



Exercise: VCO / PLL

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VCO

- Design a Voltage Controlled Oscillator (VCO) based on a ring oscillator
- Chose a voltage controlled delay element
 - Inverter with variable capacitive load
 - Gain stages with variable bias
 - Differential stages with variable bias
- Aim at a frequency range of of 100 MHz ... 2 GHz
- Assume you have a supply independent voltage or current to bias
- Try to obtain a good power supply rejection
- In simulation, best start up with a clear initial condition