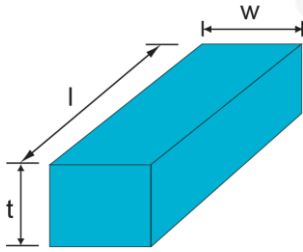




## Introduksjon

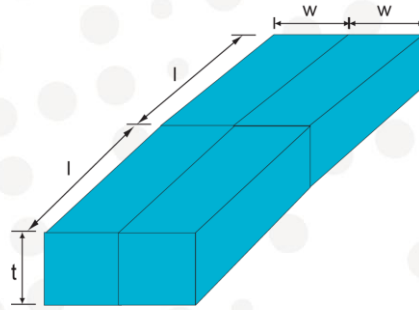
w(nm)	s(nm)	t(nm)	Lag	
800	800	1700		6
		1000		
750	750	1600		5
		800		
600	600	1200		4
		750		
400	400	800		3
		700		
300	300	700		2
		700		
250	250	500		1
		800		
				Substrat

## Motstand i interkonnekt



$$R = \frac{\rho}{t} \cdot \frac{l}{w}$$

$$R = R_{square} \frac{l}{w}$$



$$R = R_{square} \frac{2l}{2w}$$

$$= R_{square} \frac{l}{w}$$

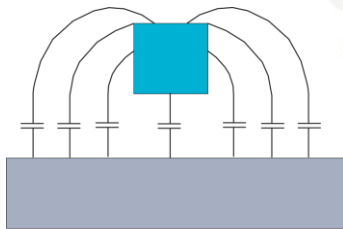


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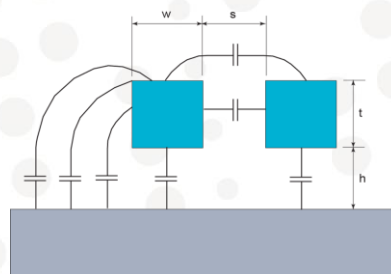
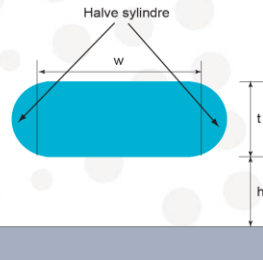
## Kapasitans i interkonnekt

Kapasitans:

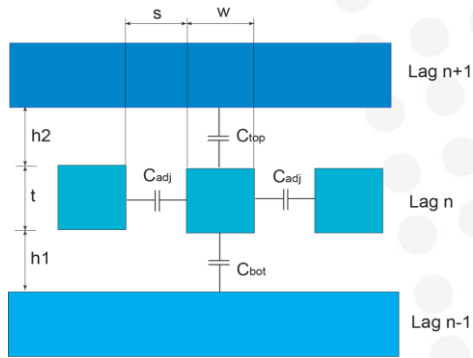
$$C = \frac{k\epsilon_0}{d}$$



$$C = \frac{\epsilon_{ox}}{h} \cdot w \cdot l$$



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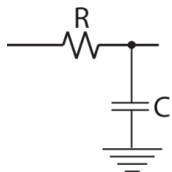
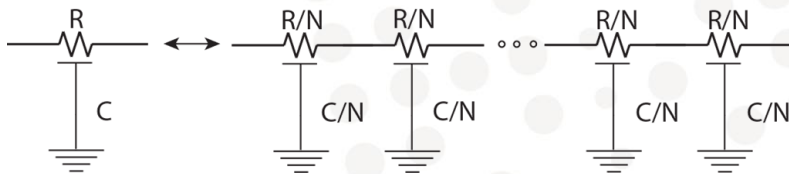
$$C_{gnd} = C_{bot} + C_{top}$$

$$C_{total} = C_{gnd} + C_{adj}$$

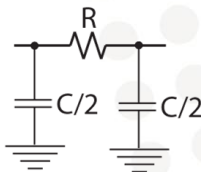


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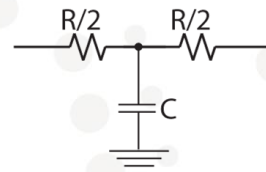
## Forsinkelse i interkonnekt



L modell



$\pi$  modell

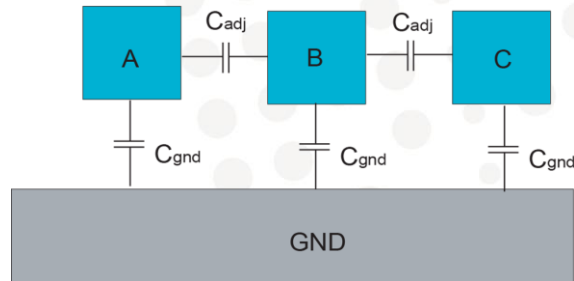


T modell



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# Crosstalk



Ladning:

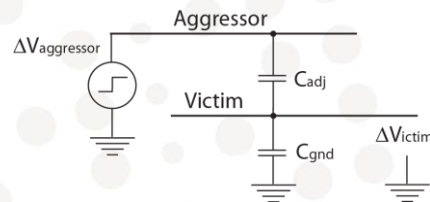
$$Q = C_{adj} \Delta V$$



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Crosstalk støy:

$$\Delta V_{victim} = \left( \frac{C_{adj}}{C_{gnd} + C_{adj}} \right) \cdot \Delta V_{aggressor}$$



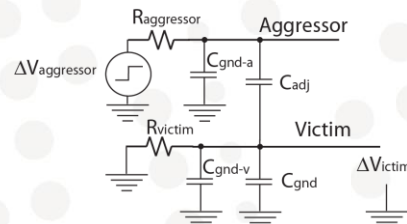
Drevne noder:

$$\Delta V_{victim} = \left( \frac{C_{adj}}{C_{gnd} + C_{adj}} \right) \cdot \left( \frac{1}{1+k} \right) \cdot \Delta V_{aggressor}$$

der:

$$k = \frac{\tau_{aggressor}}{\tau_{victim}}$$

$$= \frac{R_{aggressor}}{R_{victim}} \left( \frac{C_{gnd-a} + C_{adj}}{C_{gnd-v} + C_{adj}} \right)$$

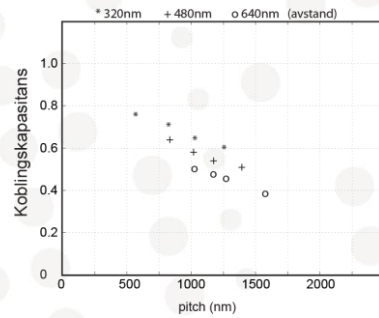
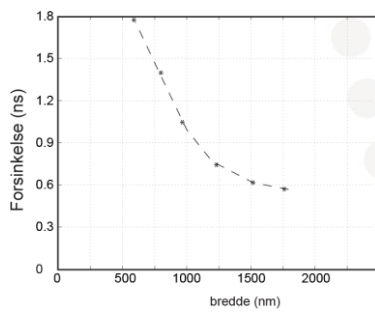


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## Bredde og avstand for ledere

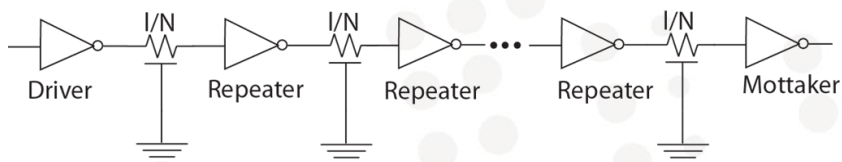
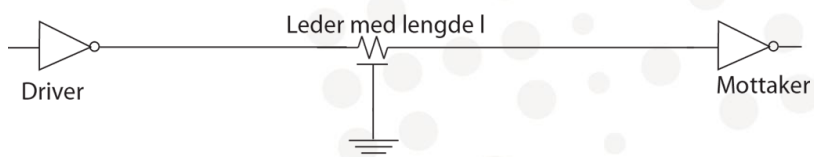
Pitch:

$$pitch = w + s$$



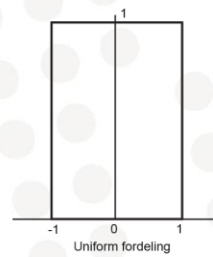
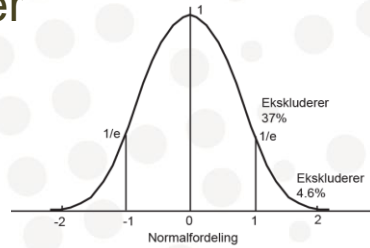
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## Repeatere

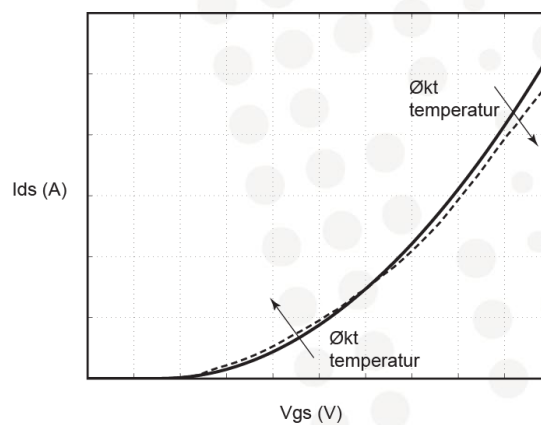


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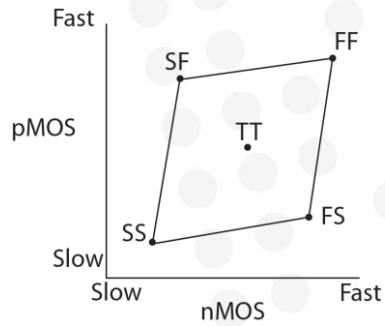
## Designmarginer



## Temperaturavhengighet



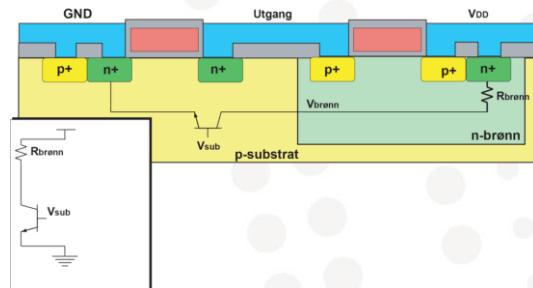
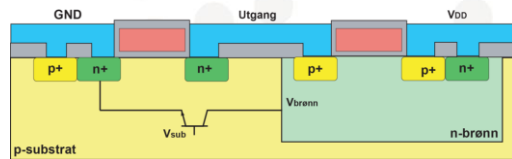
## Designhjørner



## Pålitelighet



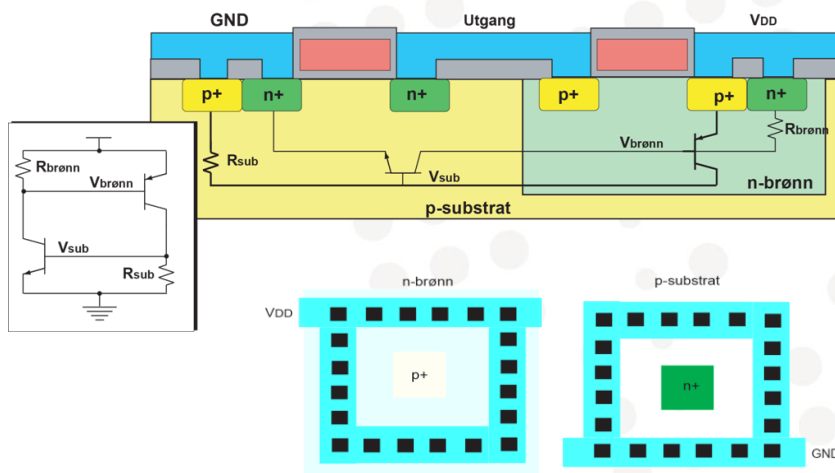
# Latchup



ifj



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