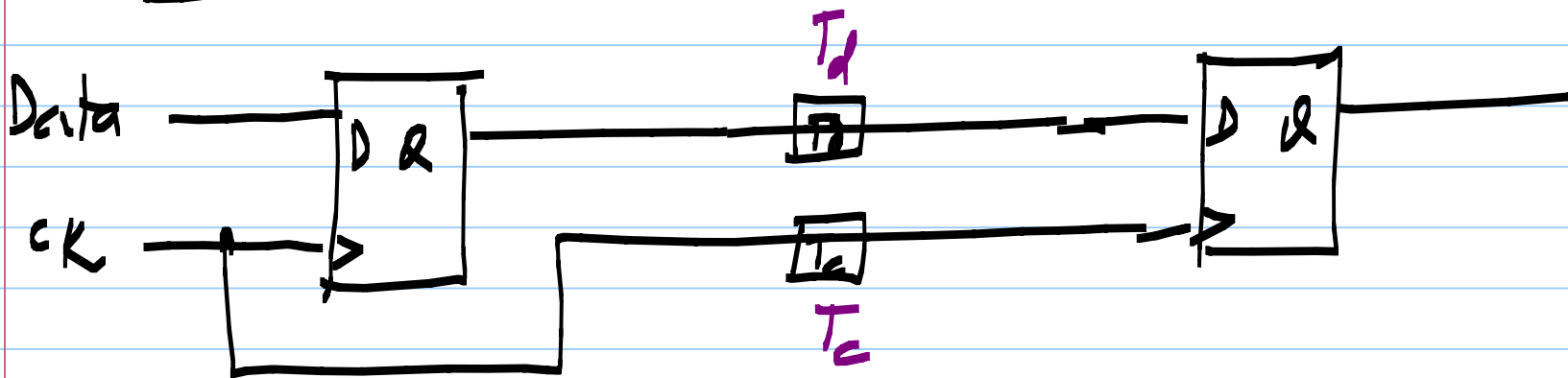
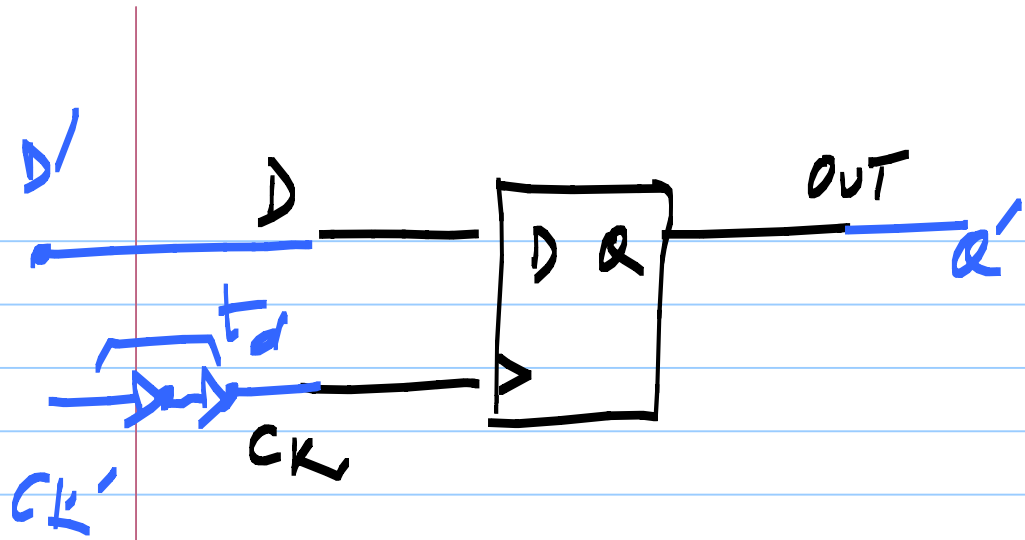


$$T_{min} = t_{su} + t_{cq}$$



$$T_{min} = t_{su} + t_{cq} + t_{skew}$$

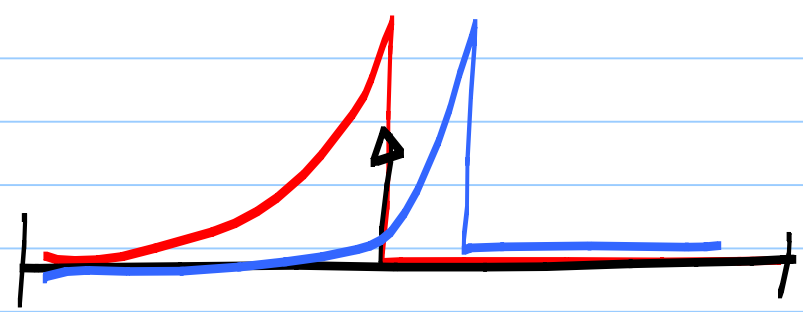


t_{cq}, t_{su}, t_H

$t_{cq} + t_d, t_{su} - t_d, t_H + t_d$

$t_{cq} + t_{su}$

$t_{su} + t_H$



10Gb/s : 100ps

300mm/μs

300mm/ns

30mm/100ps

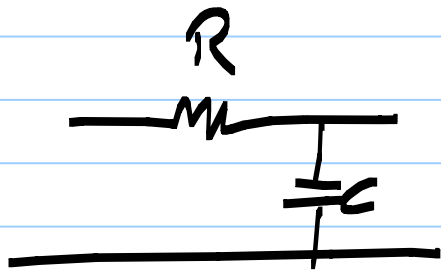
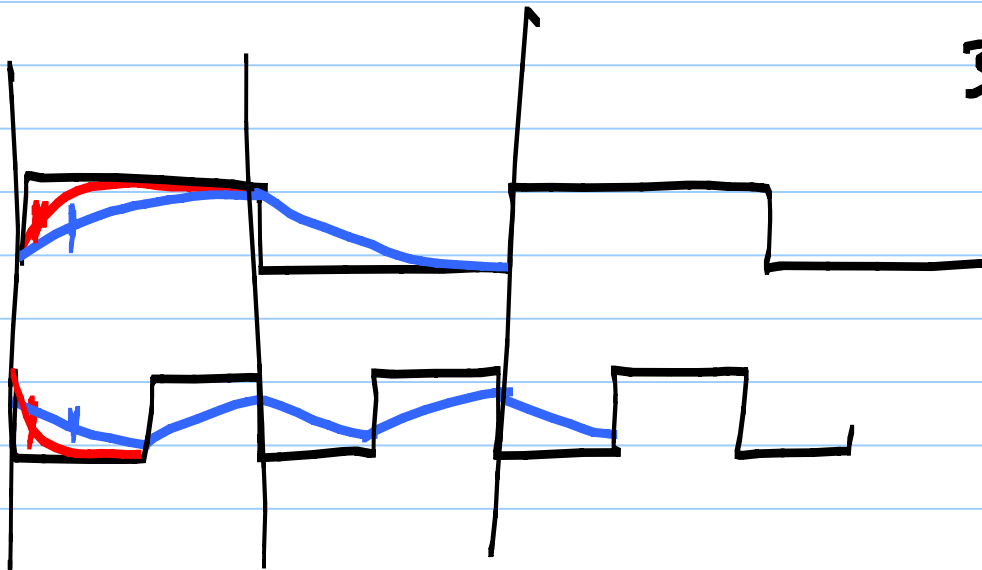
150mm/μs

150mm/ns

15mm/100ps

FR4 ($\epsilon_r = 4$)

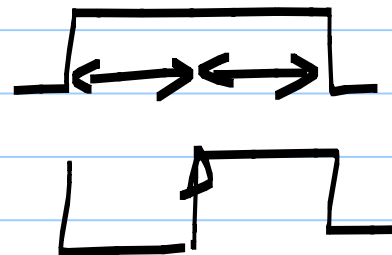
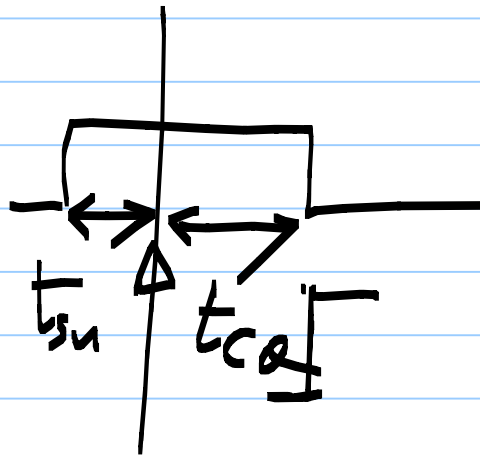
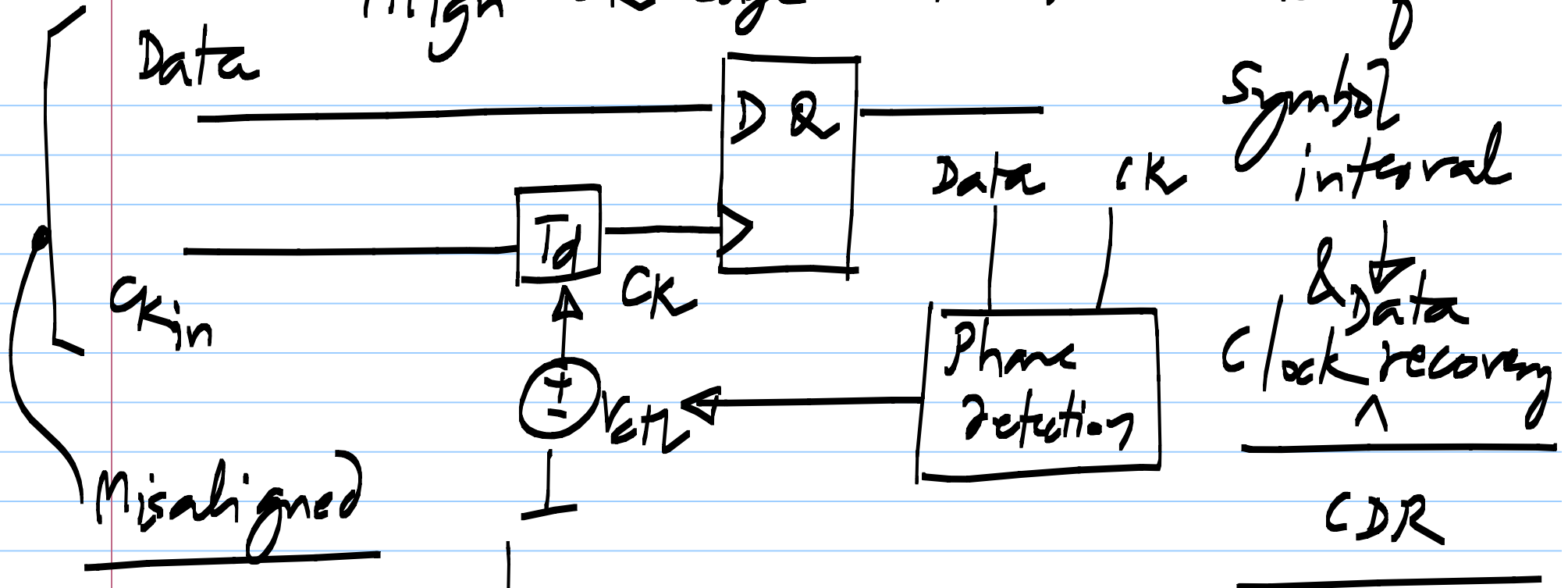
air/vacuum



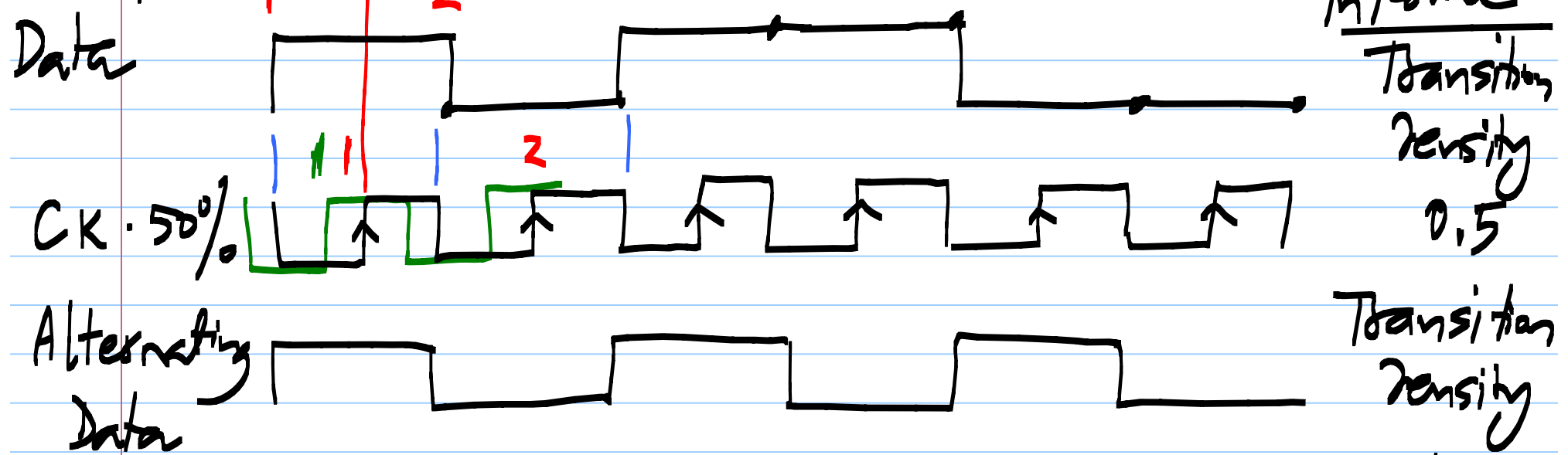
Align CK edge in the middle of the

Data

Symbol interval



→ does not have transition after every symbol interval



Ideal: +ve edge of ck in the middle of data
 -ve edge of ck aligned with transitions

