

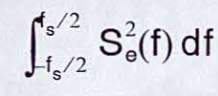
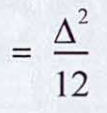
SNR = 20\*log(2N) = 6.02 dB \* N  
SNR = 20\*log(Vsig/Verr)

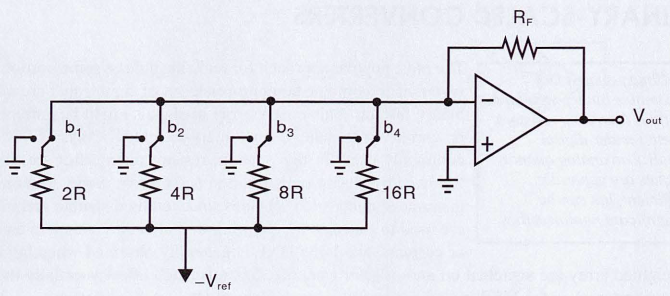
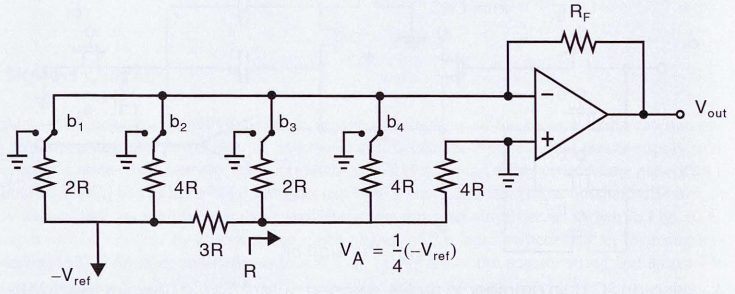
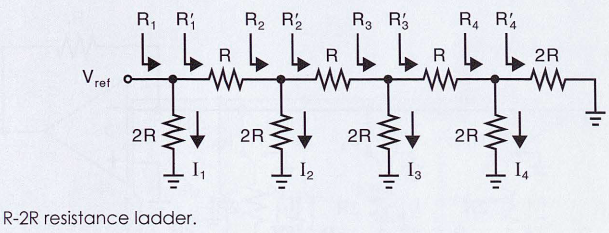
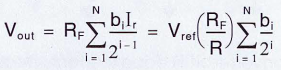
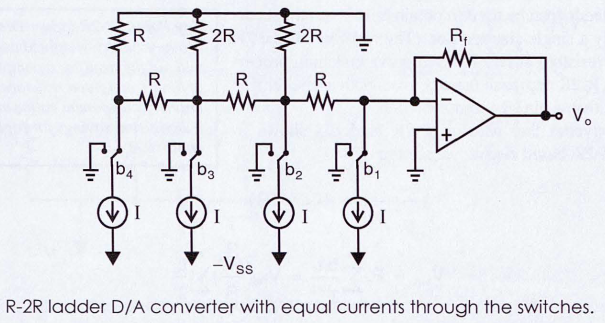
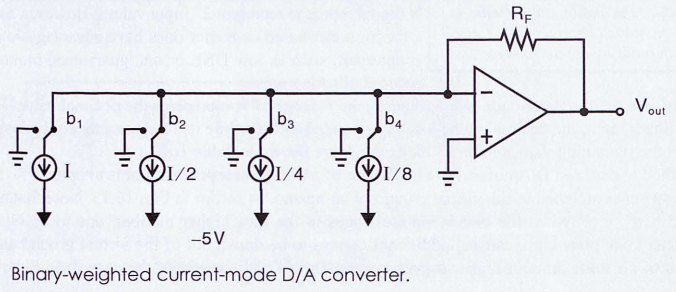
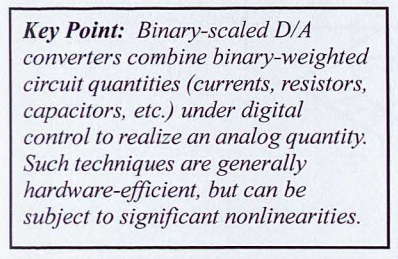
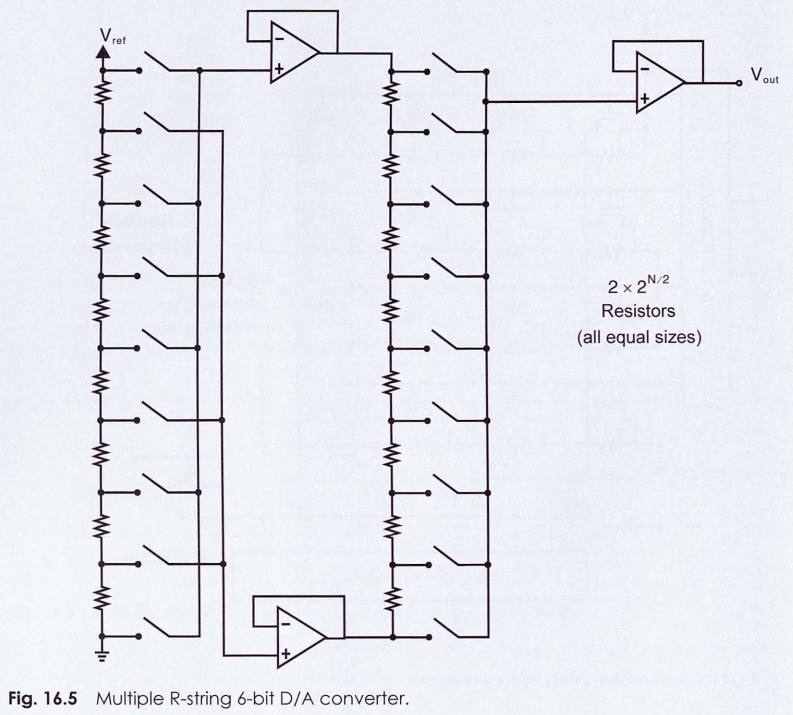
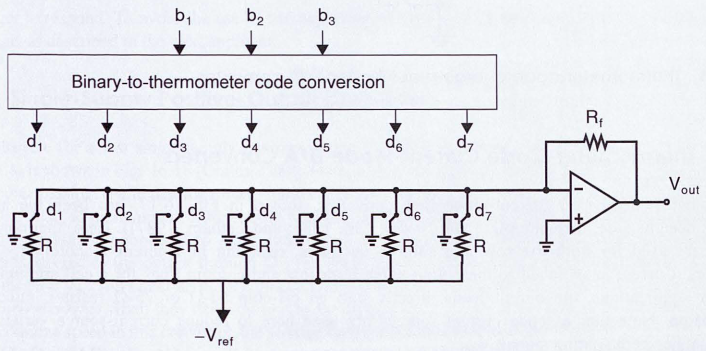
**general Formulas**

**oversampling only** (no noise shaping)

**2nd order noise shaping**

**1st order noise shaping**





- guaranteed monotonicity  
- low DNL

matching requirement for lower bit R  
given: N bit DAC with first k resistors matched to x%  
second resistor string must match to **2N-k ⋅ x%**

**DAC**

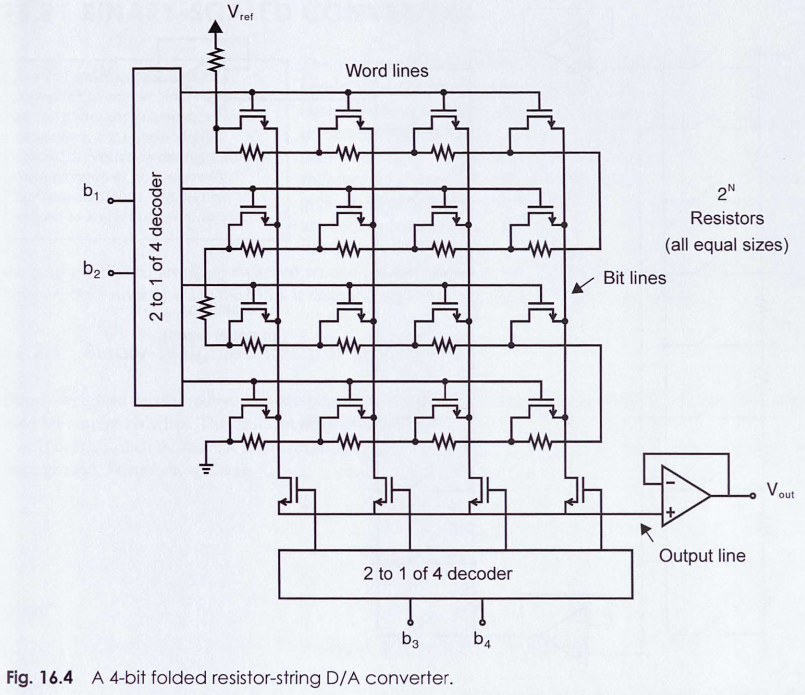
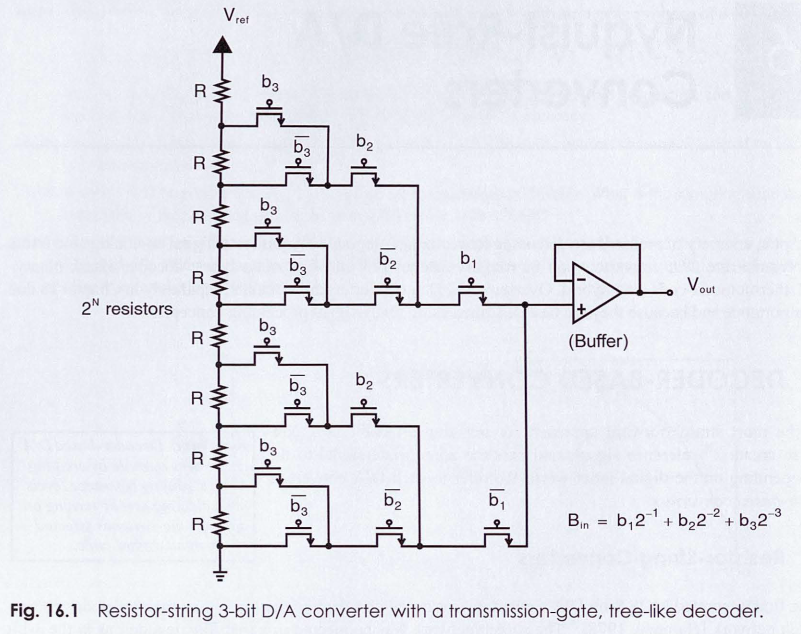
**DAC**



- fast



**DAC**



16.3 Hanspi fragen

**Settling time**

zero-value time constant analysis