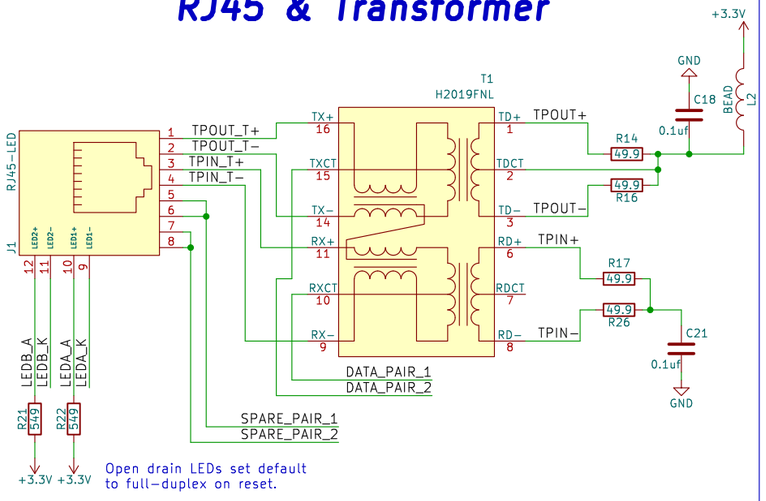
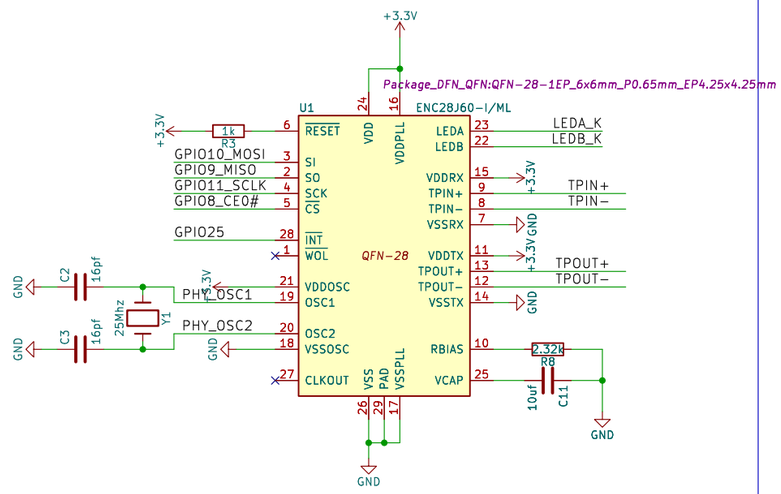
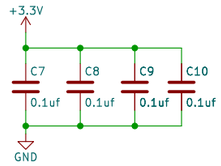
RJ45 & Transformer



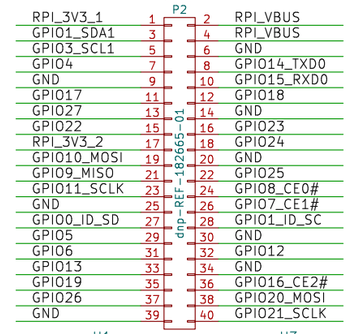
Ethernet PHY

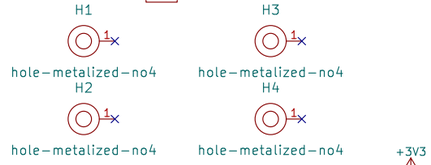


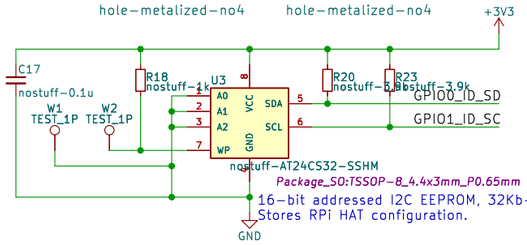


Raspberry Pi Header

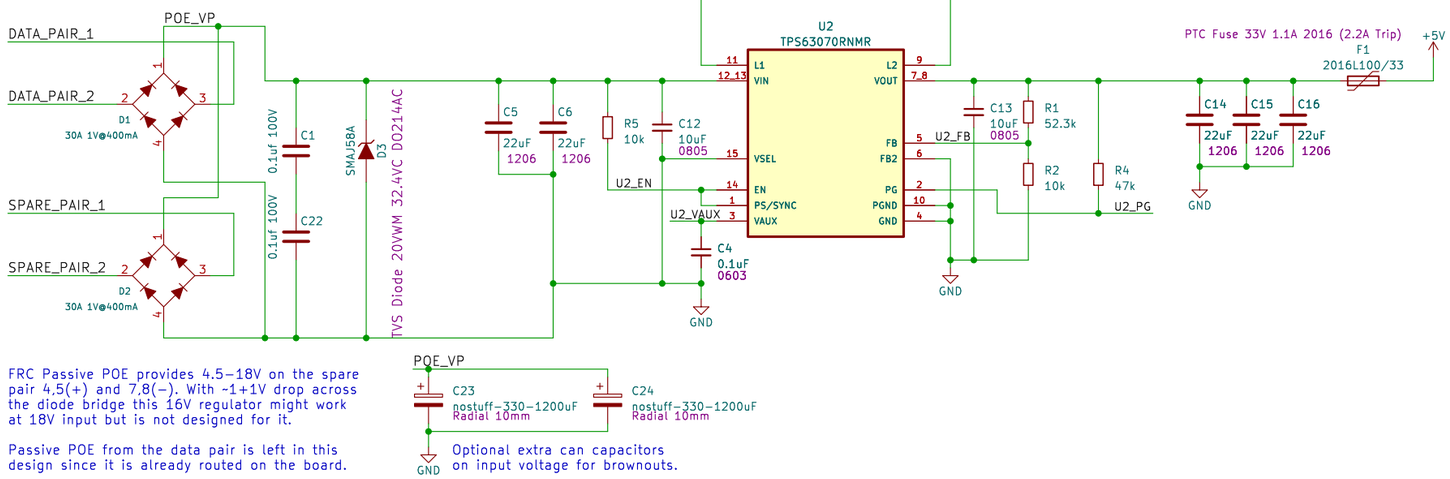
TH Female Bottom or SMT Female Top Header
SMT: Toby Electronics REF-182665-01/REF-182665-03
TH: Digikey 1528-1385-ND
Pin #s Match RPi.







Passive PoE (4-16V) -> 2A Buck-Boost -> 5V

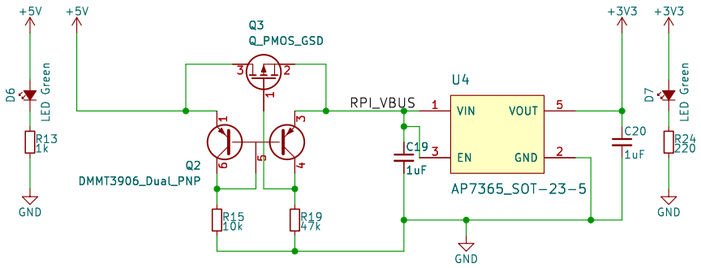


FRC Passive POE provides 4.5-18V on the spare pair 4,5(+) and 7,8(-). With ~1+1V drop across the diode bridge this 16V regulator might work at 18V input but is not designed for it.

Passive POE from the data pair is left in this design since it is already routed on the board.

Optional extra can capacitors on input voltage for brownouts.

Raspberry Pi Power



Ideal Diode for RPi 5V Source

Q1: Low Rds PFET like DMP3099L.
3A, 99mΩ @ 4.5V Vgs.
Q2: Matched PNP pair. Current mirror comparator pulls Q1 gate low (on) when USB_VBUS_RVP > USB_VBUS.

Extra Linear Reg. for 3.3V

Power ethernet phy whether we have PoE or not. Phy requires more power than allowed from RPi 3.3V.

Author: Julien Marcus

OpenFet

Sheet: /
File: pizero-papoe.kicad_sch

Title: Raspberry Pi - Power Over Ethernet & PHY

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