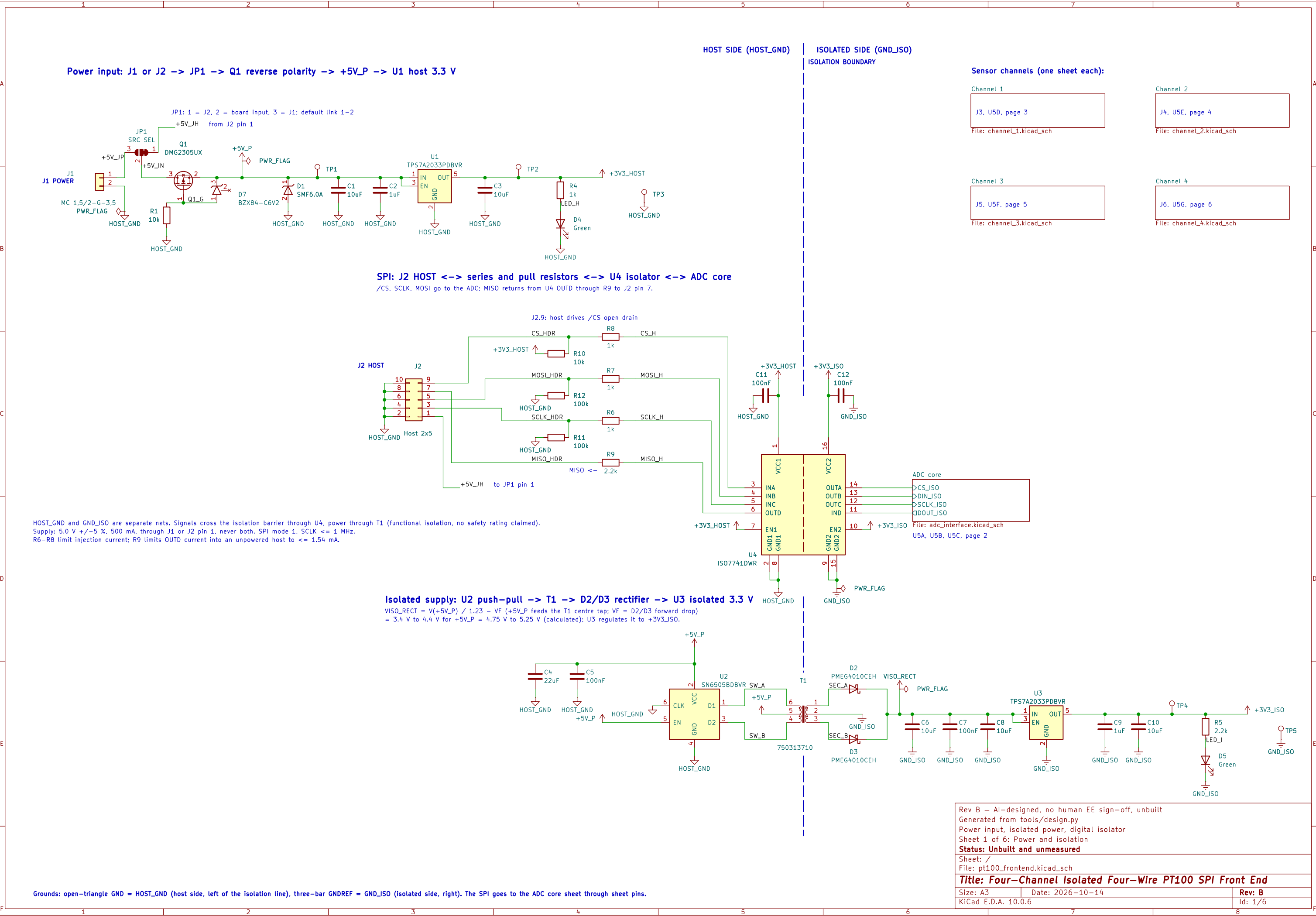
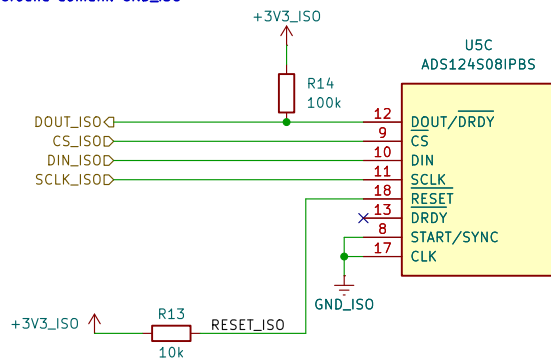


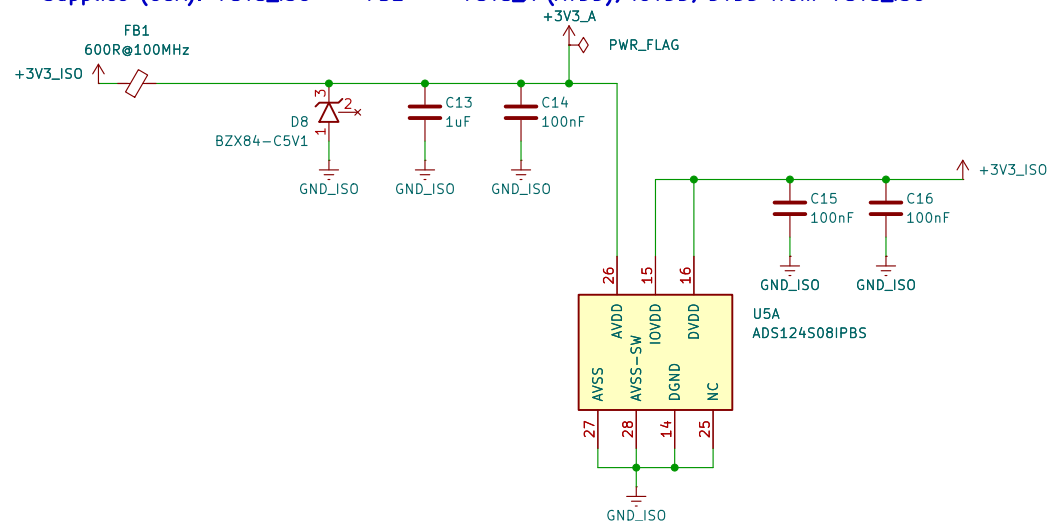


Interface (U5C): SPI from the isolator on sheet 1

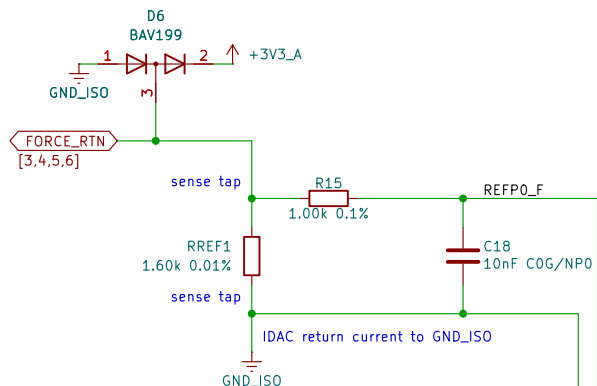
Ground domain: GND_ISO



Supplies (U5A): +3V3_ISO -> FB1 -> +3V3_A (AVDD); IOVDD, DVDD from +3V3_ISO



Reference (U5B): ratiometric, VREF = IDAC current x RREF1



One IDAC (IDAC1) is switched to one channel at a time:
AIN0 / AIN3 / AIN6 / AIN7 for CH1-CH4 (IDACMUX F0h / F3h / F6h / F7h).
Every channel's FORCE- returns through FORCE_RTN
into this shared RREF1.

U5 unit map:

U5A supplies, U5B reference, U5C SPI: page 2

U5D CH1: page 3 U5E CH2: page 4 U5F CH3: page 5 U5G CH4: page 6

Ground: three-bar GNDREF = GND_ISO. SPI from sheet 1 through hierarchical labels; FORCE_RTN is shared with pages 3-6.

VREF = 1 mA x 1.60 k = 1.6 V
REFP buffer on, REFN buffer off
PGA gain 8, 20 SPS: full scale 200 mV
REFOUT on for the IDAC (C17)

Rev B — AI-designed, no human EE sign-off, unbuilt

Generated from tools/design.py

ADS124S08 supplies, reference and SPI

Sheet 2 of 6: ADC core

Status: Unbuilt and unmeasured

Sheet: /ADC core/

File: adc_interface.kicad_sch

Title: Four-Channel Isolated Four-Wire PT100 SPI Front End

Size: A4 Date: 2026-10-14

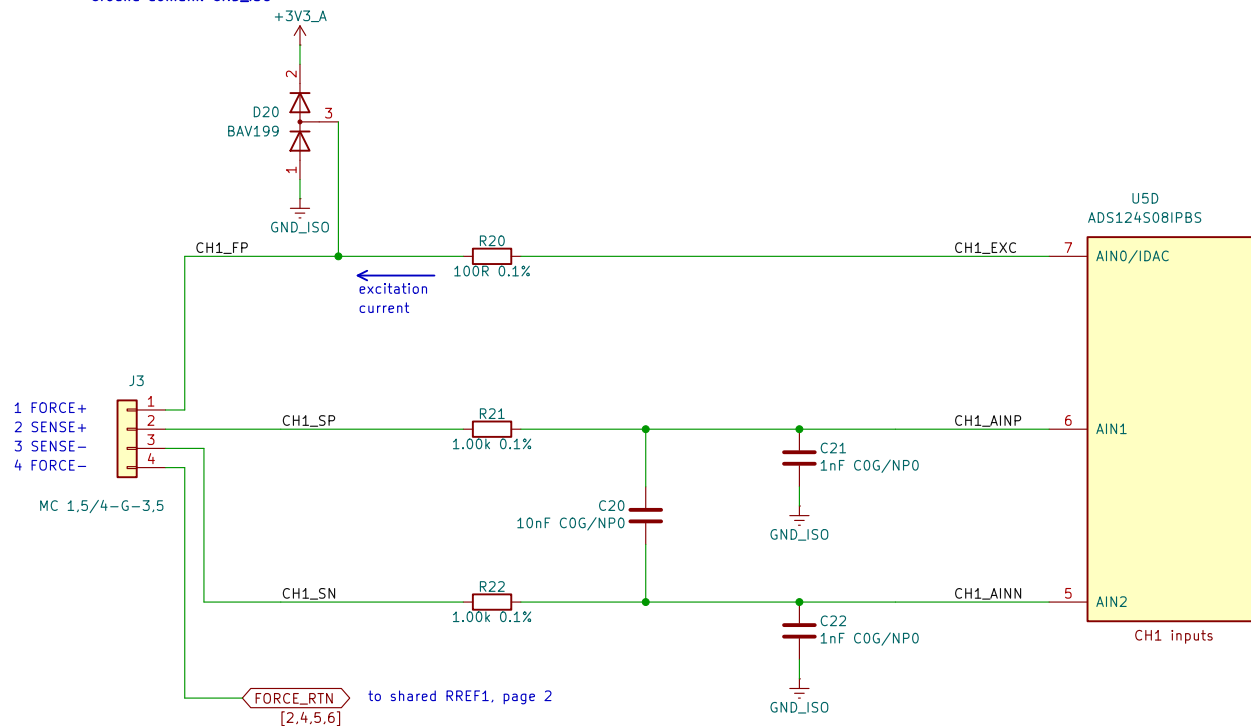
KiCad E.D.A. 10.0.6

Rev: B

Id: 2/6

Channel 1: sensor terminal J3 -> protection and filter -> ADC inputs (U5, unit D)

Ground domain: GND_ISO



NOTES (sheet 3):

1. Only the excitation pin carries IDAC current; the sense pair carries none.
2. Sense filter f(-3 dB): differential 7.3 kHz, common mode 57 kHz. Passive, floating RTDs only.

Ground: three-bar GNDREF = GND_ISO. FORCE_RTIN is shared with the ADC core (page 2) and the other channel pages.

Rev B - AI-designed, no human EE sign-off, unbuilt
Generated from tools/design.py
Sensor channel 1
Sheet 3 of 6: Channel 1
Status: Unbuilt and unmeasured

Sheet: /Channel 1/
File: channel_1.kicad_sch

Title: Four-Channel Isolated Four-Wire PT100 SPI Front End

Size: A4 Date: 2026-10-14

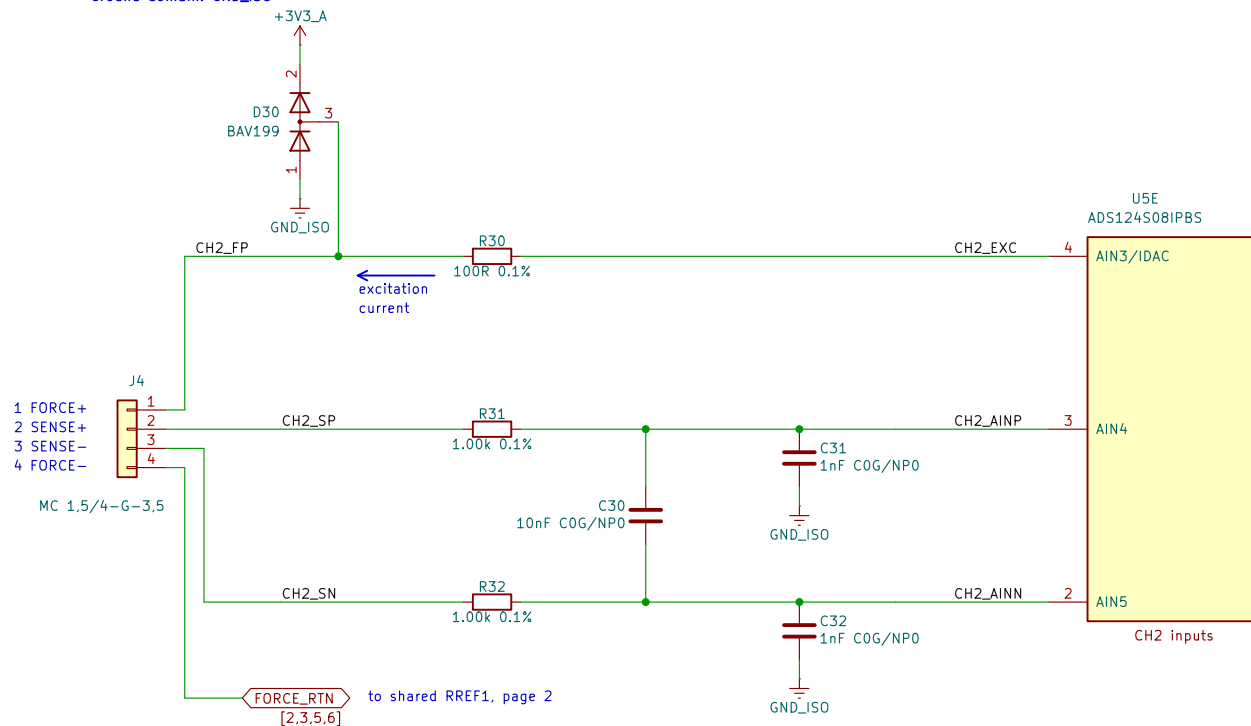
KiCad E.D.A. 10.0.6

Rev: B

Id: 3/6

Channel 2: sensor terminal J4 -> protection and filter -> ADC inputs (U5, unit E)

Ground domain: GND_ISO



NOTES (sheet 4):

1. Only the excitation pin carries IDAC current; the sense pair carries none.
2. Sense filter f(-3 dB): differential 7.3 kHz, common mode 57 kHz. Passive, floating RTDs only.

Ground: three-bar GNDREF = GND_ISO. FORCE_RTN is shared with the ADC core (page 2) and the other channel pages.

Rev B — AI-designed, no human EE sign-off, unbuilt
Generated from tools/design.py
Sensor channel 2
Sheet 4 of 6: Channel 2
Status: Unbuilt and unmeasured

Sheet: /Channel 2/
File: channel_2.kicad_sch

Title: Four-Channel Isolated Four-Wire PT100 SPI Front End

Size: A4 Date: 2026-10-14

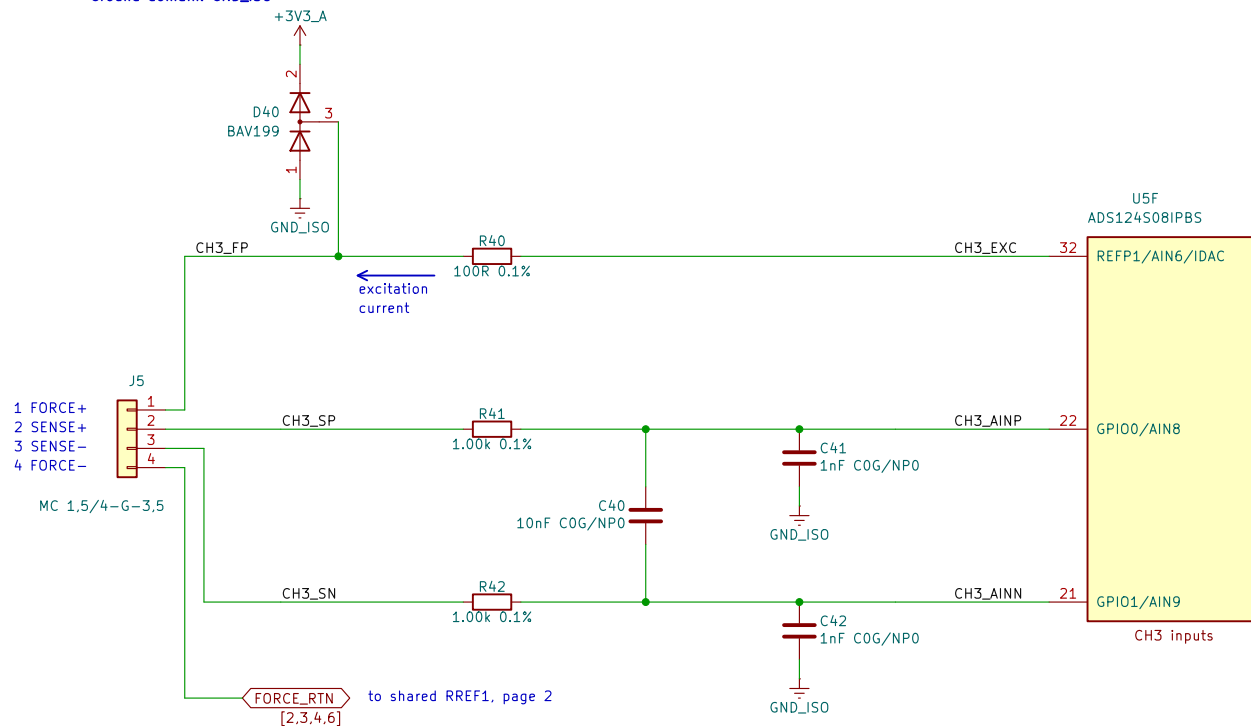
KiCad E.D.A. 10.0.6

Rev: B

Id: 4/6

Channel 3: sensor terminal J5 -> protection and filter -> ADC inputs (U5, unit F)

Ground domain: GND_ISO



NOTES (sheet 5):

1. Only the excitation pin carries IDAC current; the sense pair carries none.
2. Sense filter f(-3 dB): differential 7.3 kHz, common mode 57 kHz. Passive, floating RTDs only.

Ground: three-bar GNDREF = GND_ISO. FORCE_RTN is shared with the ADC core (page 2) and the other channel pages.

Rev B — AI-designed, no human EE sign-off, unbuilt
Generated from tools/design.py
Sensor channel 3
Sheet 5 of 6: Channel 3
Status: Unbuilt and unmeasured

Sheet: /Channel 3/
File: channel_3.kicad_sch

Title: Four-Channel Isolated Four-Wire PT100 SPI Front End

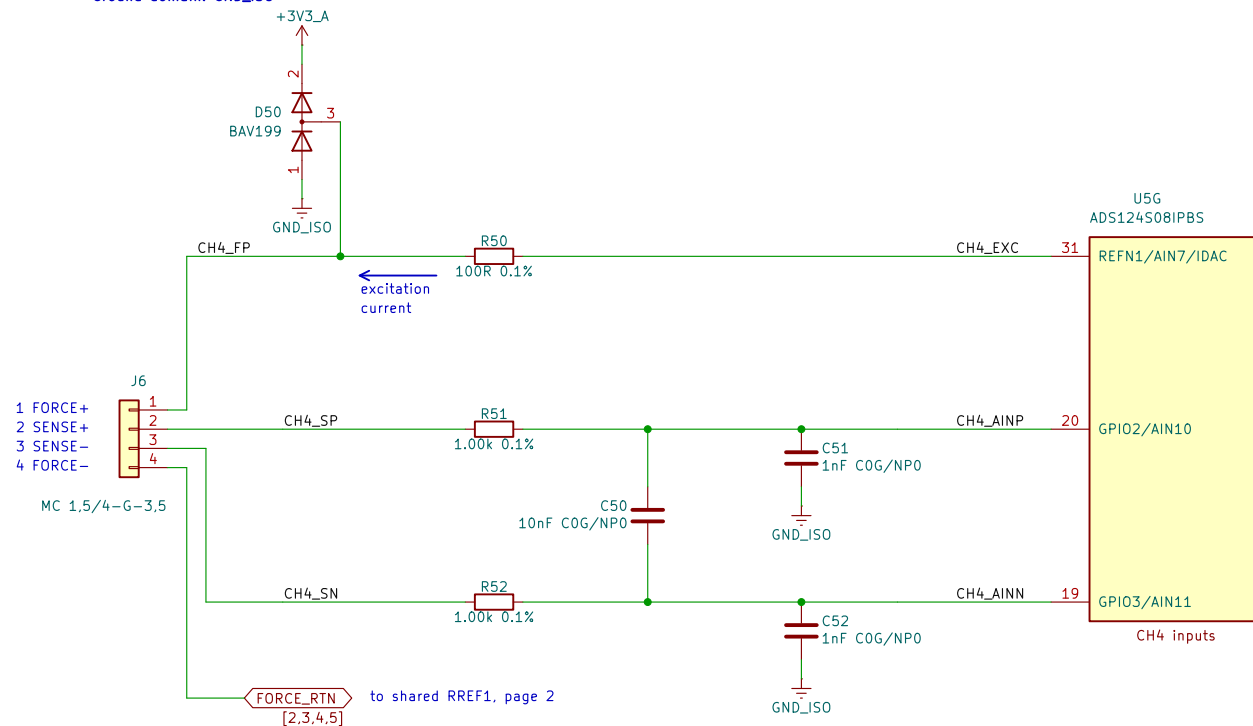
Size: A4 Date: 2026-10-14

KiCad E.D.A. 10.0.6

Rev: B

Id: 5/6

Ground domain: GND_ISO



1. Only the excitation pin carries IDAC current; the sense pair carries none.
2. Sense filter $f(-3\text{ dB})$: differential 7.3 kHz, common mode 57 kHz. Passive, floating RTDs only.

Ground: three-bar GNDREF = GND_ISO. FORCE_RTN is shared with the ADC core (page 2) and the other channel pages.

Sheet: /Channel 4/
File: channel_4.kicad_sch

Size: A4	Date: 2026-10-14
KiCad E.D.A. 10.0.6	

Rev: B
Id: 6/6