QWIIC AND I2C

J6 — QWIIC 3V3
J7 — ALT I2C HEADER

I OUT A (J1)

J1 — I OUT A
C1 100nF 16V X7R

I OUT B (J2)

C16 10uF 16V X7R
C18 2.2uF 16V X7R
J2 — I OUT B

I2C DIFFERENTIAL BUFFER

U1 — PCA9615DP
C2 100nF 16V X7R
C3 10uF 16V X7R
C4 1nF 2kV X7R
C13 22uF 10V X7R
C14 22uF 10V X7R
C15 100nF 16V X7R
C17 2.2uF 16V X7R
J5 — LINK CAT5E
R11 10k
R3 604R 1%
R4 120R 1% 0.25W
R5 604R 1%
R6 604R 1%
R7 120R 1% 0.25W
R8 604R 1%
R9 1M
SJ1 SHIELD BOND
L1 4.7uH 2A

CABLE LINES

U2 — TPD4E1U06DBVR

3V3 REGULATOR

U5 — AP2112K-3.3

REVERSE POLARITY LAMP

QF1 — MMBT3904-7-F
QF2 — MMBT3904-7-F
CF4 10uF 16V X7R
CF5 10uF 16V X7R
RF12 47k 1%
RF13 47k 1%
RF14 10k 1%
RF15 10k 1%
DF7 BZT52C3V9S-7-F
RF11 4.7k 0.25W
DF8 1N4148WS-7-F
RF16 2.2k 1%
SJF3 CUT REVERSE LED
DF8 RED REVERSE

OVERVOLTAGE CUTOFF

QF3 — BSS84-7-F
RF17 100k 1%
DF11 BZT52C12S-7-F

SUPPLY RAILS

PWR_FLAG ×3

12V EFUSE

J3 — 12V DC IN
UF1 — TPS26600PWPR
CF1 100nF 25V X7R
CF2 100nF 50V X7R
CF3 1uF 50V X7R
RF1 72.0k 0.1%
RF2 10k 0.1%
RF3 110k 0.1%
RF4 10k 0.1%
RF5 24.0k 1%
DF1 1N4148WS-7-F
DF10 BAT54WS-7-F
DF2 RED FAULT
SJF1 CUT FAULT LED
D1 B340A

OVERVOLTAGE LAMP

UF2 — TL431BIDBZR
RF6 10k 1%
RF7 45.3k 0.1%
RF8 10k 0.1%
RF9 8.2k 0.25W
DF3 BAT54WS-7-F
DF4 BZT52C12S-7-F
DF9 BAT54WS-7-F
RF10 10k 0.25W
SJF2 CUT OV LED
DF5 RED OVERVOLTAGE

5V BUCK

U3 — AP63205WU-7
C10 10uF 50V X7R
C11 100nF 50V X7R
C12 100nF 50V X7R
D2 SMBJ15A

5V OUTPUT SWITCH

U4 — TPS25530BVR
R12 150k 1%

TEST PADS

TP1 GND
TP2 +3V3
TP3 +5V
TP4 12V_PROT
TP5 SDA
TP6 SCL

SUPPORT CIRCUITRY

JP1 PULLUP SDA
JP2 PULLUP SCL
R1 3k3 1%
R2 3k3 1%
D3 GREEN 3V3
JP10 CUT 3V3 LED
R10 470R
D4 RED 5V
JP12 CUT 5V LED
R15 1k

CAD-checked prototype, not physically qualified
License: CERN-OHL-S-2.0
Smoothieware extension boards
Sheet: /
File: die-remote.kicad_sch

Title: Differential I2C Extender, remote

Size: A1 | Date: 2026-11-26 | **Rev: v01**
KiCad E.D.A. 9.0.8 | Id: 1/1