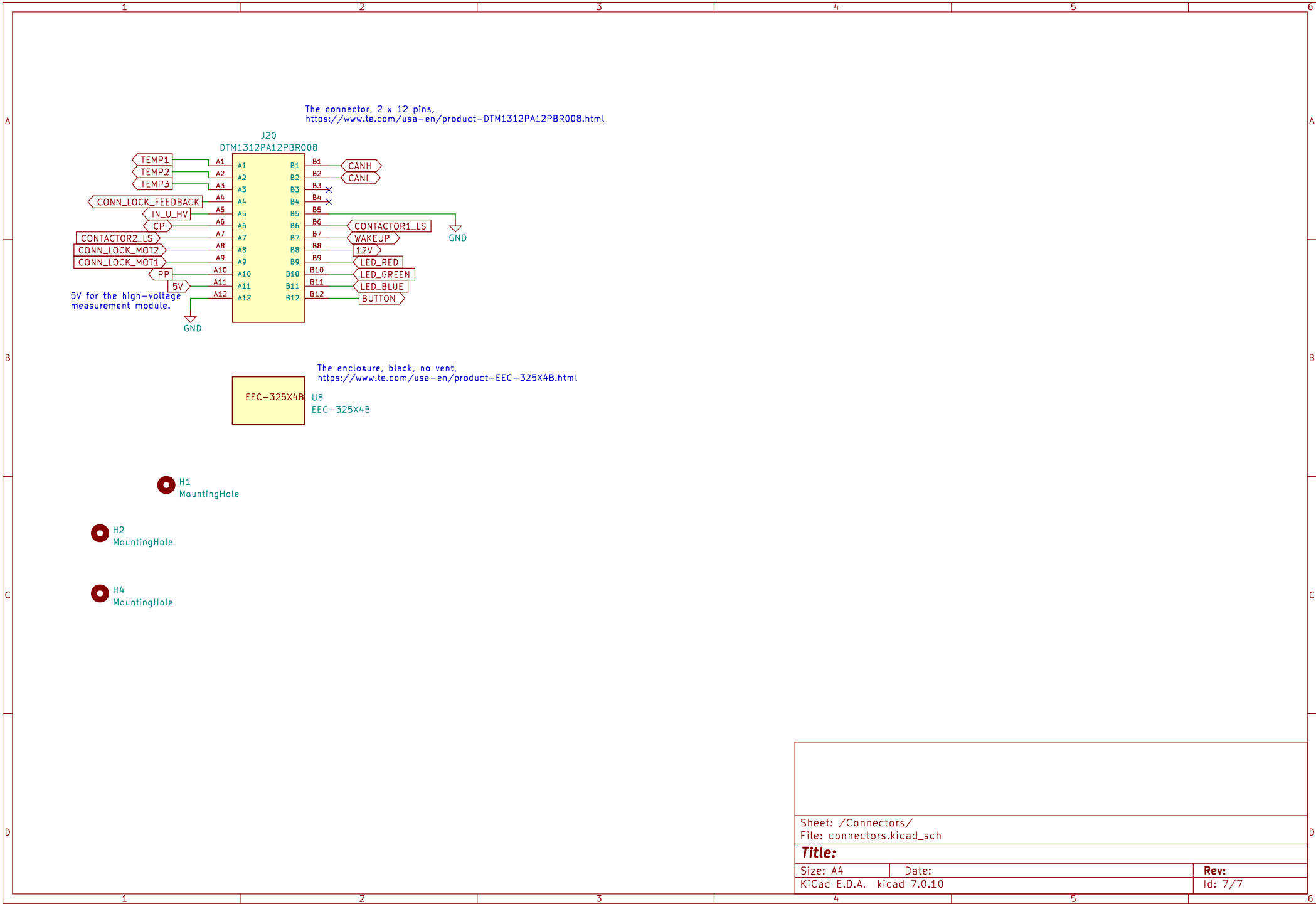
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