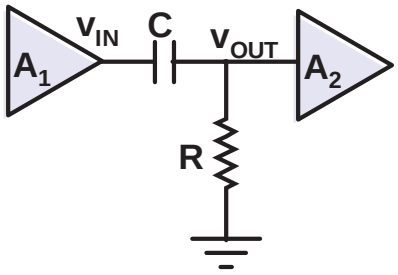
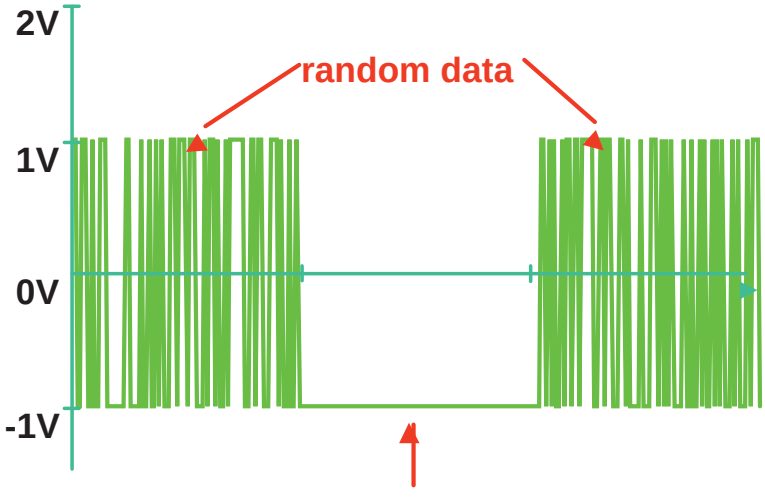
Baseline Wander

- Suppose our NRZ data stream comes from a sparsely populated binary file with lots of consecutive zeros in it
- We'll model the data stream as
  - 100μsec of random ±1V data at 300Mb/s
  - 100μsec of a fixed –1V level (models 30000 zeros in a row)

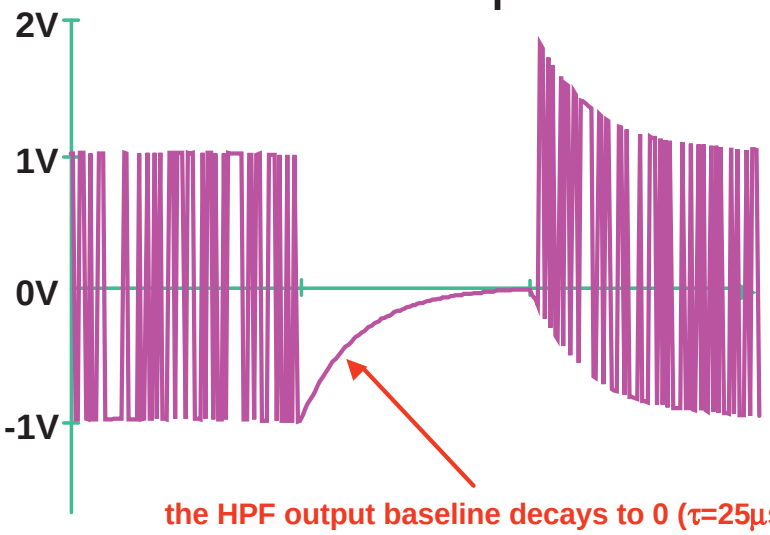


$$H(s) = \frac{s}{s + \omega_p}$$

Sparse HPF Input Data



HPF Output



Baseline Wander

- The high pass filter causes the middle of the data eye to wander with low frequency components in the NRZ data stream
  - Common data idling patterns move decision thresholds to the edges of the data eye
    - With disastrous consequences for bit error rates
  - Localized concentrations of –1's or +1's lasting on the order of 0.05τ reduce eye opening 0.5dB
    - Substantially increasing bit error rates
- What can we do about it?