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Project/Equipment HPM7177 ADC Mezzanine

Document



**HPM7177**  
**Top-level schematic**

European Organization for Nuclear Research  
CH-1211 Genève 23 - Switzerland

Designer	N. Beev	
Drawn by	N. Beev	04-04-2019
Check by	JMW	06-02-2023
Last Mod.	N. Beev	06/02/2023
File	top.SchDoc	
Print Date	06/02/2023 15:32:30	Sheet 1 of 5

EDA-04061-V4-1

Size A4  
Rev -

## EMI filters

## Inputs Coupling

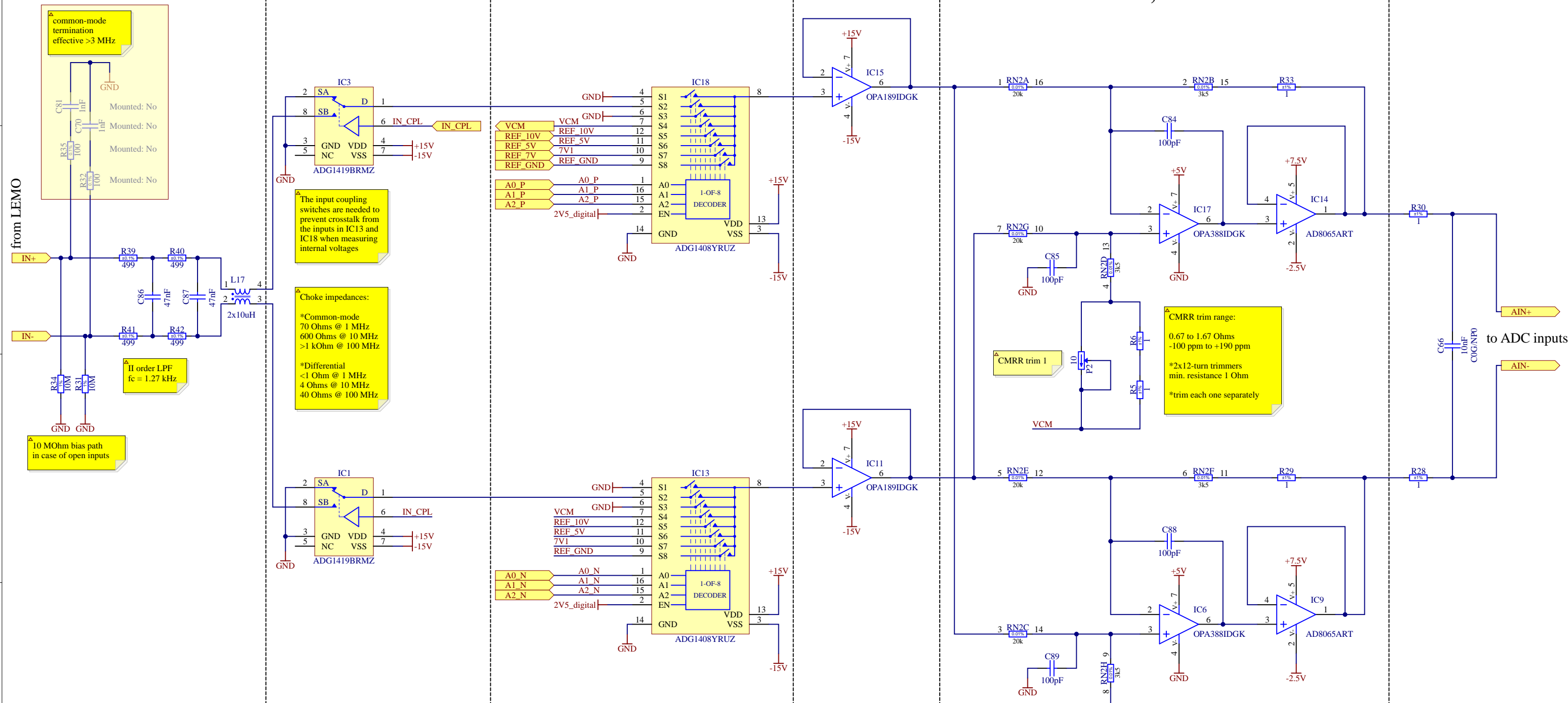
## Input Multiplexers

## Buffers

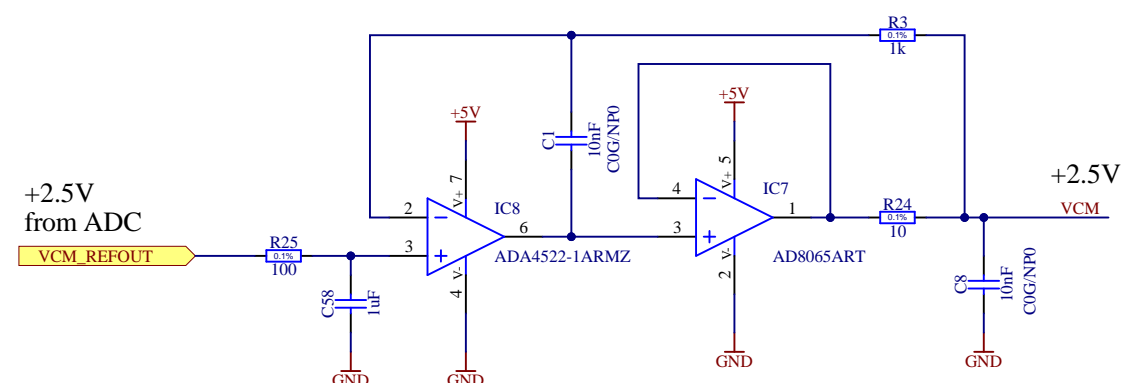
## Fully Differential Stage

 $G=0.35$ ,  $V_{ocm} = 2.5V$ 

## ADC input filter



## Common-mode bias: +2.5V from ADC internal Vref



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Project/Equipment

HPM7177 ADC Mezzanine

Document

SY-EPC



**HPM7177**  
**Input Section**

European Organization for Nuclear Research  
CH-1211 Genève 23 - Switzerland

Designer	N. Beev
Drawn by	N. Beev
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File	input_section.SchDoc
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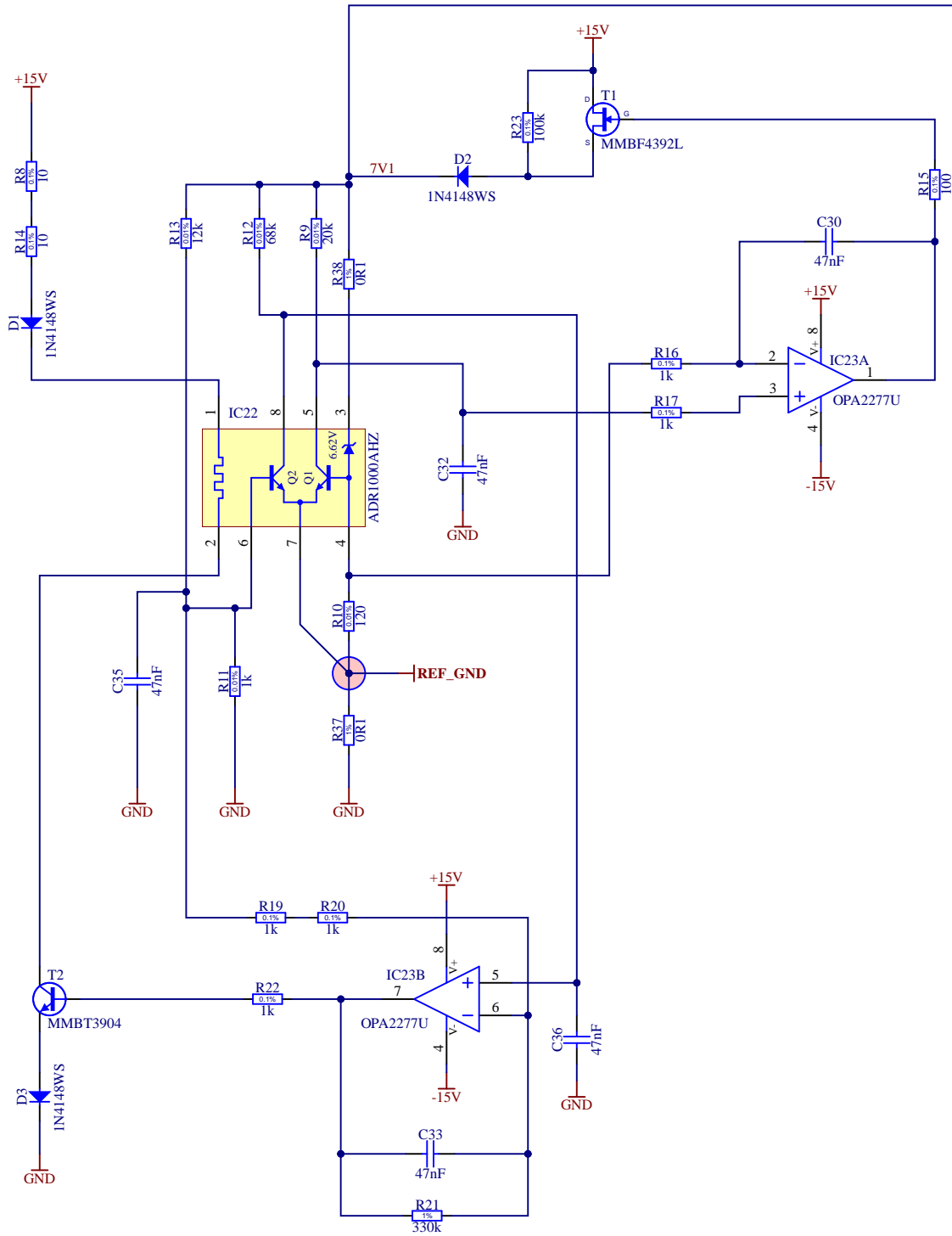
Sheet 2 of 5

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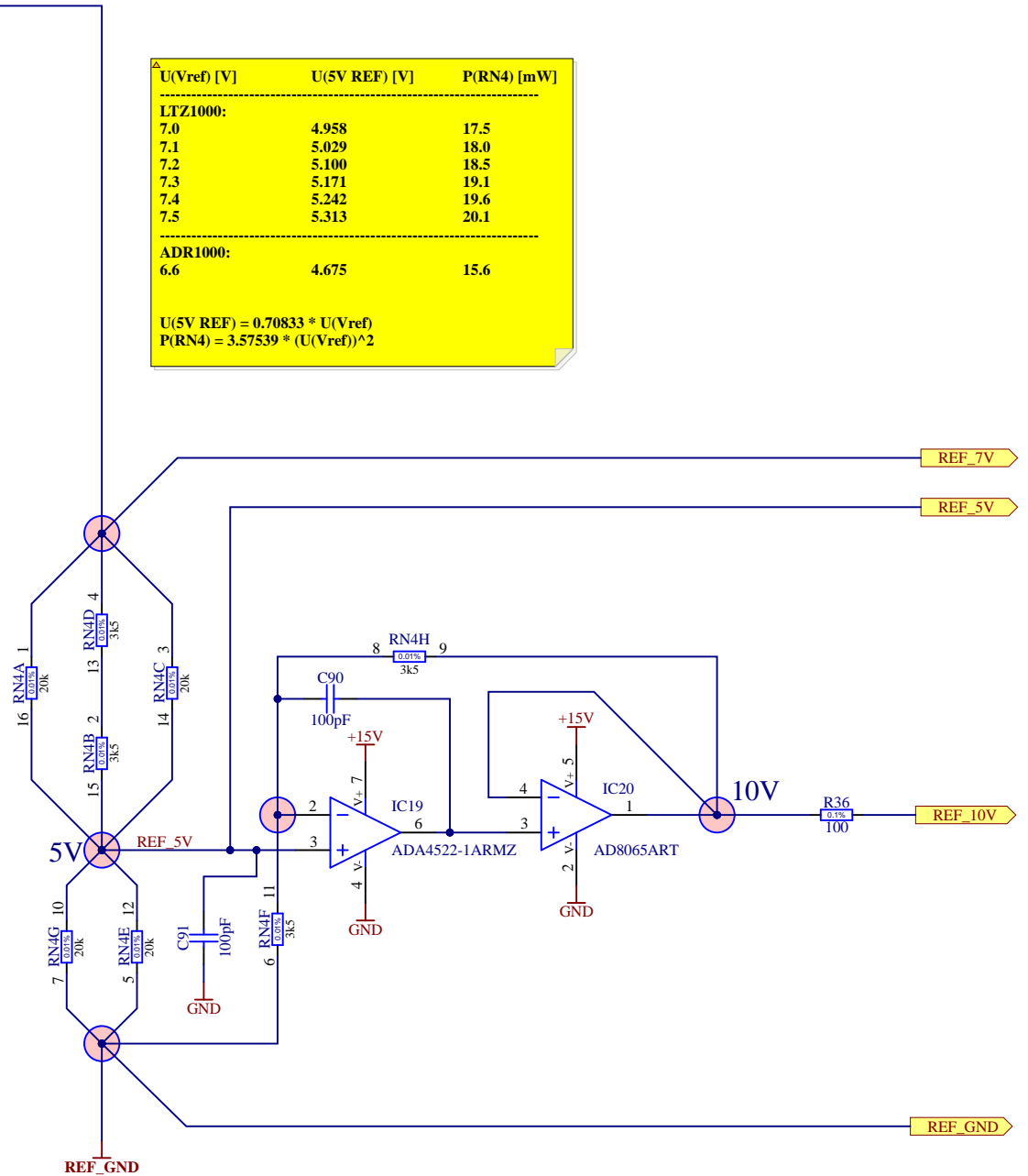
Size A3

Rev -

LTZ1000A Circuit



7.1/5V Divider and G=2 Amplifier



U(Vref) [V]	U(5V REF) [V]	P(RN4) [mW]
<b>LTZ1000:</b>		
7.0	4.958	17.5
7.1	5.029	18.0
7.2	5.100	18.5
7.3	5.171	19.1
7.4	5.242	19.6
7.5	5.313	20.1
<b>ADR1000:</b>		
6.6	4.675	15.6
<b>U(5V REF) = 0.70833 * U(Vref)</b>		
<b>P(RN4) = 3.57539 * (U(Vref))^2</b>		

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SY-EPC



**HPM7177**  
**Voltage Reference**

European Organization for Nuclear Research  
CH-1211 Genève 23 - Switzerland

Designer N. Beev

Drawn by N. Beev

Check by JMW

Last Mod. N. Beev

File vref.SchDoc

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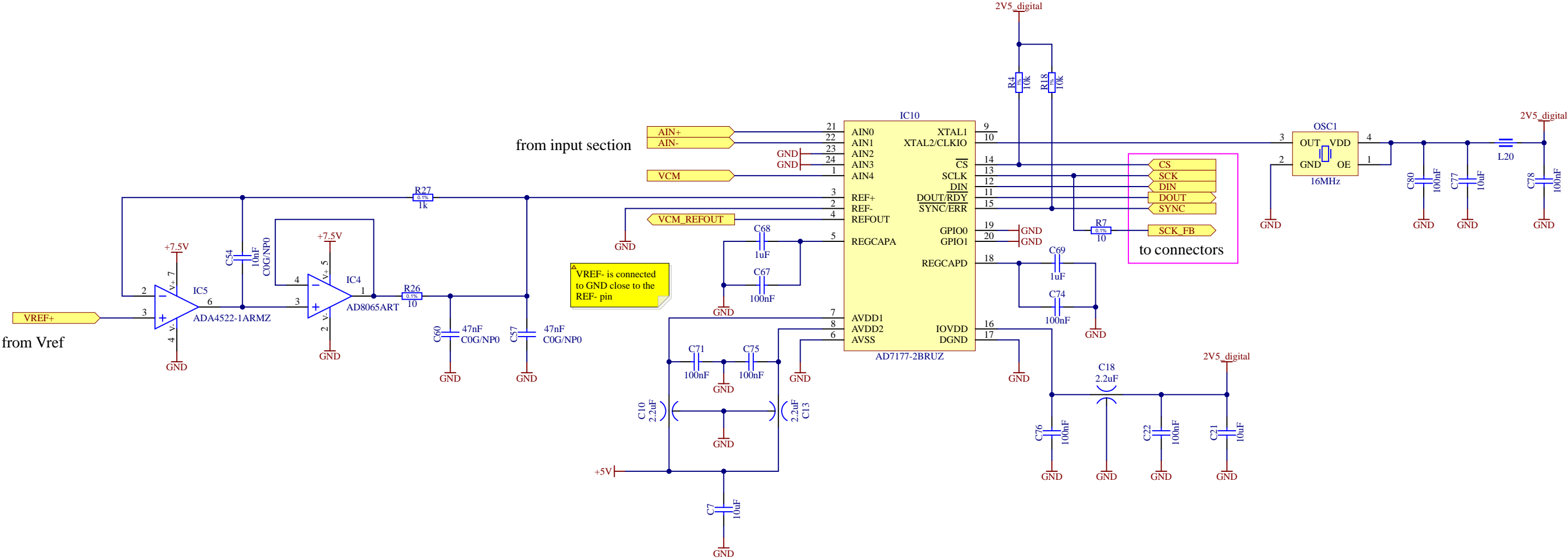
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Size A3

Rev -

AD7177-2 ADC circuit



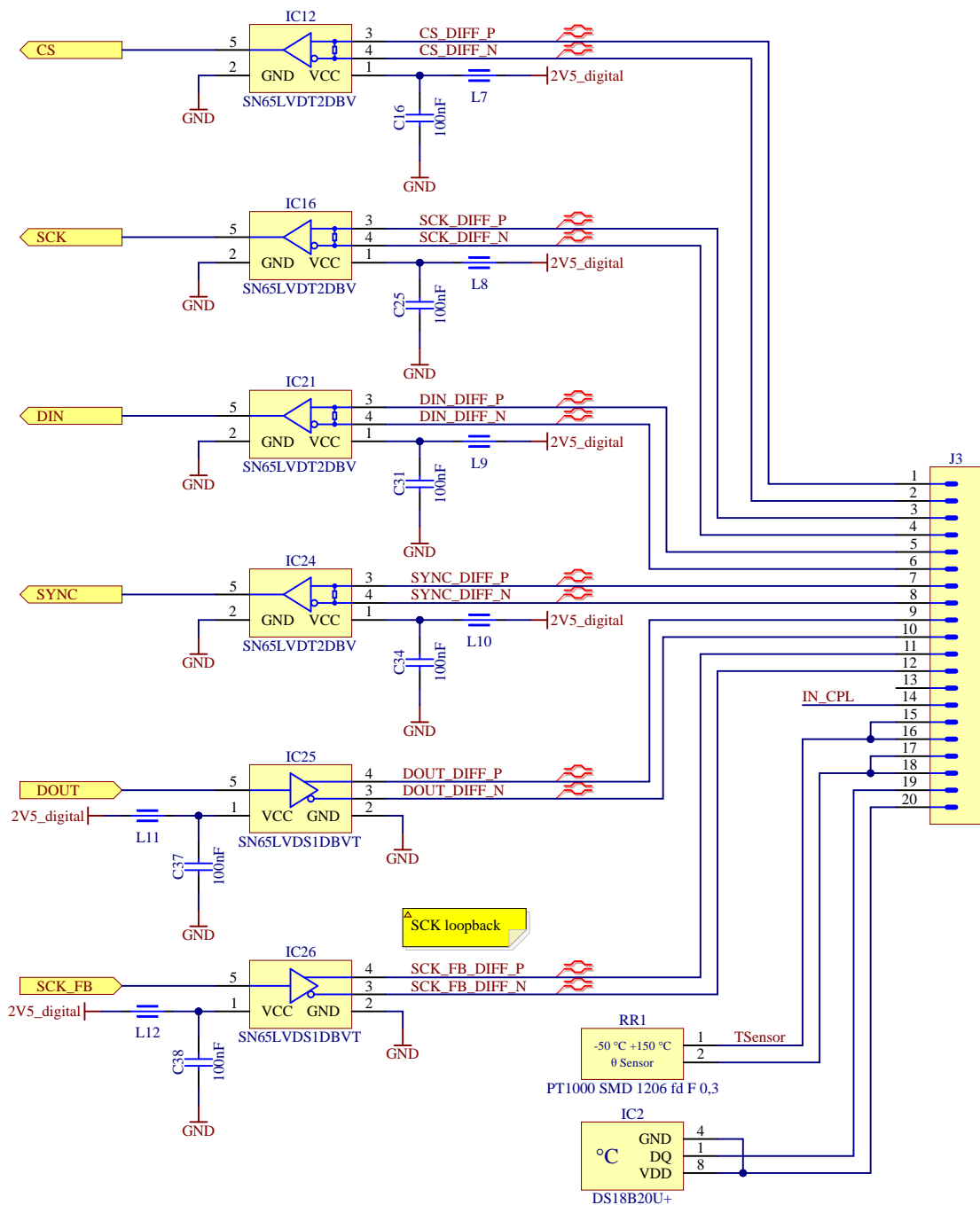
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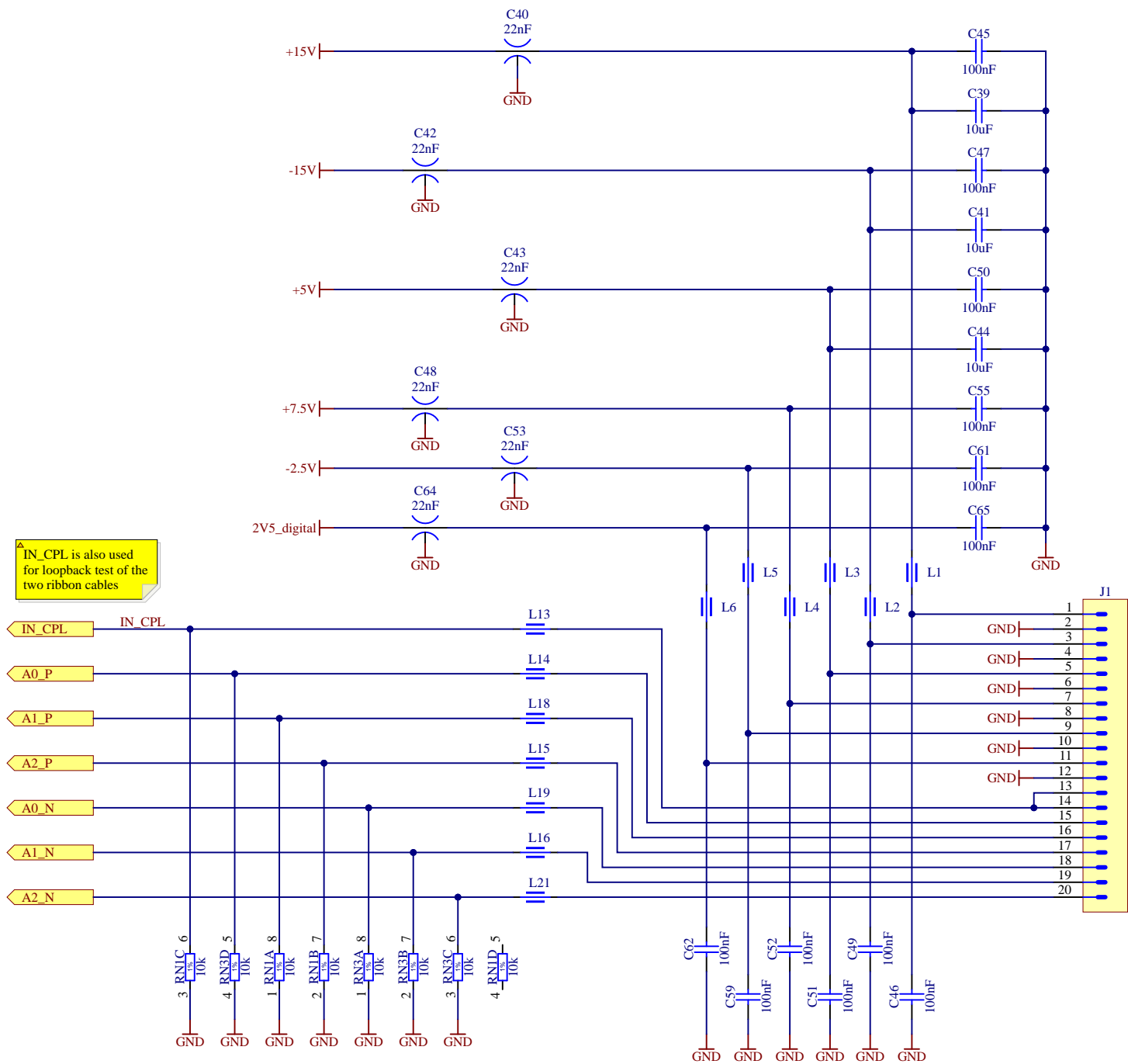
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Document		Designer N. Beev	
<div>SY-EPC</div> <div></div>		Drawn by N. Beev	04-04-2019
		Check by JMW	06-02-2023
		Last Mod. N. Beev	06-02-2023
		File adc.SchDoc	
Print Date 06/02/2023 15:32:31		Sheet 4 of 5	
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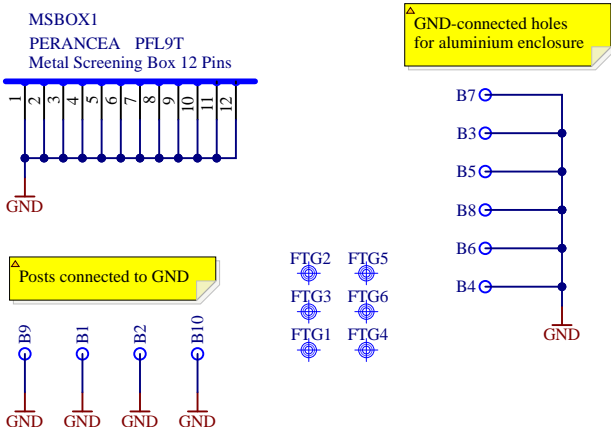
ADC interface, PT1000 temperature sensor and ID chip



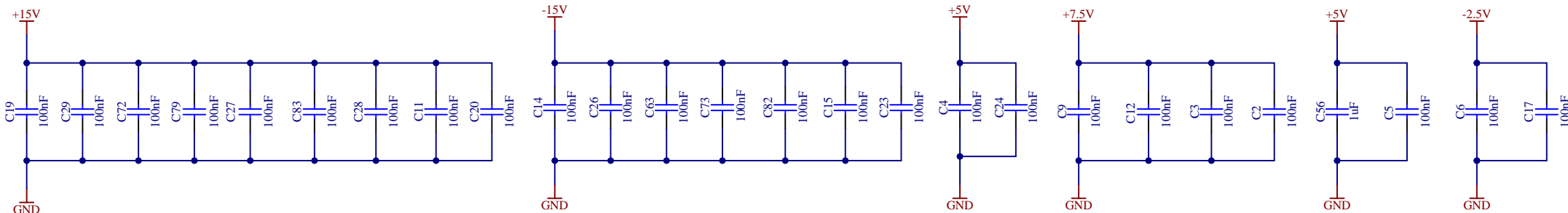
Supply voltages, decoupling, and MUX control lines



Shielding can, mounting holes



Decoupling capacitors



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Project/Equipment		HPM7177 ADC Mezzanine	
Document		HPM7177 Connectors and decoupling	
SY-EPC		European Organization for Nuclear Research CH-1211 Genève 23 - Switzerland	
CERN		EDA-04061-V4-1	
Designer		N. Beev	
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Print Date		06/02/2023 15:32:31	Sheet 5 of 5
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