STUDY OF THE DISCRETE COMPONENT OPTION FOR THE ANALOGIC PART OF THE ENHANCED FRONT END BOARD

LIFAELS, EALS, Universitat Ramon Llull
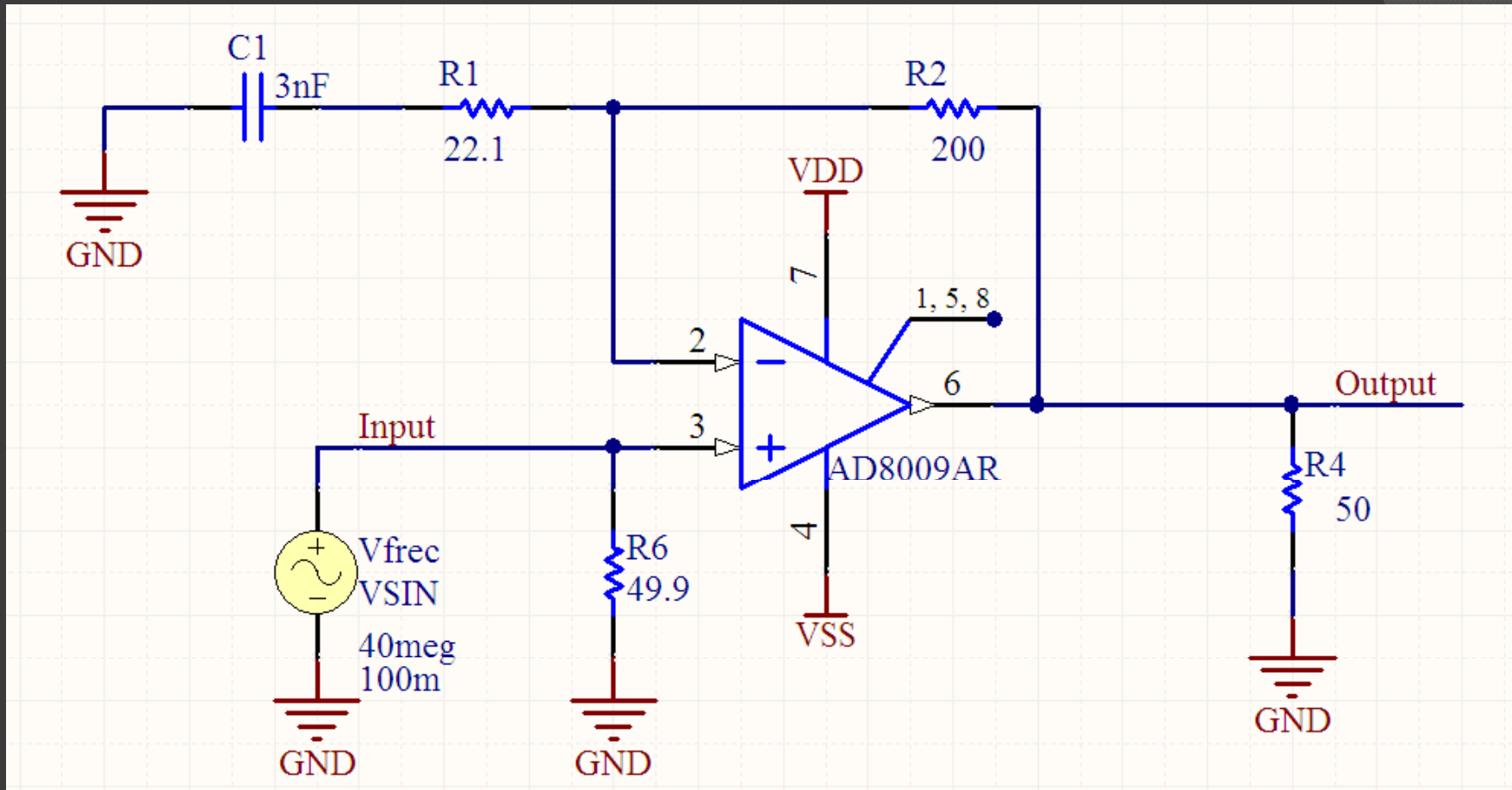
Carlos Abellan Beteta

8 th April de 2009
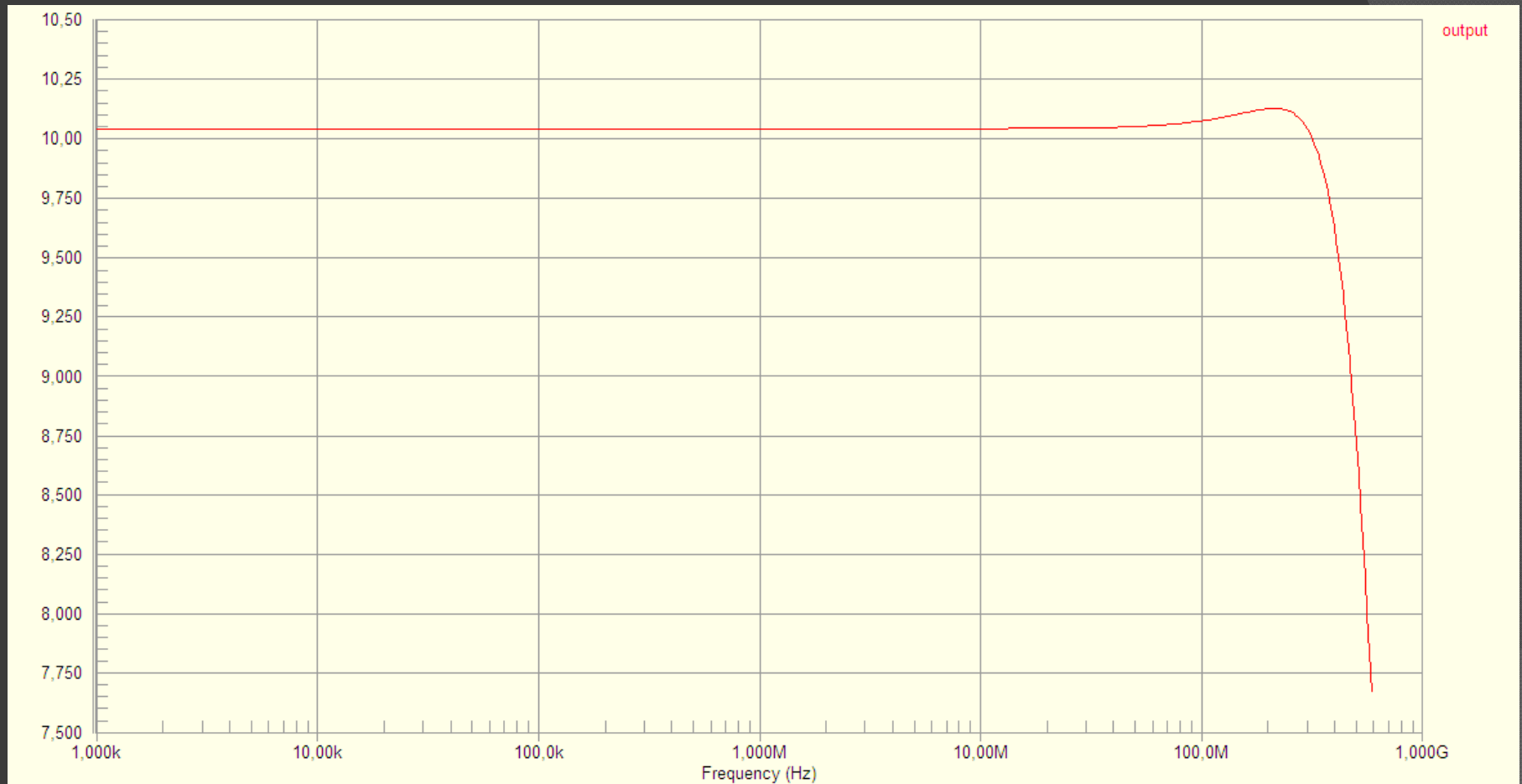
The Chosen Amplifier

- Main characteristics for the AD8009AR
  - Size 3x3mm
  - Bandwidth 1GHz G=+1
  - Slew Rate 5,5V/ns
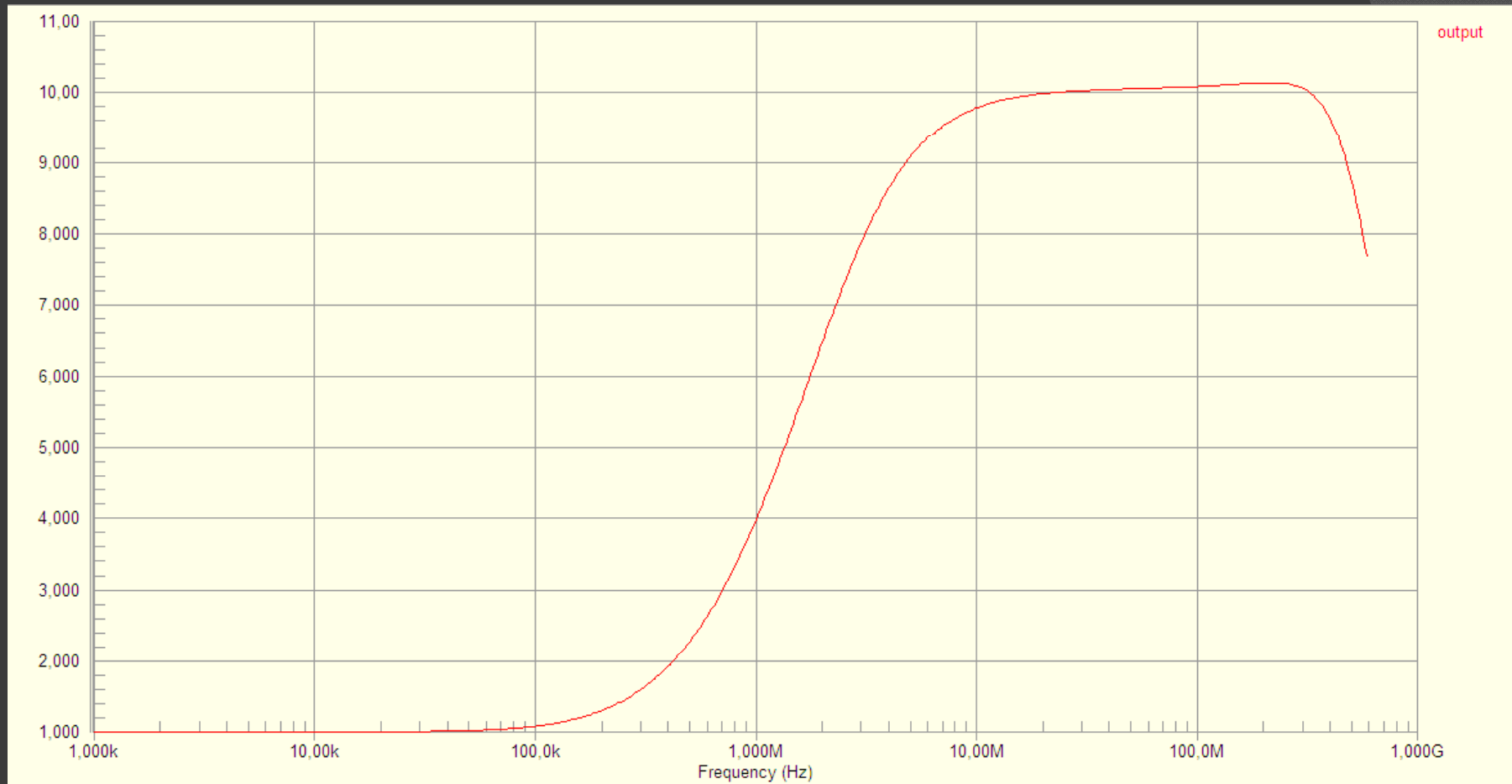 - Input Equivalent Noise 1.9nV/sqrt(Hz)
  - Offset Error 5mV

Testing the amplifier

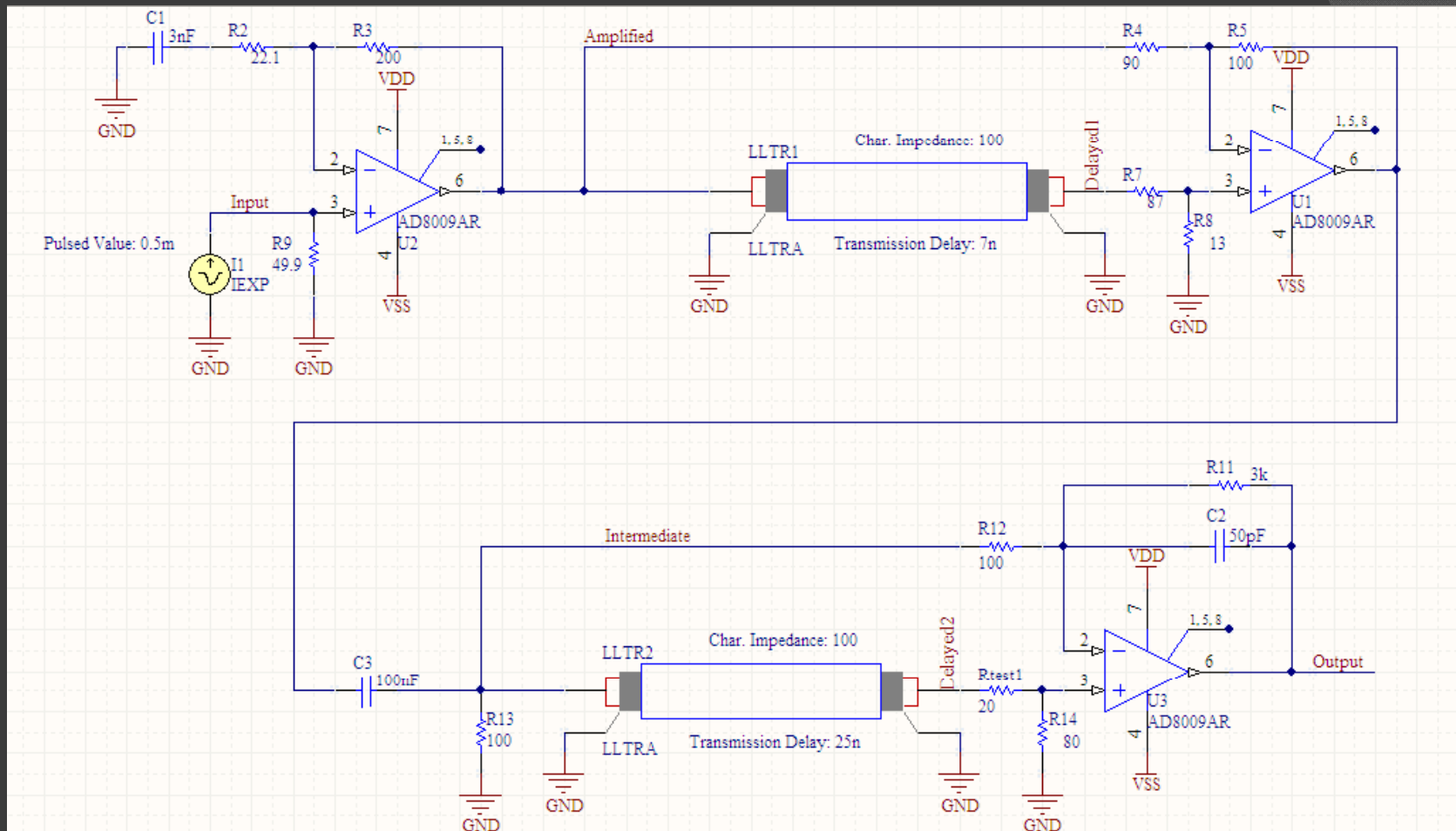# Testing the amplifier (no BW limit)
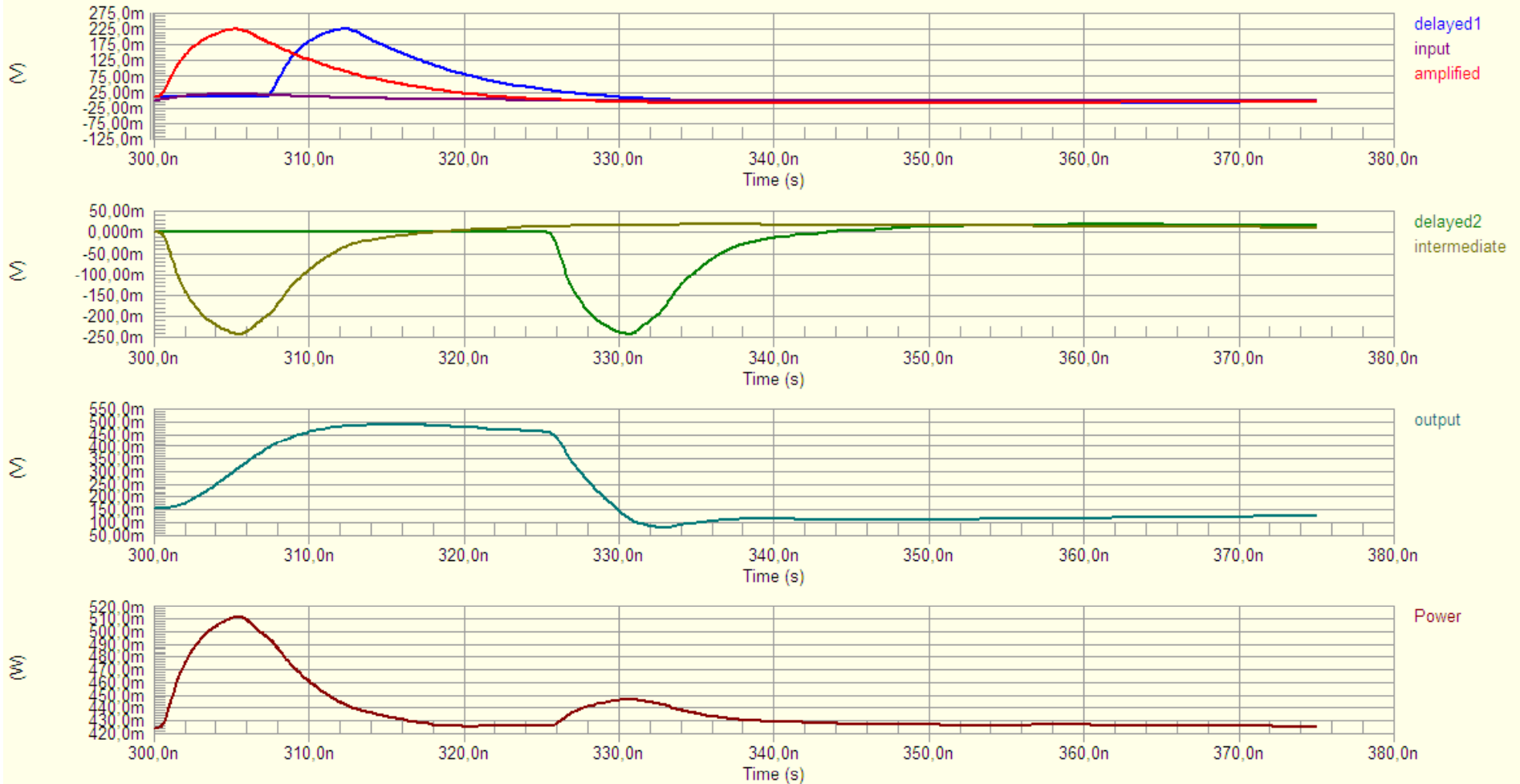
Testing the amplifier (3nF BW limit)

- Reducing Bandwidth to decrease noise
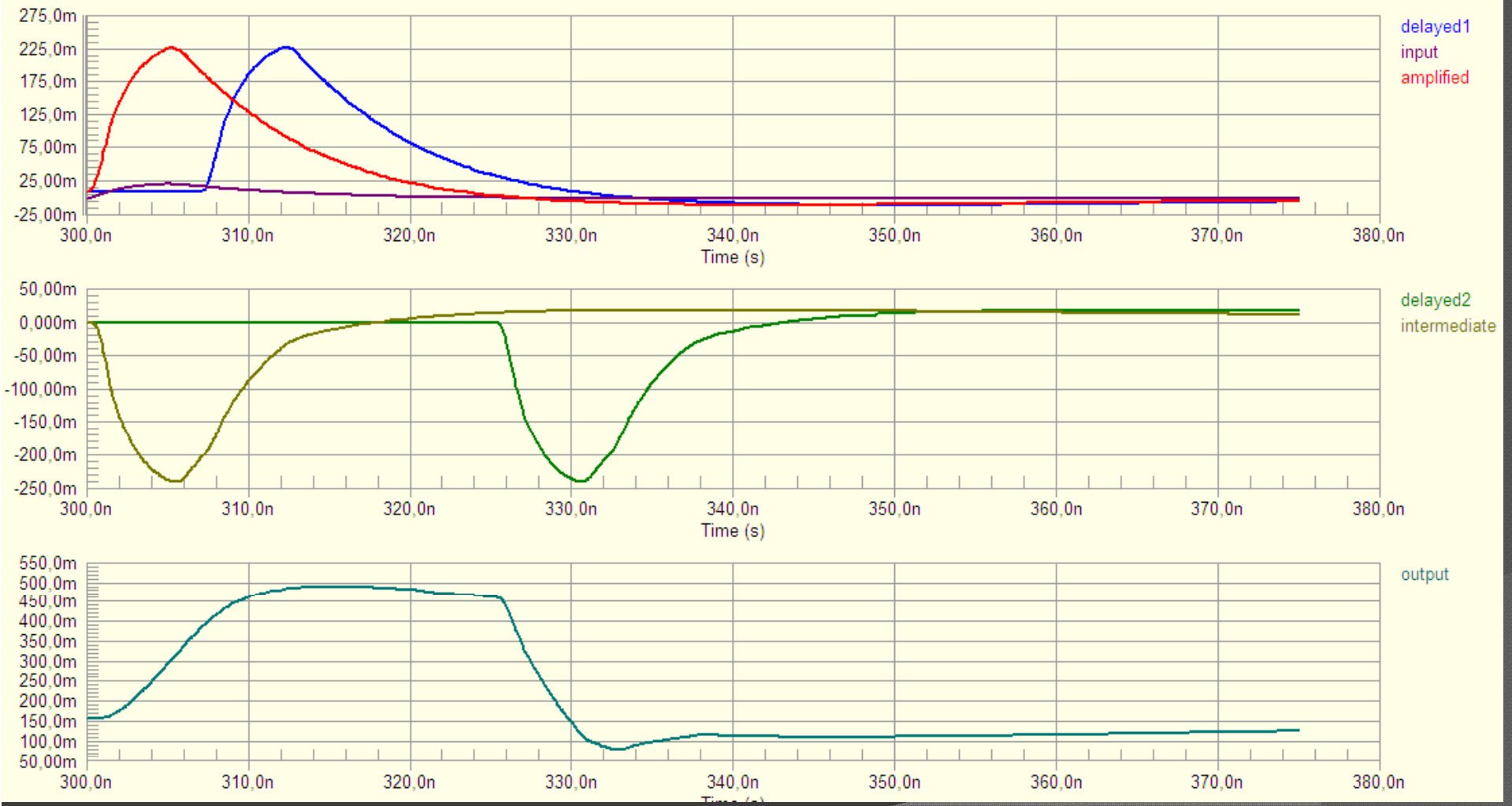
First Approximation to the circuit(I)

⦿ Only 3 Ops.

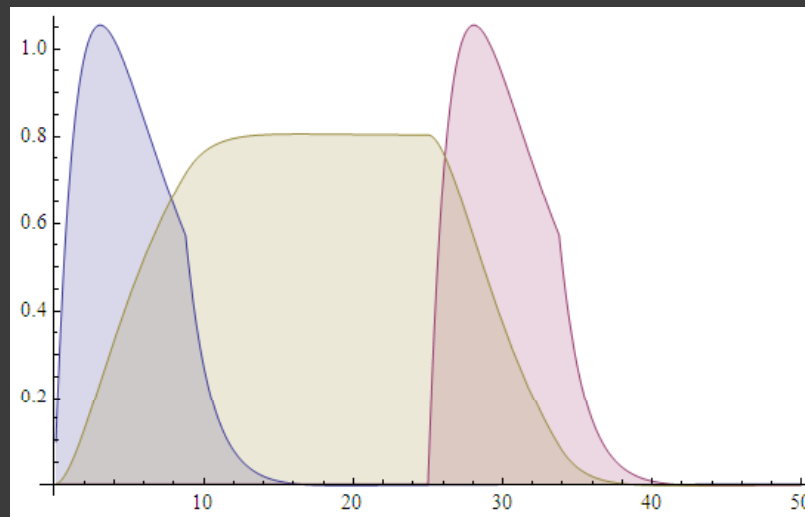# First Approximation to the circuit(II)

First Approximation to the circuit (III)

Other Studied Ideas

- Is it possible to change the clipping system?
  - We could gain stability if we make the pulses go narrower. This way we may have a wide plateau and sample without problems.
    - Could it be useful to use multiplexed ADCs?

Other Studied Ideas

- Do we have to forget about using a discrete component solution for the low noise amplifier?

  - Already done in LAr calo.

  - I have a PCB design that is 1.5X3mm 2 ch.