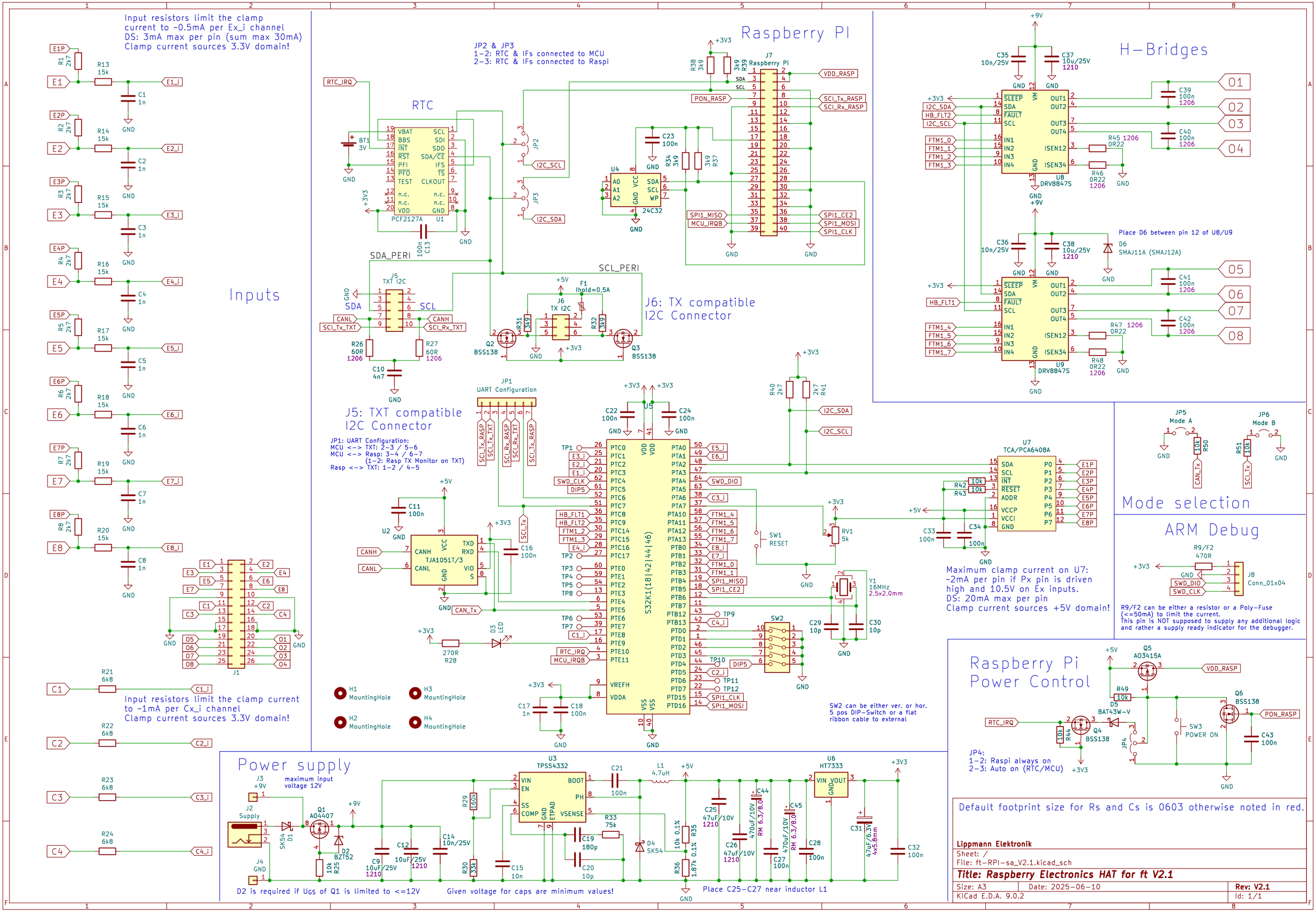
Inputs
Input resistors limit the clamp current to ~0.5mA per Ex_i channel
DS: 3mA max per pin (sum max 30mA)
Clamp current sources 3.3V domain!
Input resistors limit the clamp current to ~1mA per Cx_i channel
Clamp current sources 3.3V domain!
Raspberry PI
JP2 & JP3
1-2: RTC & IFs connected to MCU
2-3: RTC & IFs connected to Raspi
RTC
PCF2127A
J6: TX compatible I2C Connector
J5: TXT compatible I2C Connector
JP1: UART Configuration:
MCU <-> TXT: 2-3 / 5-6
MCU <-> Rasp: 3-4 / 6-7
(1-2: Rasp TX Monitor on TXT)
Rasp <-> TXT: 1-2 / 4-5
S32K1(18|42|44|46)
TJA1051T/3
H-Bridges
DRV8847S
Place D6 between pin 12 of U8/U9
D6
SMAJ11A (SMAJ12A)
U7
TCA/PCA6408A
Maximum clamp current on U7:
~2mA per pin if Px pin is driven high and 10.5V on Ex inputs.
DS: 20mA max per pin
Clamp current sources +5V domain!
Mode selection
ARM Debug
R9/F2 can be either a resistor or a Poly-Fuse (<=50mA) to limit the current.
This pin is NOT supposed to supply any additional logic and rather a supply ready indicator for the debugger.
Raspberry Pi Power Control
JP4:
1-2: Raspi always on
2-3: Auto on (RTC/MCU)
SW2 can be either ver. or hor. 5 pos DIP-Switch or a flat ribbon cable to external
Power supply
maximum input voltage 12V
D2 is required if UGS of Q1 is limited to <=12V
Given voltage for caps are minimum values!
Place C25-C27 near inductor L1
Default footprint size for Rs and Cs is 0603 otherwise noted in red.
Lippmann Elektronik
Sheet: /
File: ft-RPI-sa_V2.1.kicad_sch
Title: Raspberry Electronics HAT for ft V2.1
Size: A3
Date: 2025-06-10
Rev: V2.1
KiCad E.D.A. 9.0.2
Id: 1/1