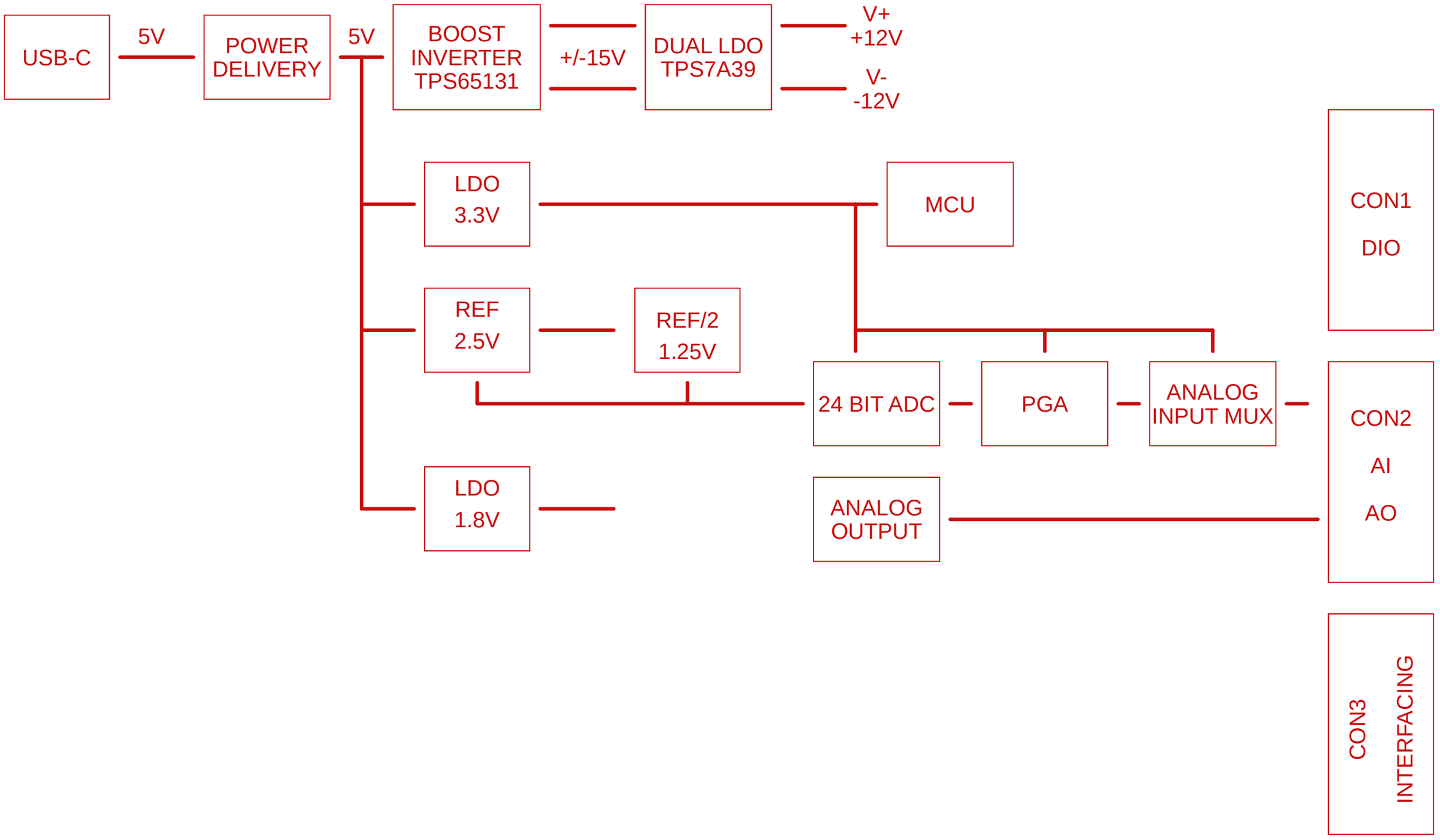

BLOCK DIAGRAM

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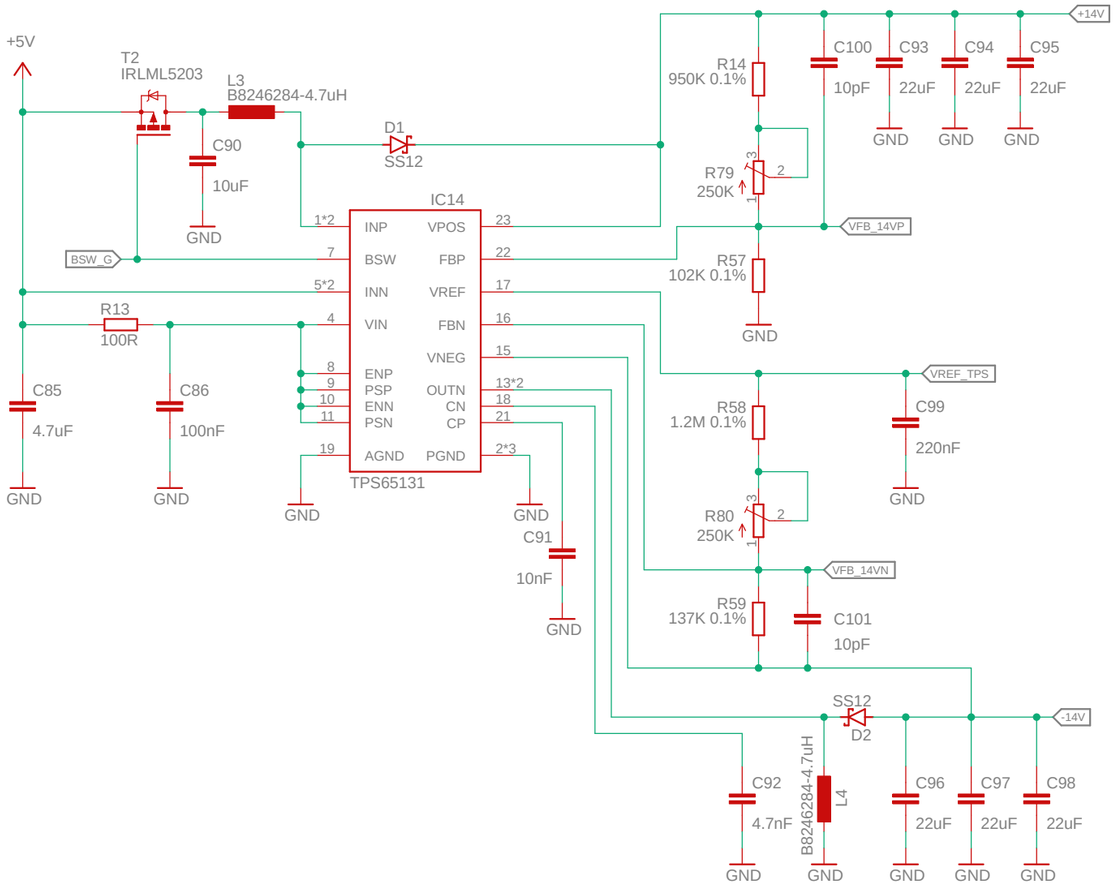
5V to +/-14V BOOST CONVERTER



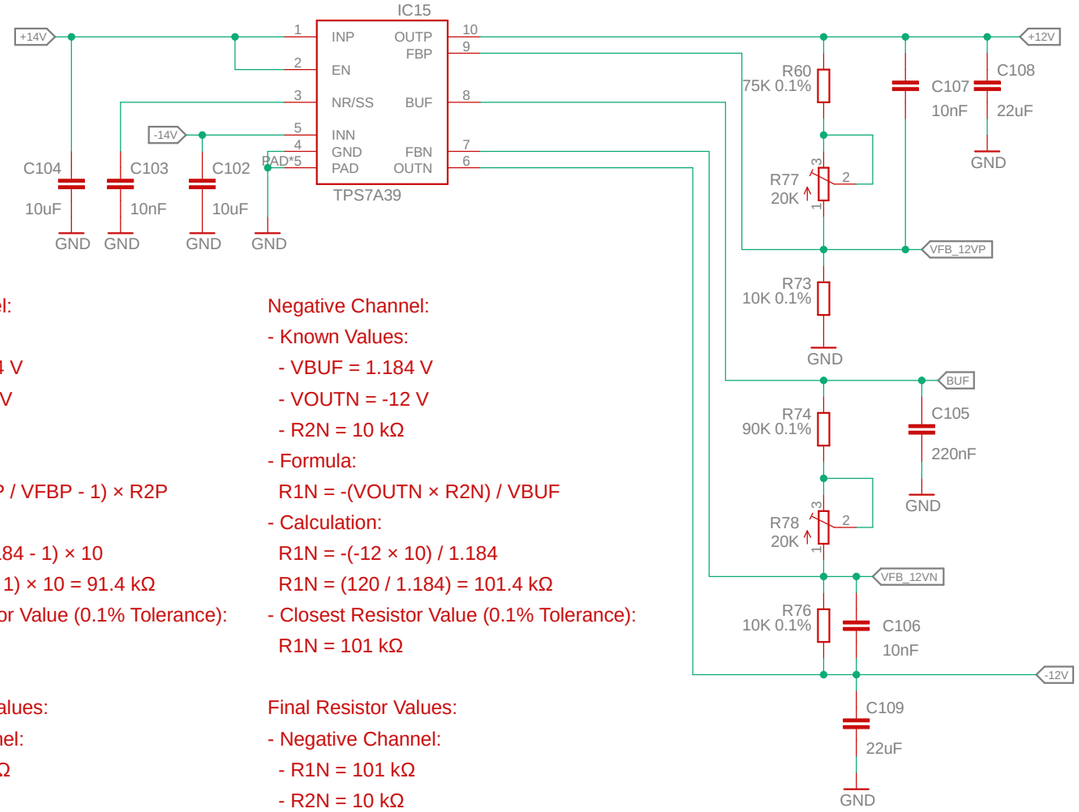
Positive Output (Vout_pos = 14V):
- Given:
  - R1 = 976 kΩ
  - Calculated R2 ≈ 102.3 kΩ
- Nearest E96 Standard Value:
  - R2 = 102 kΩ
- Resulting Output Voltage:
  - Vout = 1.213 × (1 + R1 / R2)
  - Vout = 1.213 × (1 + 976 / 102) ≈ 13.98 V
- Final Pair:
  - R1 = 976 kΩ
  - R2 = 102 kΩ

Negative Output (Vout_neg = -14V):
- Given:
  - R1 = 1.3 MΩ
  - Calculated R2 ≈ 136.3 kΩ
- Nearest E96 Standard Value:
  - R2 = 137 kΩ
- Resulting Output Voltage:
  - Vout = 1.213 × (1 + R1 / R2)
  - Vout = 1.213 × (1 + 1300 / 137) ≈ 14.01 V
- Final Pair:
  - R1 = 1.3 MΩ
  - R2 = 137 kΩ

Positive Channel:
- Target VOUTP = 14 V,
adjustment range: 12.6 V to 15.4 V.
- Configuration:
  - R2P = 102 kΩ (fixed).
  - R1P = 950 kΩ (fixed) + 250 kΩ (trimmer).
- Adjustment Range:
  - R1P = 950 kΩ to 1200 kΩ.

Negative Channel:
- Target VOUTN = -14 V,
adjustment range: -12.6 V to -15.4 V.
- Configuration:
  - R2N = 137 kΩ (fixed).
  - R1N = 1.2 MΩ (fixed) + 250 kΩ (trimmer).
- Adjustment Range:
  - R1N = 1.2 MΩ to 1.45 MΩ.

+/-14V to +/12V LDO



Positive Channel:
- Known Values:
  - VFBP = 1.184 V
  - VOUTP = 12 V
  - R2P = 10 kΩ
- Formula:
  R1P = (VOUTP / VFBP - 1) × R2P
- Calculation:
  R1P = (12 / 1.184 - 1) × 10
  R1P = (10.14 - 1) × 10 = 91.4 kΩ
- Closest Resistor Value (0.1% Tolerance):
  R1P = 91.5 kΩ

Final Resistor Values:
- Positive Channel:
  - R1P = 91.5 kΩ
  - R2P = 10 kΩ
  - Calculated VOUTP ≈ 12.0 V

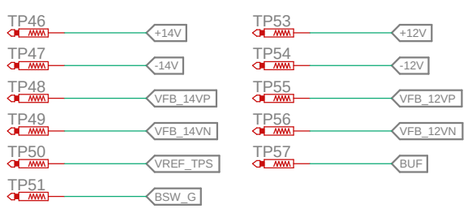
Positive Channel:
- Target VOUTP = 12 V,
adjustment range: 10.8 V to 13.2 V.
- Feedback Resistor Configuration:
  - R2P = 10 kΩ (fixed).
  - R1P = 75 kΩ (fixed) + 20 kΩ (trimmer).
- Adjustment Range:
  - R1P = 81.2 kΩ to 101.5 kΩ.

Negative Channel:
- Known Values:
  - VBUF = 1.184 V
  - VOUTN = -12 V
  - R2N = 10 kΩ
- Formula:
  R1N = -(VOUTN × R2N) / VBUF
- Calculation:
  R1N = -(-12 × 10) / 1.184
  R1N = (120 / 1.184) = 101.4 kΩ
- Closest Resistor Value (0.1% Tolerance):
  R1N = 101 kΩ

Final Resistor Values:
- Negative Channel:
  - R1N = 101 kΩ
  - R2N = 10 kΩ
  - Calculated VOUTN ≈ -12.0 V

Negative Channel:
- Target VOUTN = -12 V,
adjustment range: -10.8 V to -13.2 V.
- Feedback Resistor Configuration:
  - R2N = 10 kΩ (fixed).
  - R1N = 90 kΩ (fixed) + 20 kΩ (trimmer).
- Adjustment Range:
  - R1N = 91.2 kΩ to 111.5 kΩ.

TESTPOINTS POWER



POWER
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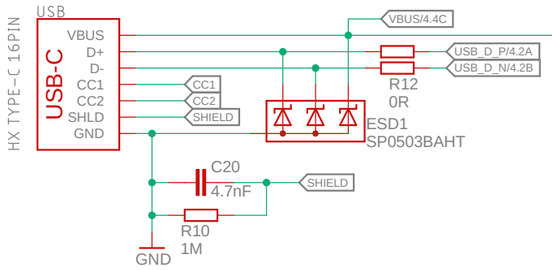
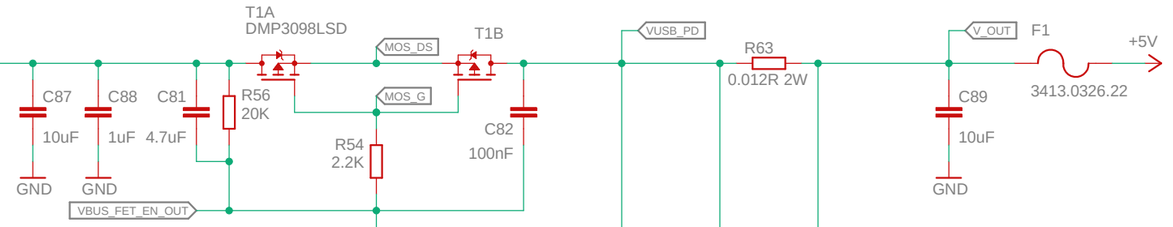
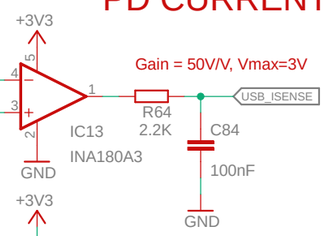
USB-C

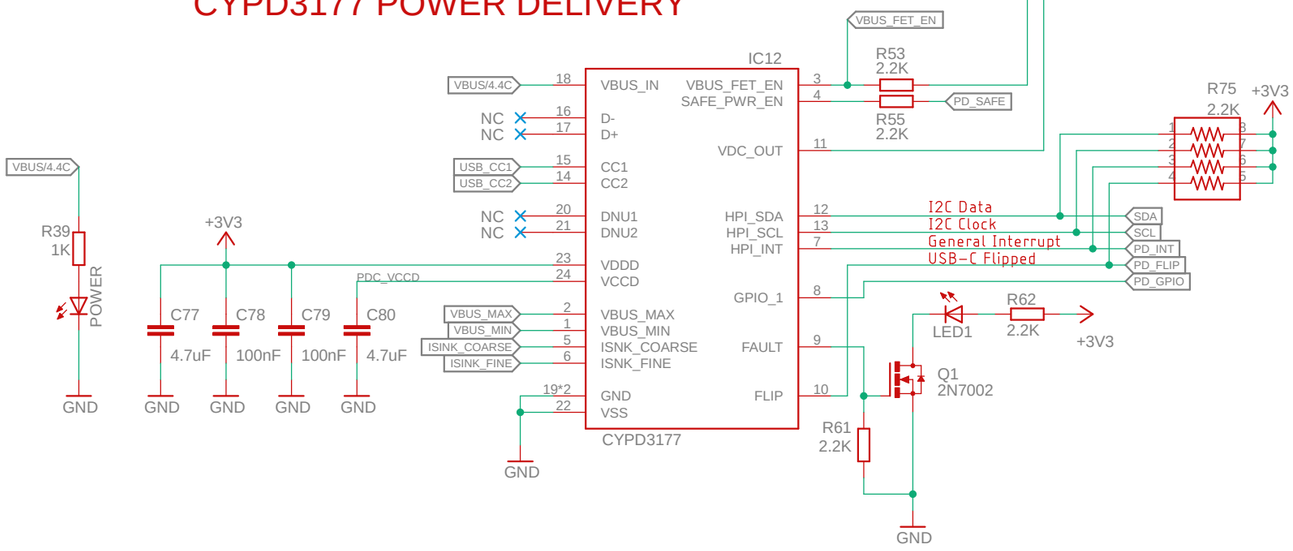




PD CURRENT SENSOR

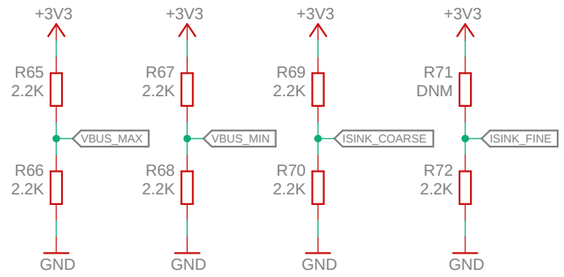


CYPD3177 POWER DELIVERY



SET V_PD

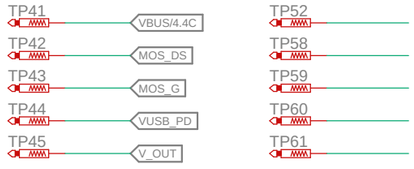
SET I_PD



3.3V SYTEM LDO

3.3V TARGET LDO

TESTPOINTS USB-PD



USB-C POWER DELIVERY

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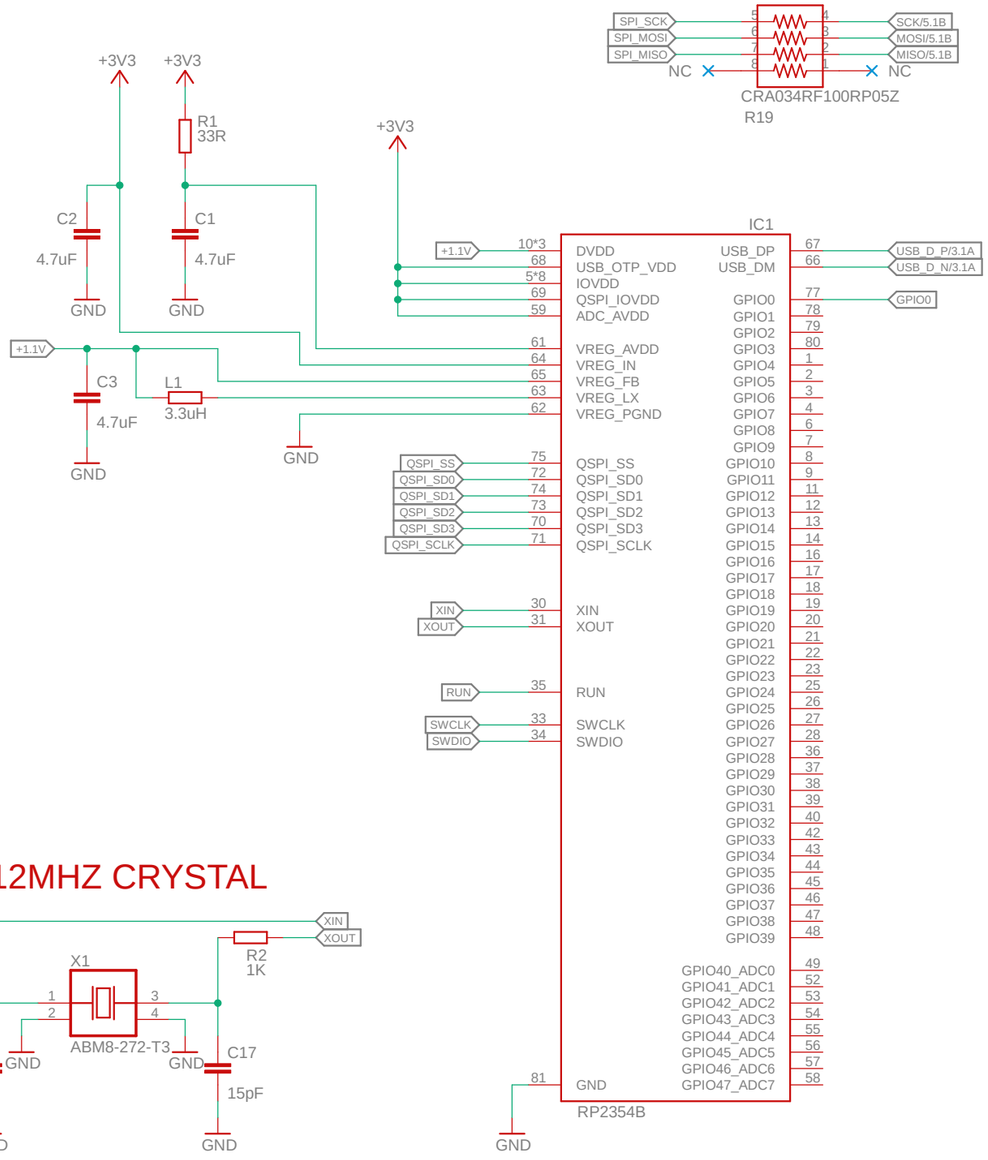
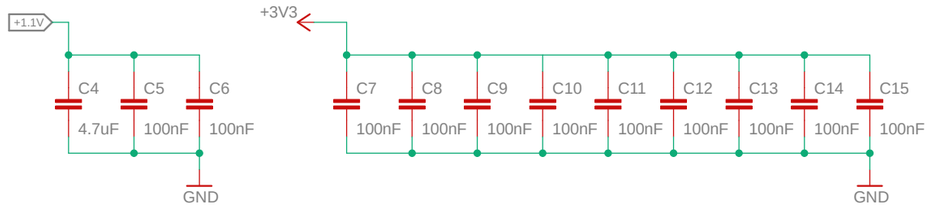
RP2354 MCU

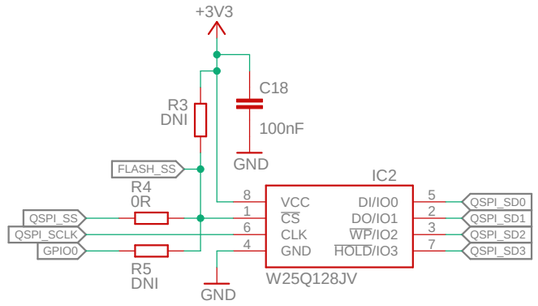


12MHZ CRYSTAL

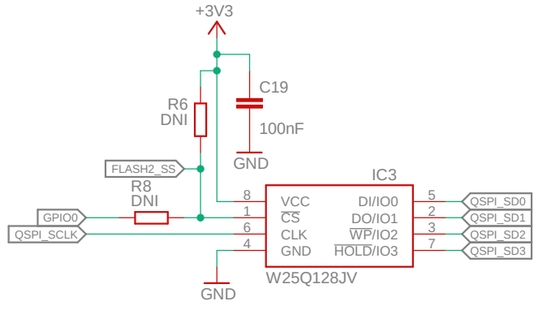
DECOUPLING



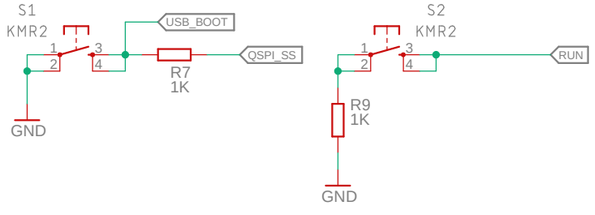
PRIMARY FLASH



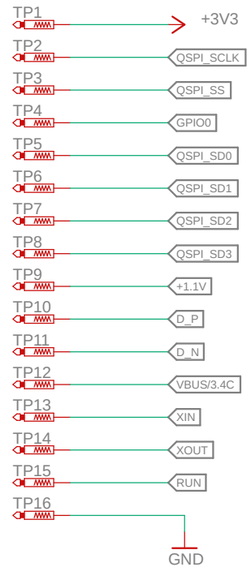
SECONDARY FLASH



BOOT MODES



TESTPOINS MCU



RP2354 MCU
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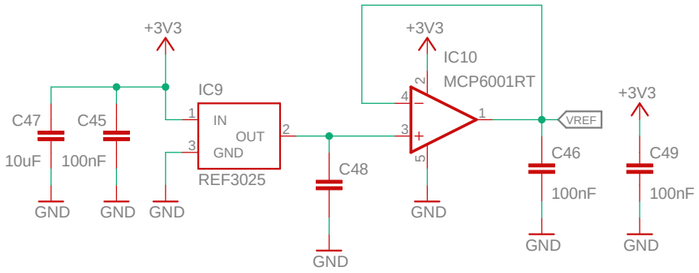
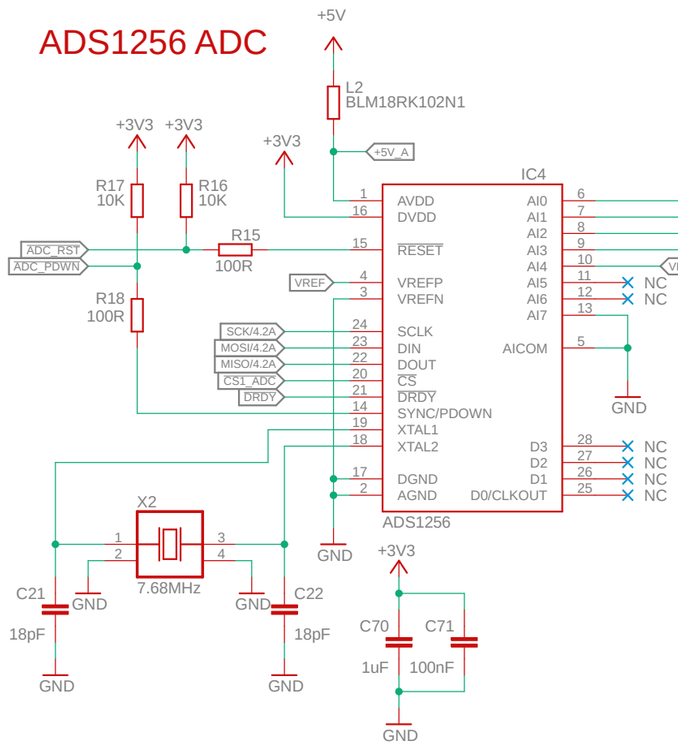
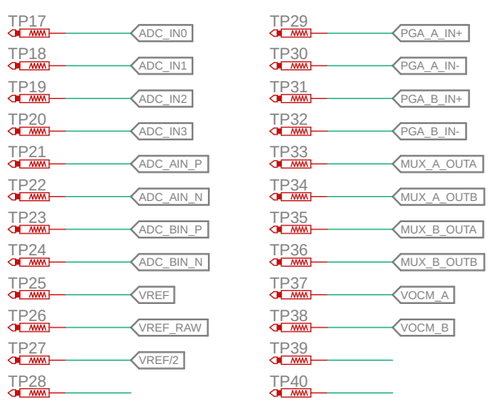
VOLTAGE REFERENCE



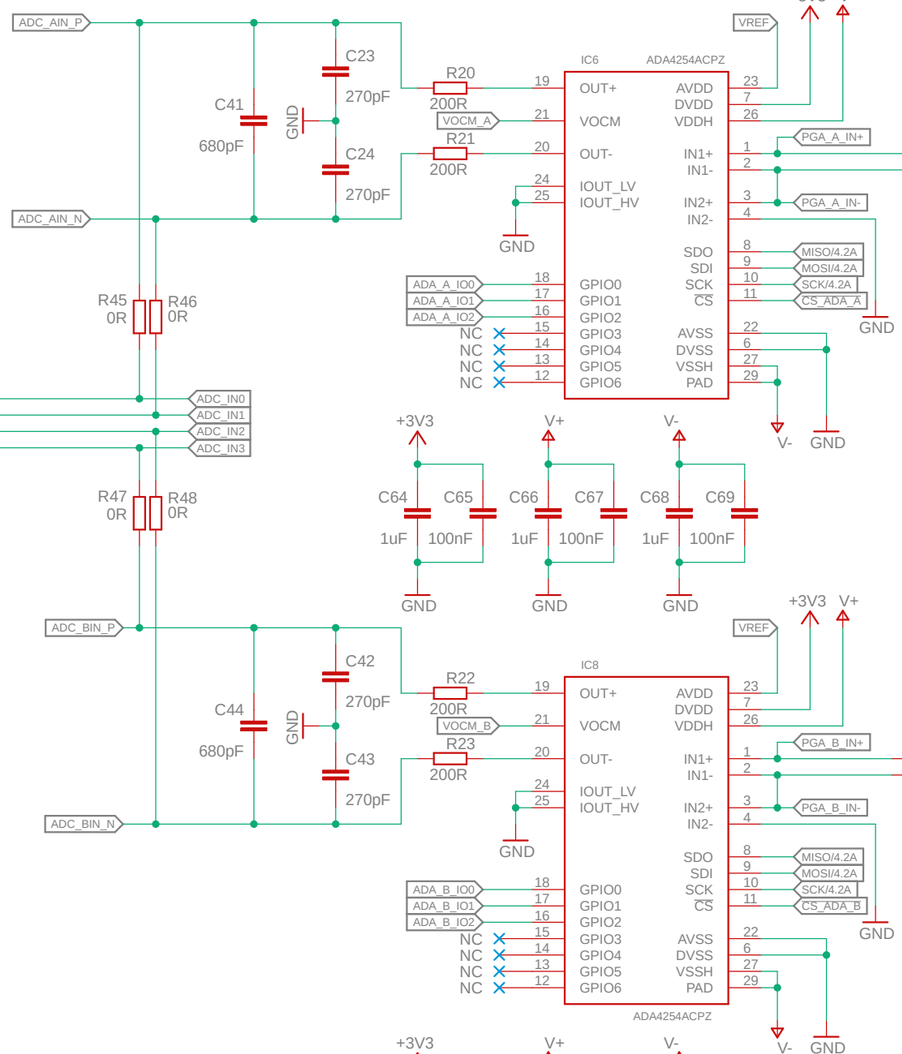
ADS1256 ADC



ANALOG-IN TESTPOINTS

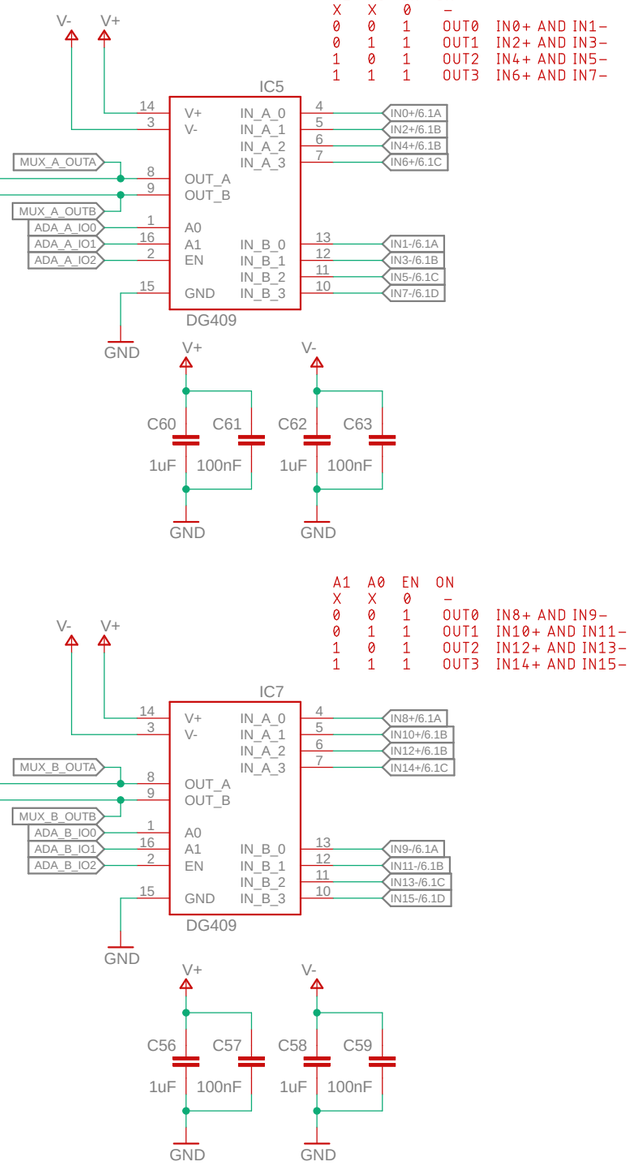


PGA

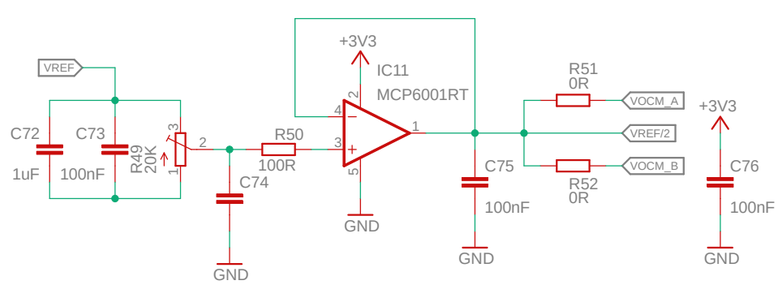


INPUT MULTIPLEXER

A1	A0	EN	ON
X	X	0	–
0	0	1	OUT0 IN0+ AND IN1–
0	1	1	OUT1 IN2+ AND IN3–
1	0	1	OUT2 IN4+ AND IN5–
1	1	1	OUT3 IN6+ AND IN7–



A1	A0	EN	ON
X	X	0	–
0	0	1	OUT0 IN8+ AND IN9–
0	1	1	OUT1 IN10+ AND IN11–
1	0	1	OUT2 IN12+ AND IN13–
1	1	1	OUT3 IN14+ AND IN15–



ANALOG IN

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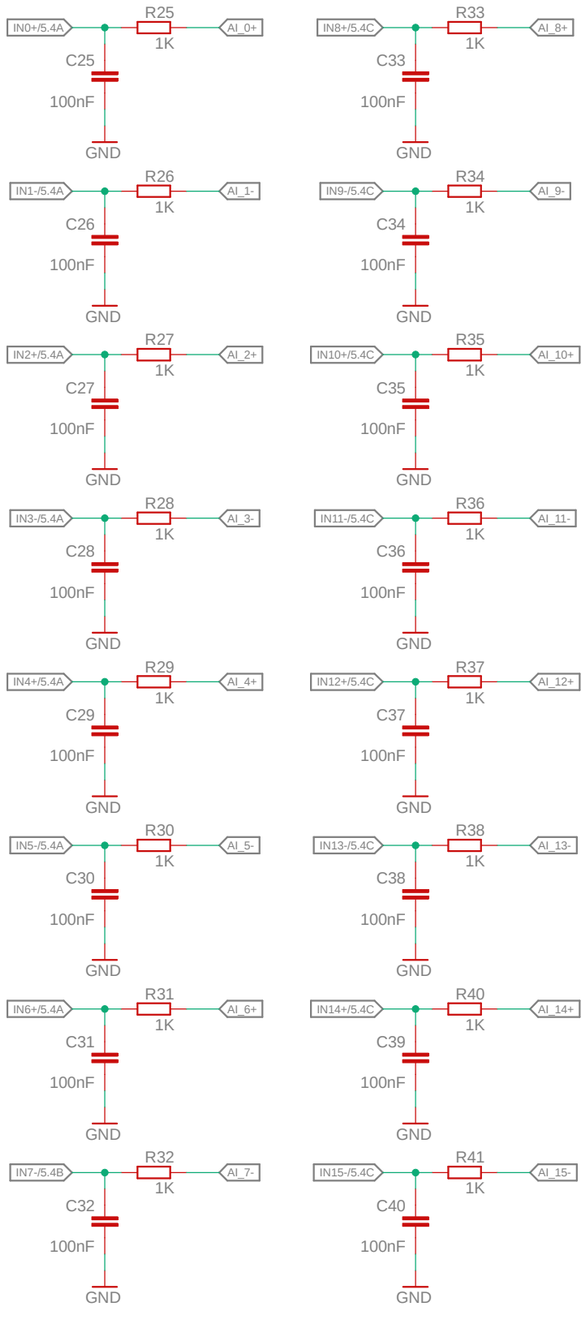
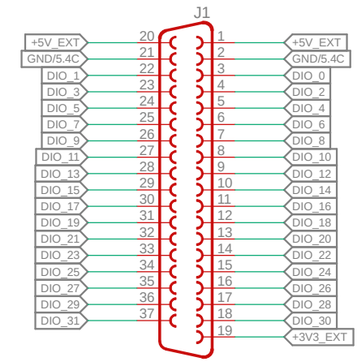
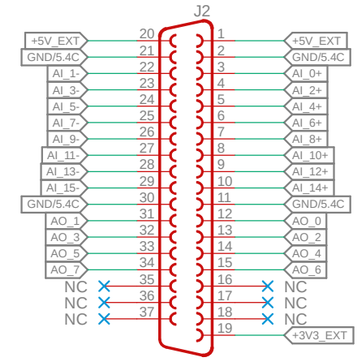
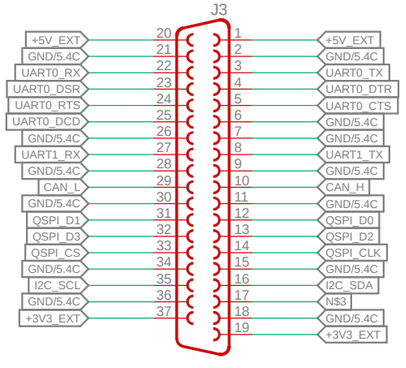
ADC INPUTS









CONNECTORS

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