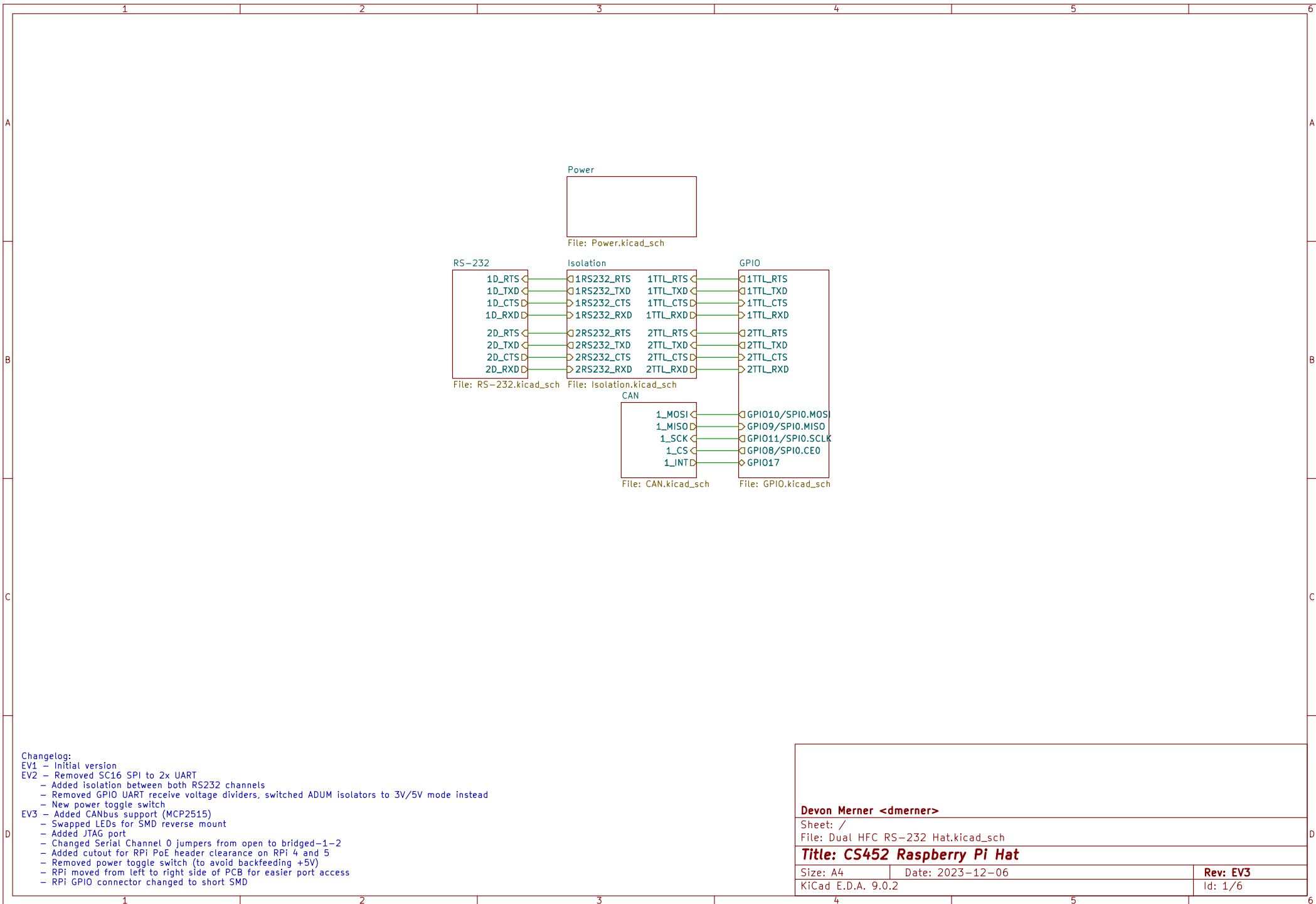
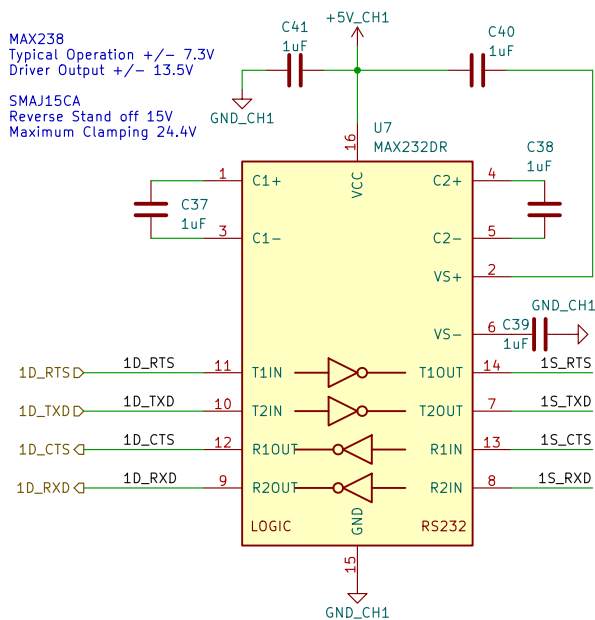
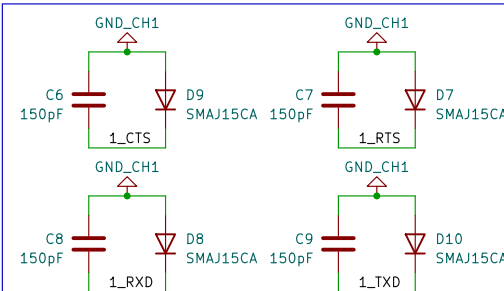




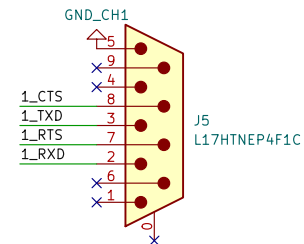
Channel 1 RS-232 Driving/Receiving



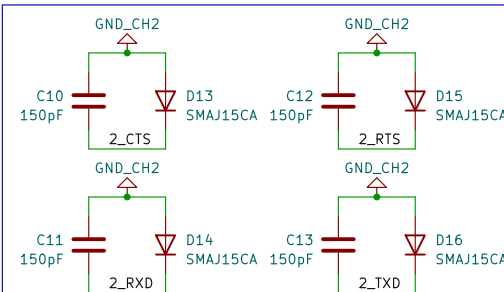
Channel 1 Surge Protection



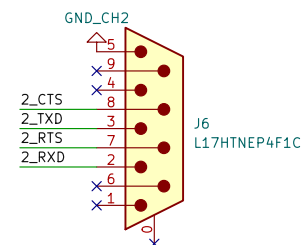
Channel 1



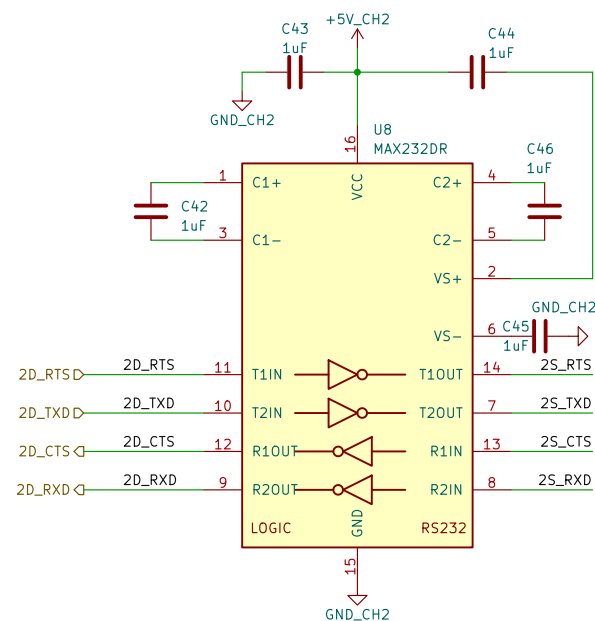
Channel 2 Surge Protection



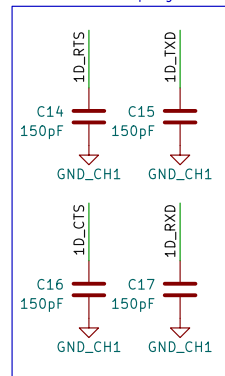
Channel 2



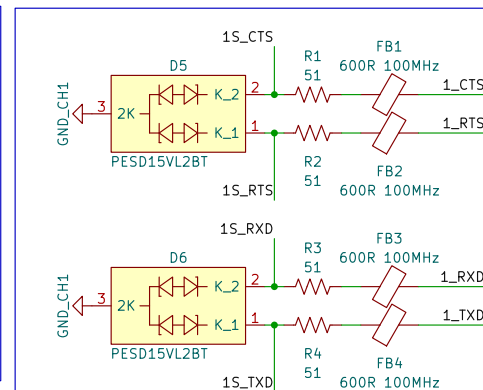
Channel 2 RS-232 Driving/Receiving



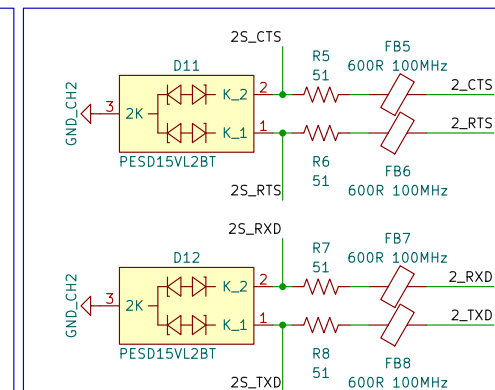
Channel 1 Decoupling



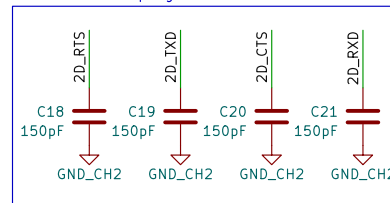
Channel 1 ESD Protection



Channel 2 ESD Protection



Channel 2 Decoupling



== Net Naming Legend ==
(Where N = Channel, X = Signal)

ND_X = Decoupled signals between ADUM Isolation and MAX238 Driver
NS_X = "Safe" signals that have been ESD protected
NX = Surge protected signals directly from the DB-9 connector

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Sheet: /RS-232/

File: RS-232.kicad_sch

Title: CS452 Raspberry Pi Hat

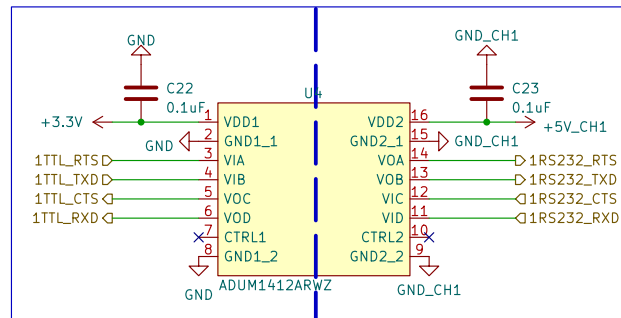
Size: A4 Date: 2023-12-06

KiCad E.D.A. 9.0.2

Rev: EV3

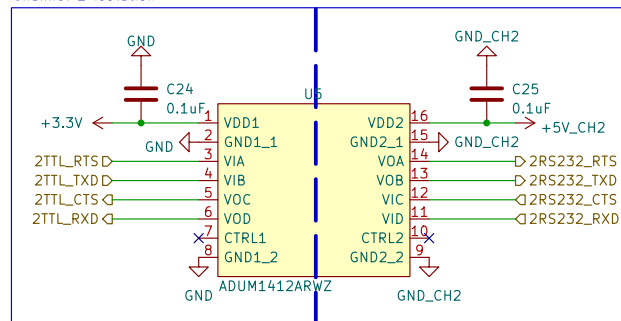
Id: 2/6

Channel 1 Isolation

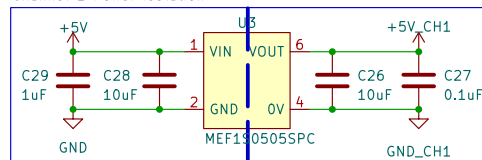


Optoisolators running
in 3V/5V mixed operation

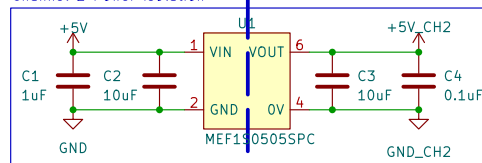
Channel 2 Isolation



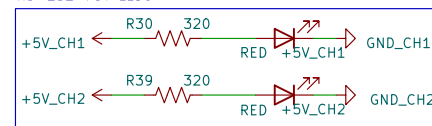
Channel 1 Power Isolation



Channel 2 Power Isolation



RS-232 +5V LEDs



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Sheet: /Isolation/
File: Isolation.kicad_sch

Title: CS452 Raspberry Pi Hat

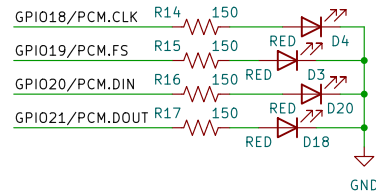
Size: A4 Date: 2023-12-06

KiCad E.D.A. 9.0.2

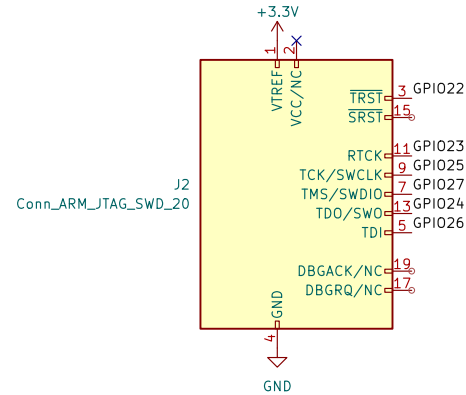
Rev: EV3

Id: 3/6

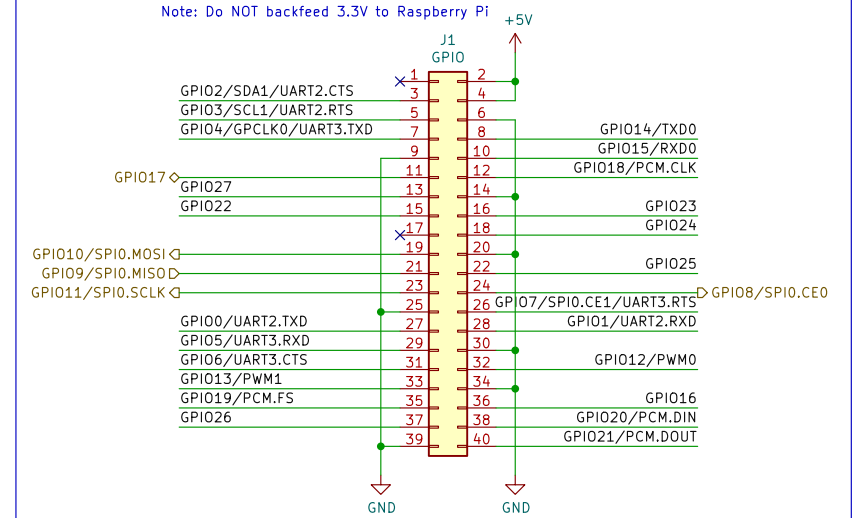
GPIO LEDs



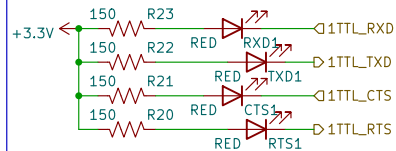
JTAG Connector



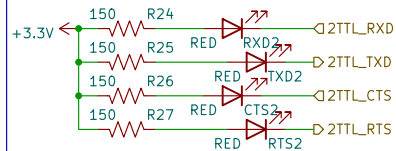
Raspberry Pi Connector



Channel 1 LEDs



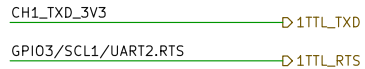
Channel 2 LEDs



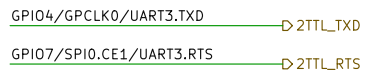
RS-232 Direct to Raspberry Pi UART0/2 and UART3

Used to connect RS-232 signals directly to UART0/2 and UART3 on a Raspberry Pi 4.
(Not compatible with earlier Raspberry Pi models)

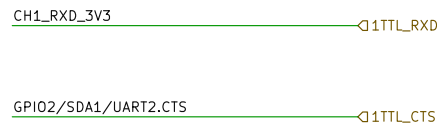
Channel 1 GPIO UART Transmit



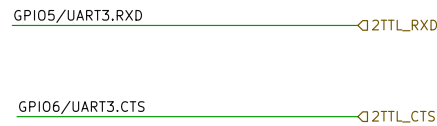
Channel 2 GPIO UART Transmit



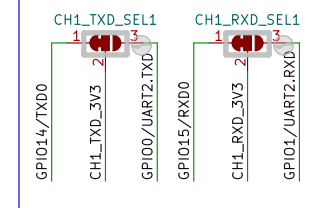
Channel 1 GPIO UART Receive



Channel 2 GPIO UART Receive



Channel 1 UART0/2 Selectors



Channel 1 UART Selectors are used to switch Channel 1 between UART0 and UART2

By default, Channel 1 is set to UART0 for serial console during boot.

Channel 1 RTS/CTS is always connected to UART2 (UART0 lacks hardware flow control).

	TXD	RXD	CTS	RTS	Board Pins
uart0	14	15			8 10
uart1	14	15			8 10
uart2	0	1	2	3	27 28 (I2C)
uart3	4	5	6	7	7 29
uart4	8	9	10	11	24 21 (SPI0)
uart5	12	13	14	15	32 33 (gpio-fan)

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Sheet: /GPIO/
File: GPIO.kicad_sch

Title: CS452 Raspberry Pi Hat

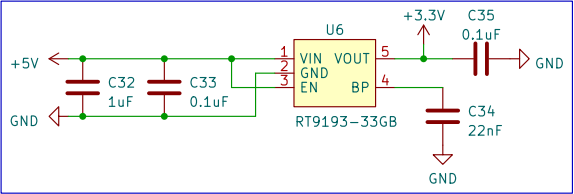
Size: A4 Date: 2023-12-06

KiCad E.D.A. 9.0.2

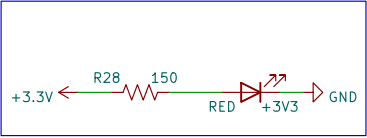
Rev: EV3

Id: 4/6

+3V3 Power Generation



Power LEDs



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Sheet: /Power/
File: Power.kicad_sch

Title: CS452 Raspberry Pi Hat

Size: A4

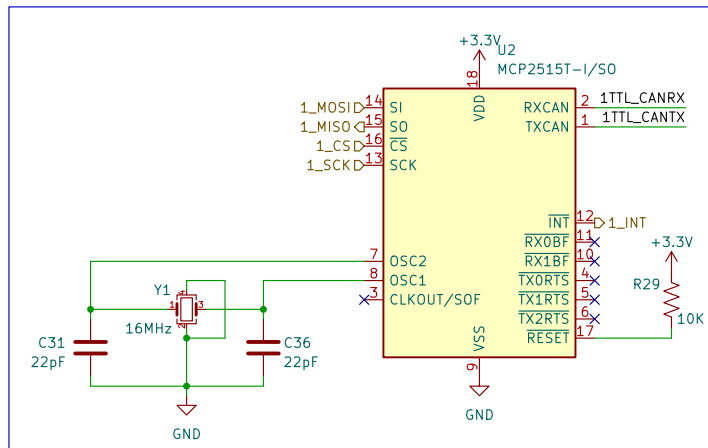
Date: 2023-12-06

Rev: EV3

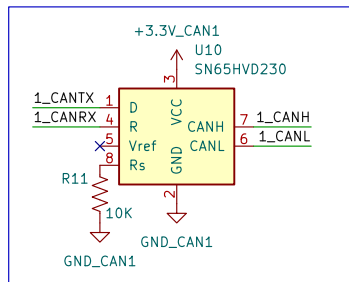
KiCad E.D.A. 9.0.2

Id: 5/6

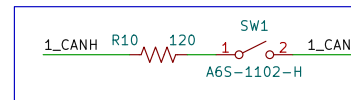
CAN 1 Transceiver



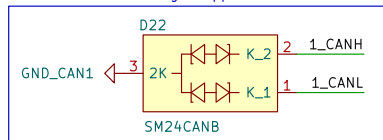
CAN 1 Transceiver



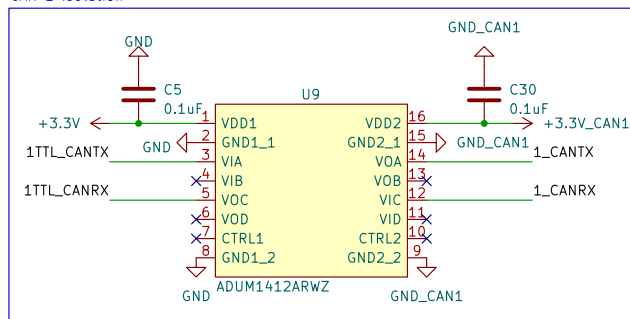
CAN 1 Terminator



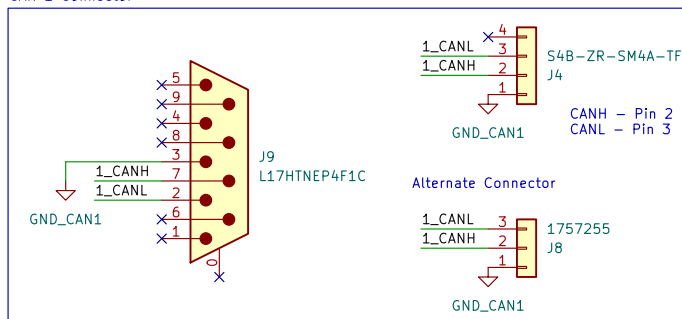
CAN 1 Transient Voltage Suppression



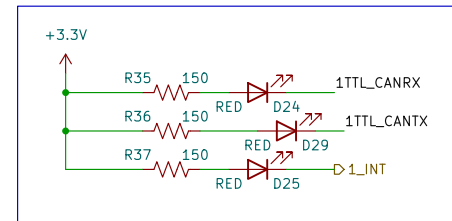
CAN 1 Isolation



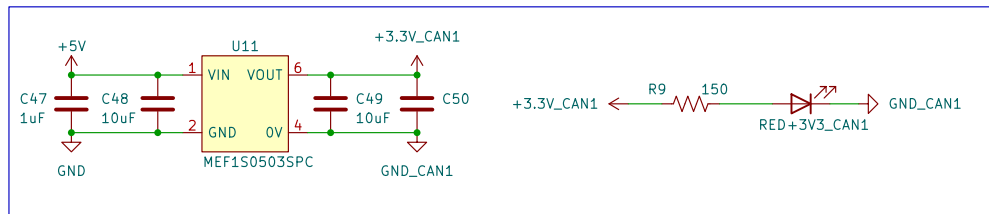
CAN 1 Connector



LEDs



CAN 1 Power Isolation



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Sheet: /CAN/
File: CAN.kicad_sch

Title: CS452 Raspberry Pi Hat

Size: A4 Date: 2023-12-06

KiCad E.D.A. 9.0.2

Rev: EV3

Id: 7/6