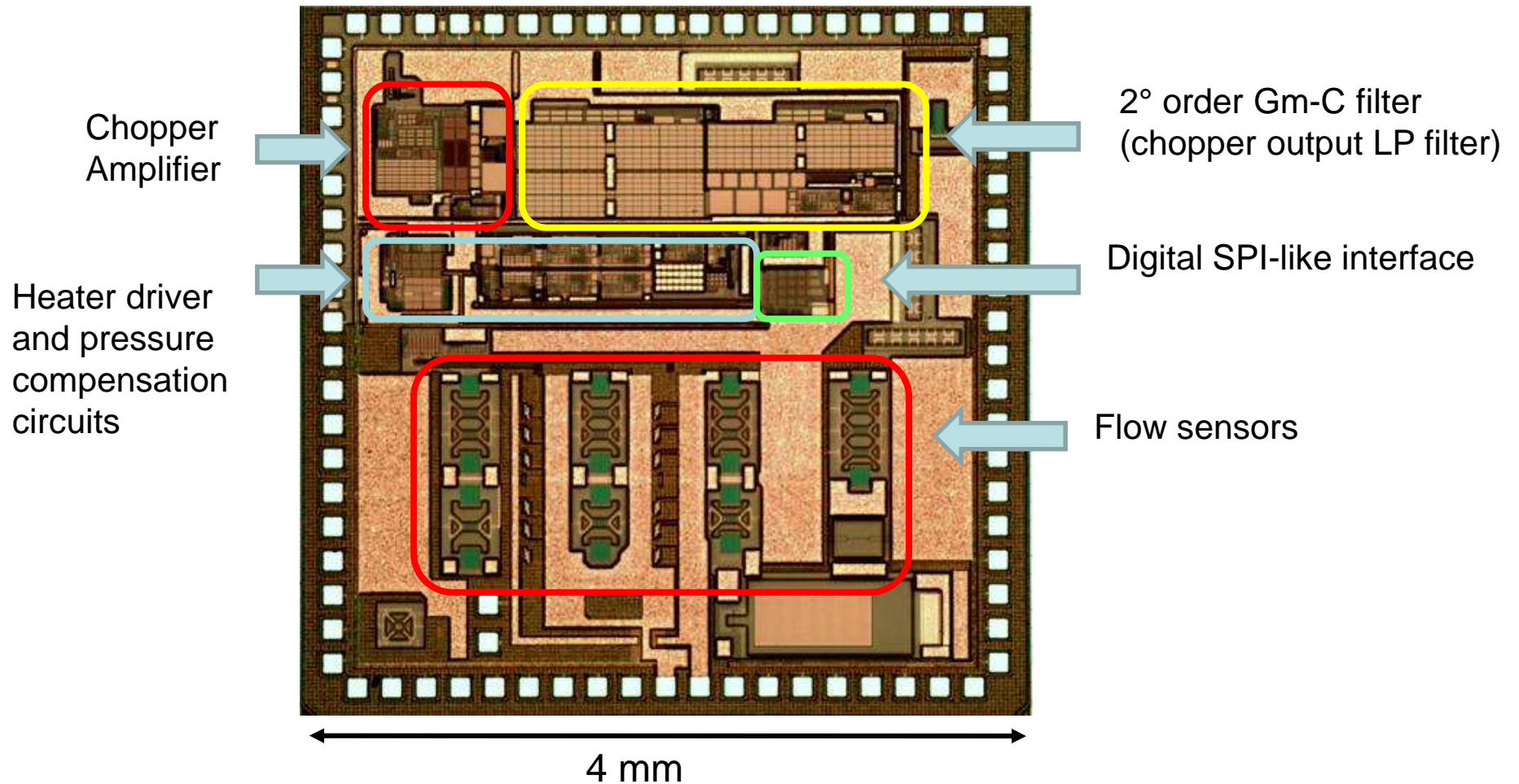
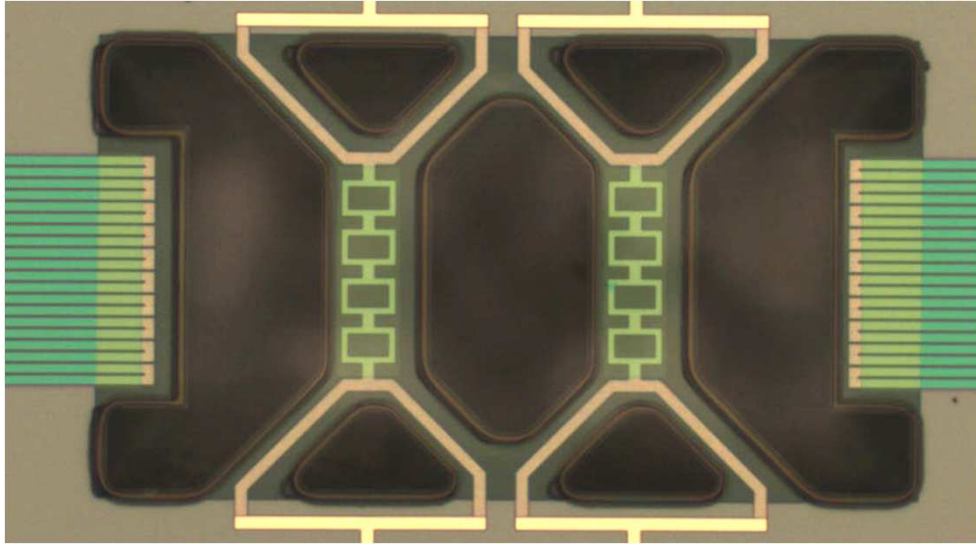


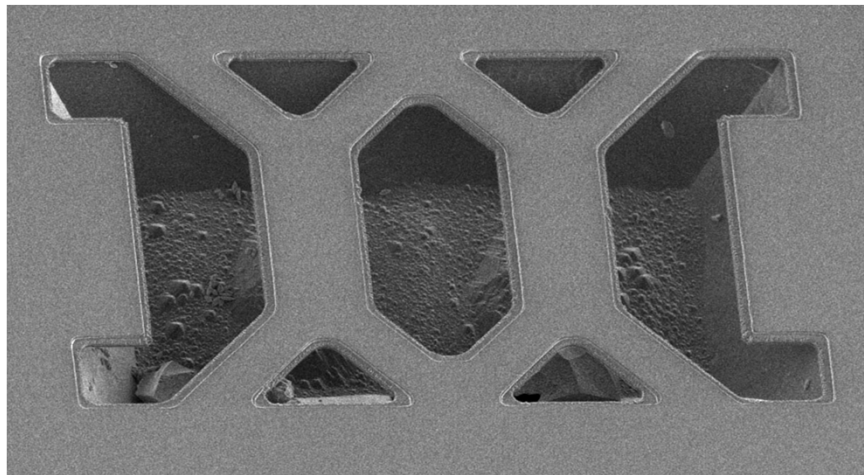
Smart flow sensor with chopper amplifier



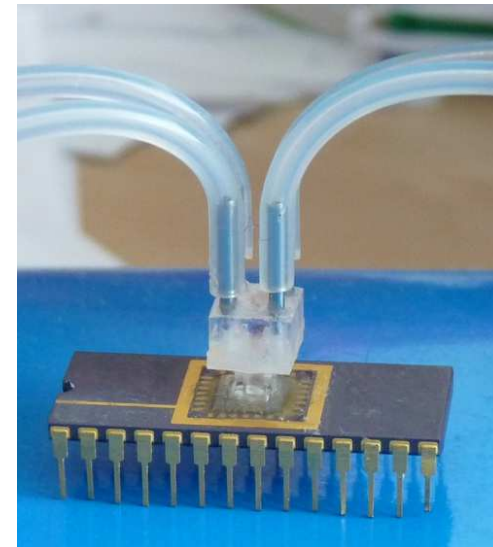
Thermal flow sensors



Optical micrograph of a flow sensor

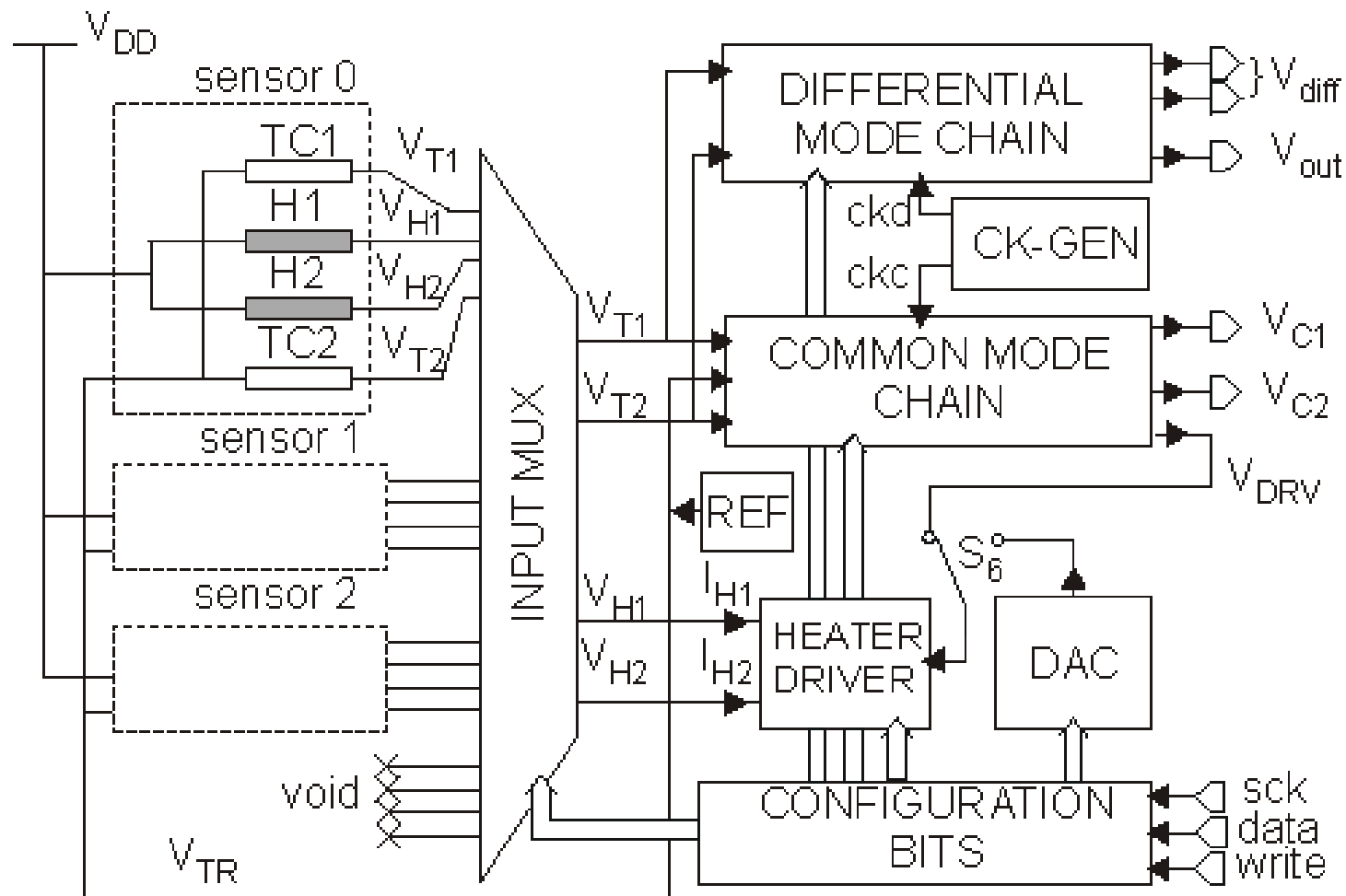


SEM micrograph of a flow sensor



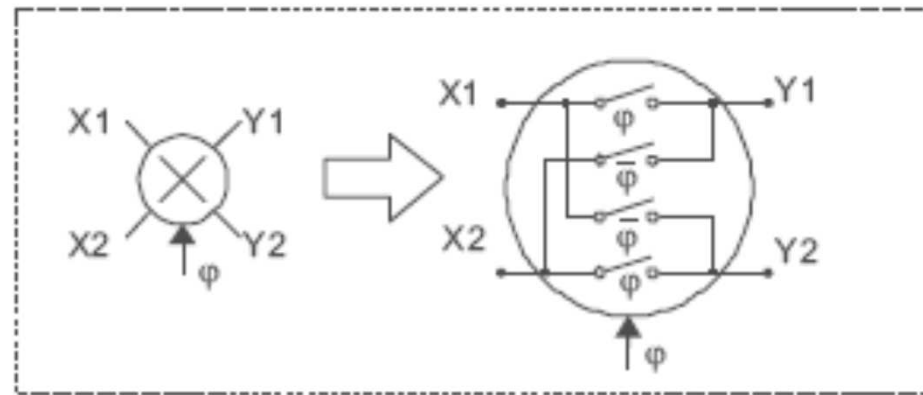
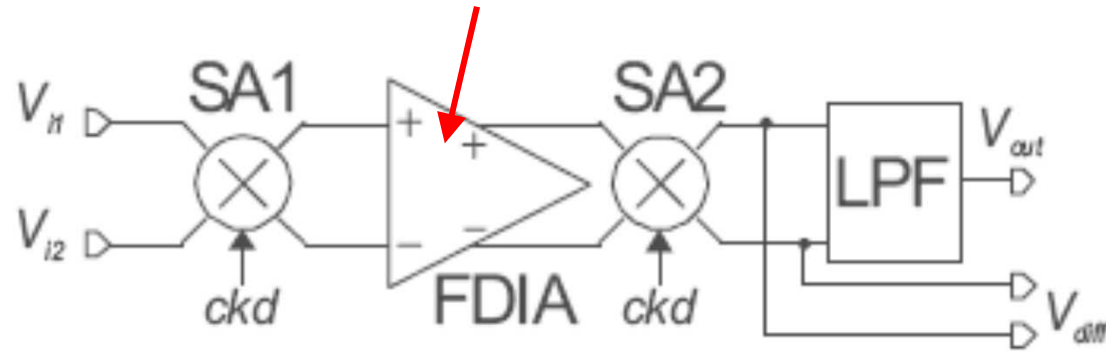
Double channel, single chip flow sensor after packaging

On chip interface



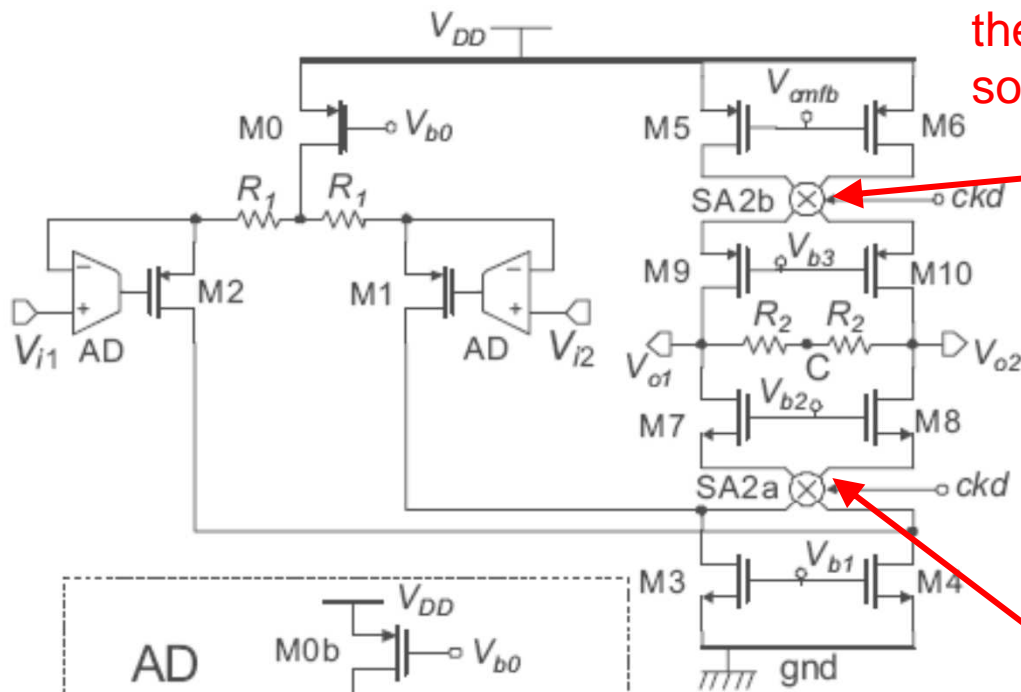
Chopper amplifier

FDIA: Fully Differential Instrumentation Amplifier

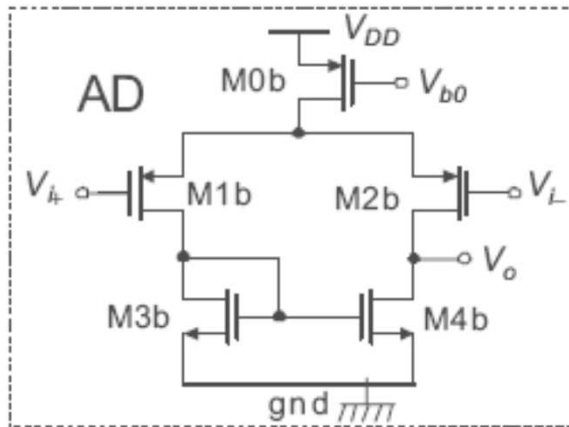


In-amp topology

This modulator does not process signal but it is necessary to shift the noise of M15-M16 current sources to high frequencies



Gain: R_2/R_1



Output demodulator SA2 is placed across low impedance nodes (at the input of the common gate stage)

FPAA Field programmable Analog Array: Anadigm AN221E04

Architecture

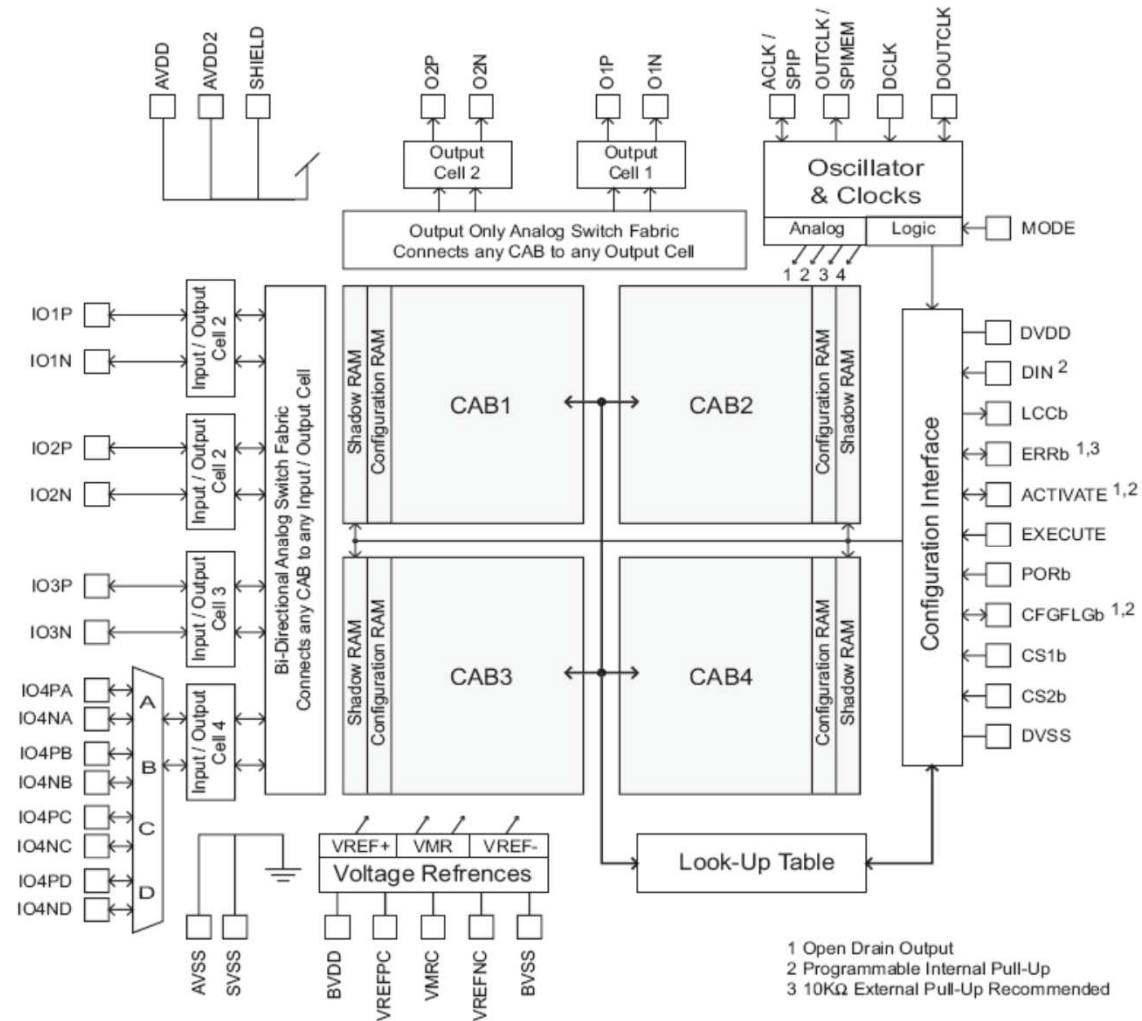
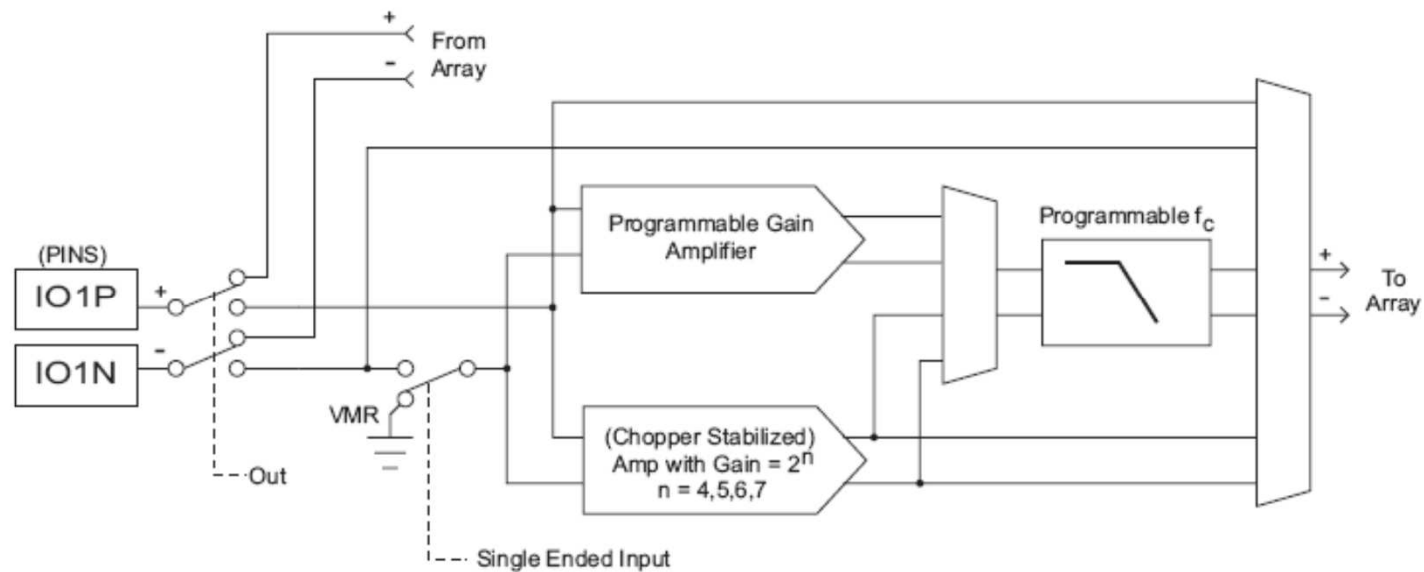


Figure 1 – AN121E04 and AN221E04 Chip Overview

Configurable Input (Output) Cells



Analog output cells

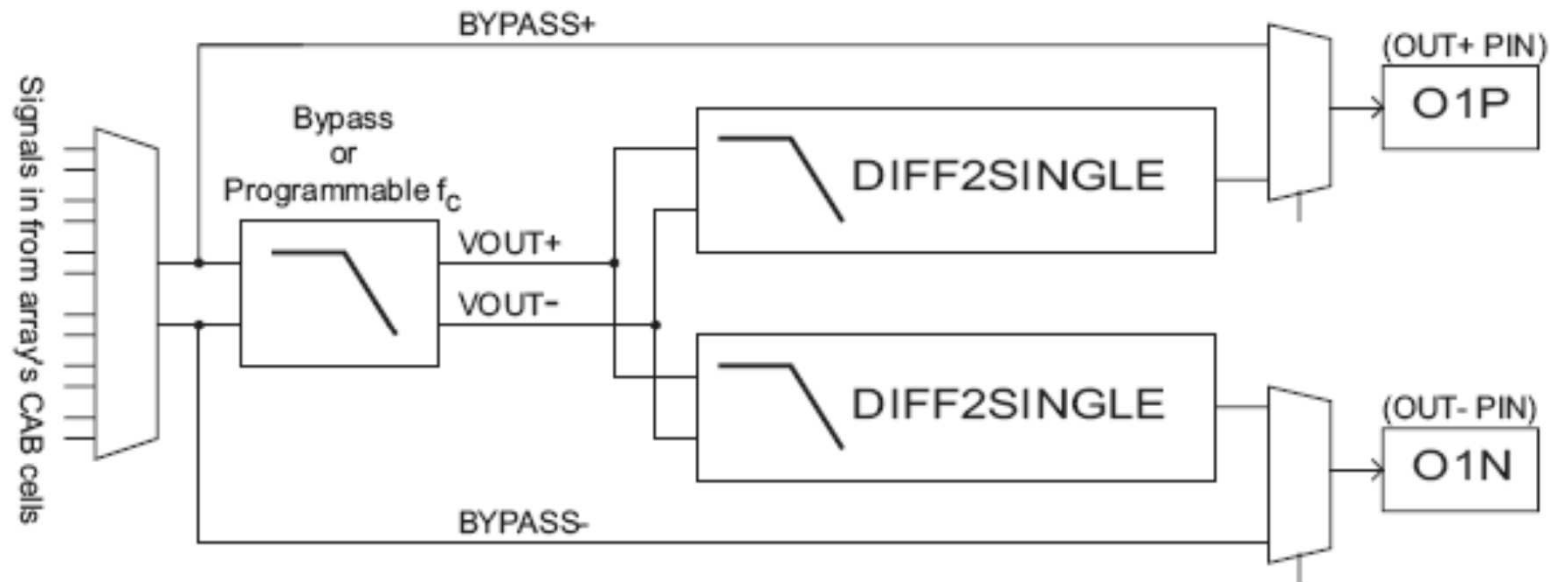
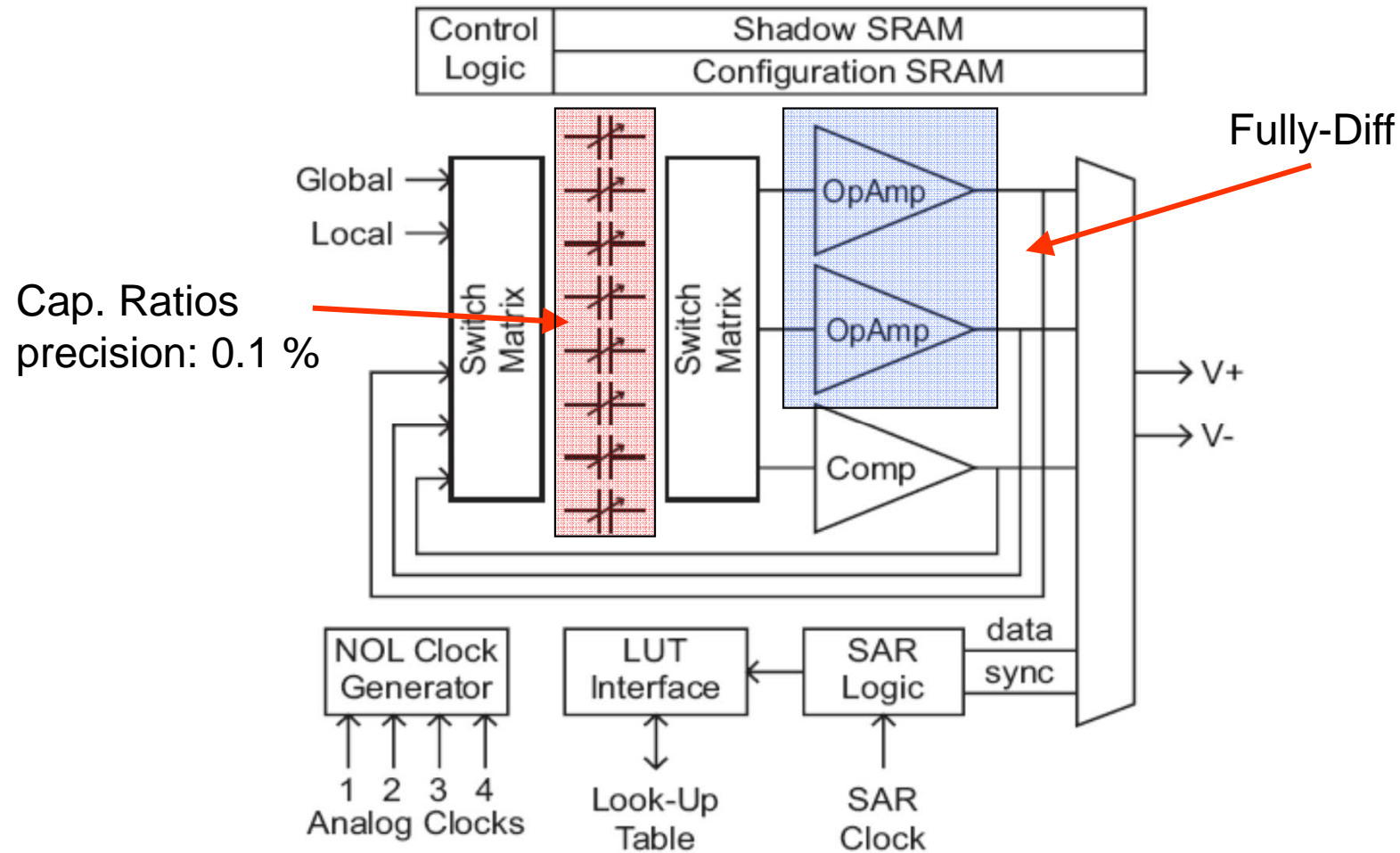
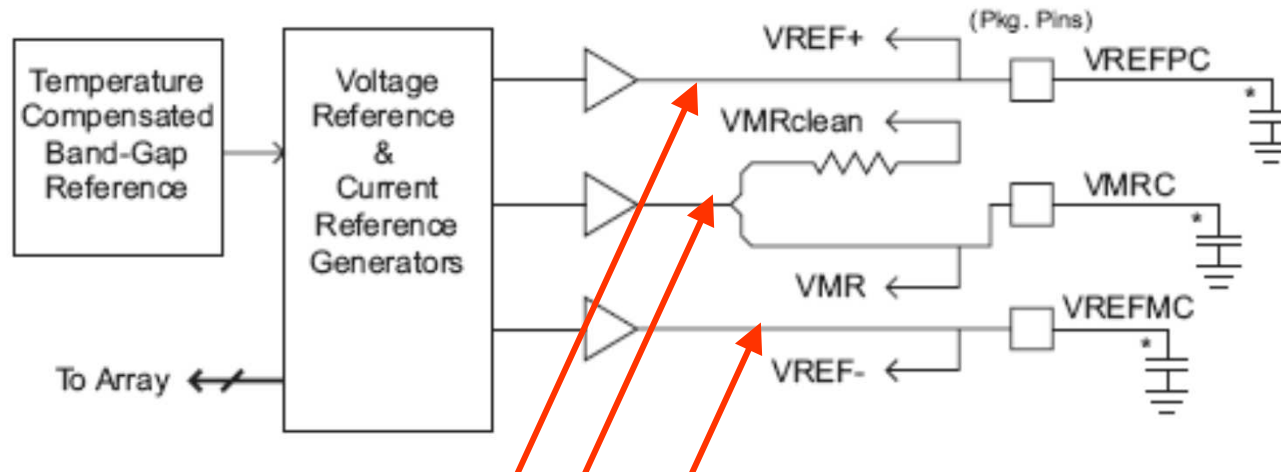


Figure 4 – Analog Output Cell

Configurable Analog Block (CAB)



Voltage references



$$V_{ref+} = V_{MR} + 1.5 \text{ V}$$

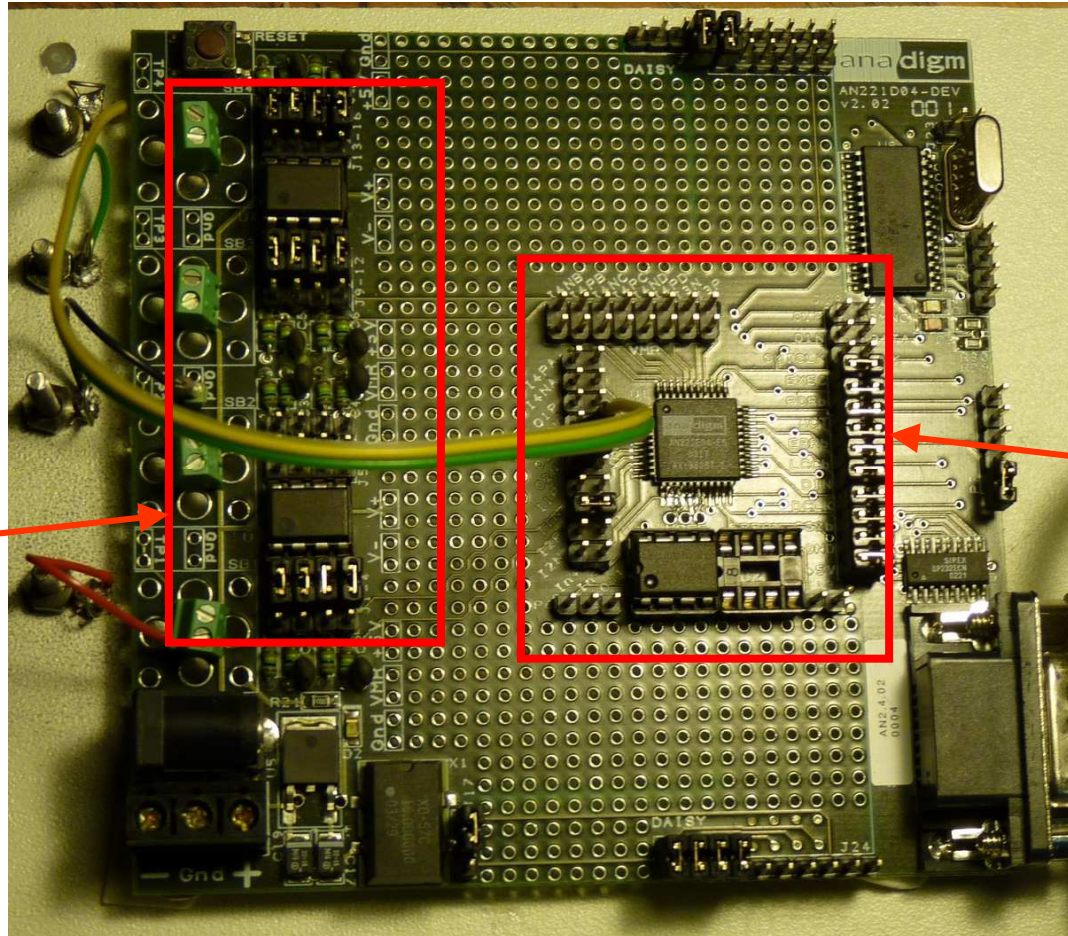
$$V_{MR} = 2 \text{ V}$$

$$V_{ref-} = V_{MR} - 1.5 \text{ V}$$

$$V_{MR} = V_{CMO}$$

Development Board

Spare
Op-amps
(S/E)



FPAA