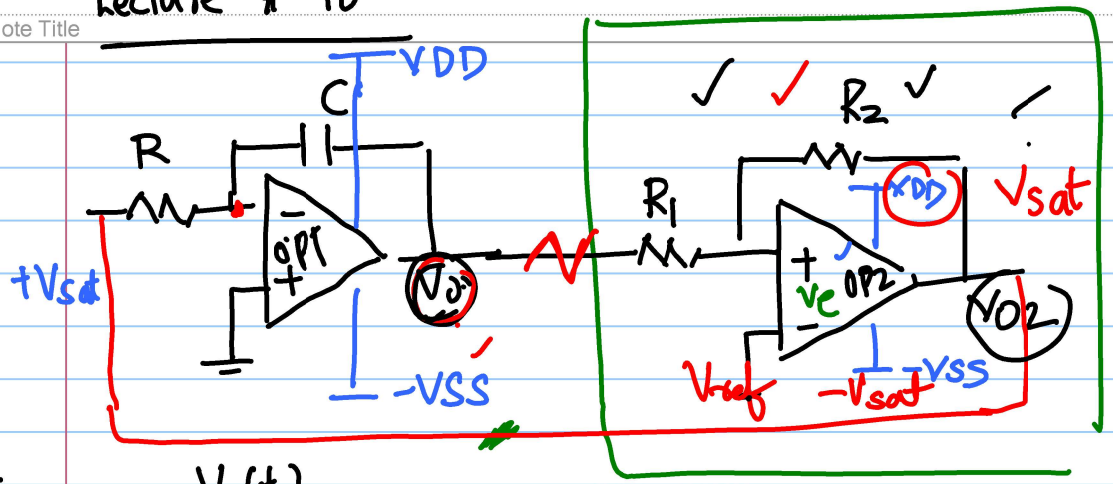
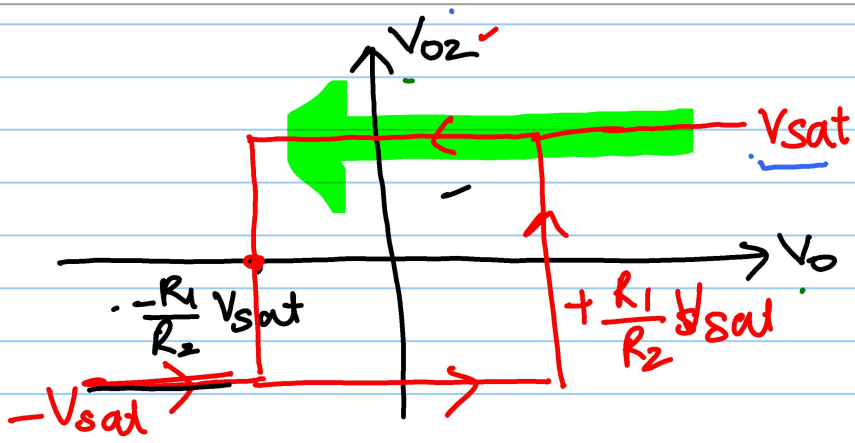
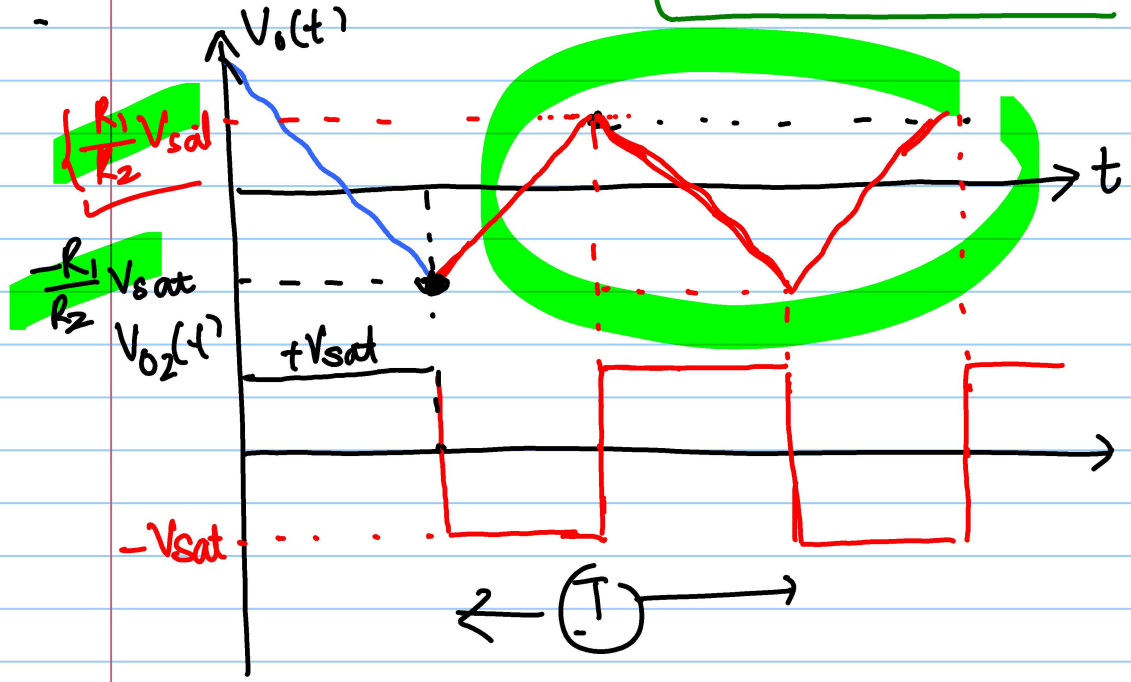
Lecture # 10

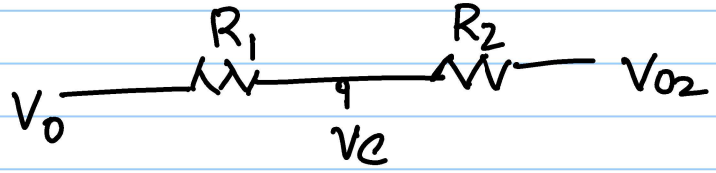
Note Title 30-01-2020







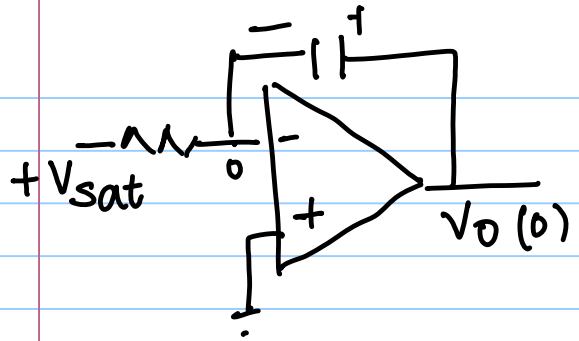
$$V_c = \frac{R_2}{R_1+R_2} V_o + \frac{R_1}{R_1+R_2} V_{o2}$$



$$V_c = \frac{R_2}{R_1+R_2} V_o + \frac{R_1}{R_1+R_2} V_{sat}$$

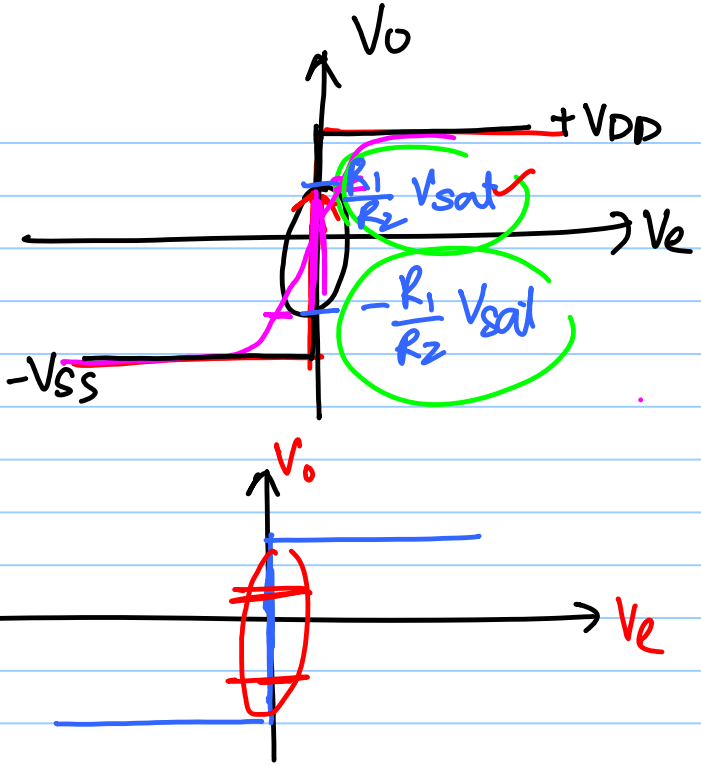
$$V_c = 0 \Rightarrow V_o = \frac{-R_1}{R_2} V_{sat}$$

at $t = 0$. $V_o(0)$



$$\frac{V_{sat}}{R} = -C\frac{dV_0(t)}{dt}$$

$$\frac{dV_0}{dt} = +\frac{V_{sat}}{RC}$$ ✓

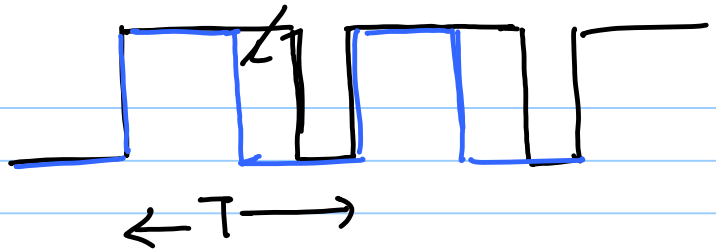


$$\frac{T}{2} = \frac{2\cdot\frac{R_1}{R_2}V_{sat}}{V_{sat}/RC} = \frac{2R_1RC}{R_2}$$

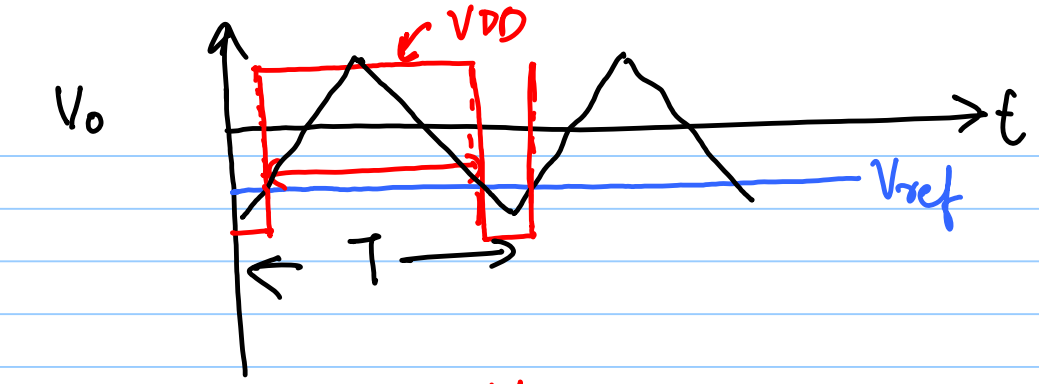
$$T = \frac{4R_1RC}{R_2}$$

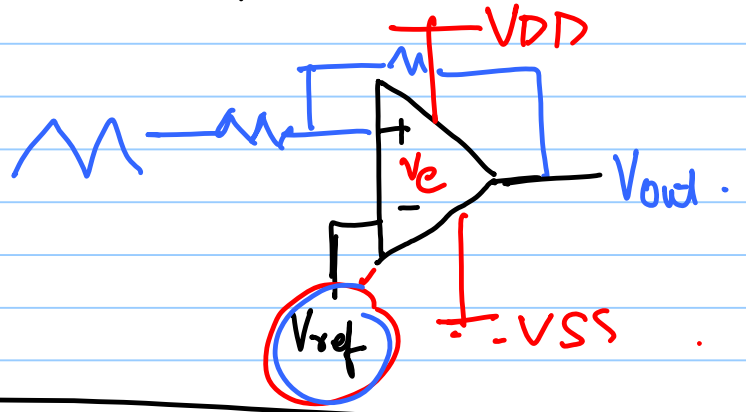
$$f_{osc} = \frac{1}{T} = \frac{R_2}{R_1}\times\frac{1}{4RC}$$ ✓ ✓

$f_{osc} = 10\ M$

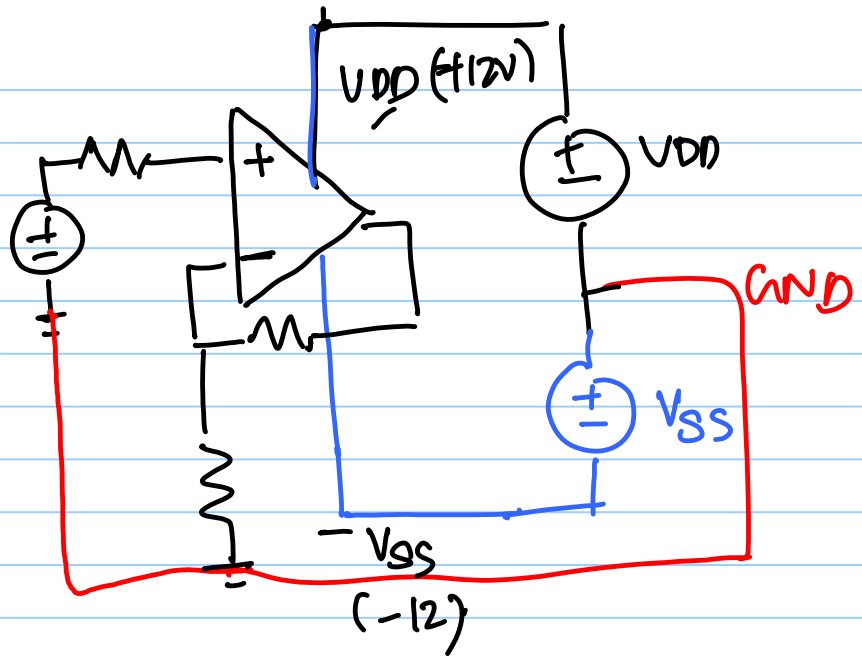


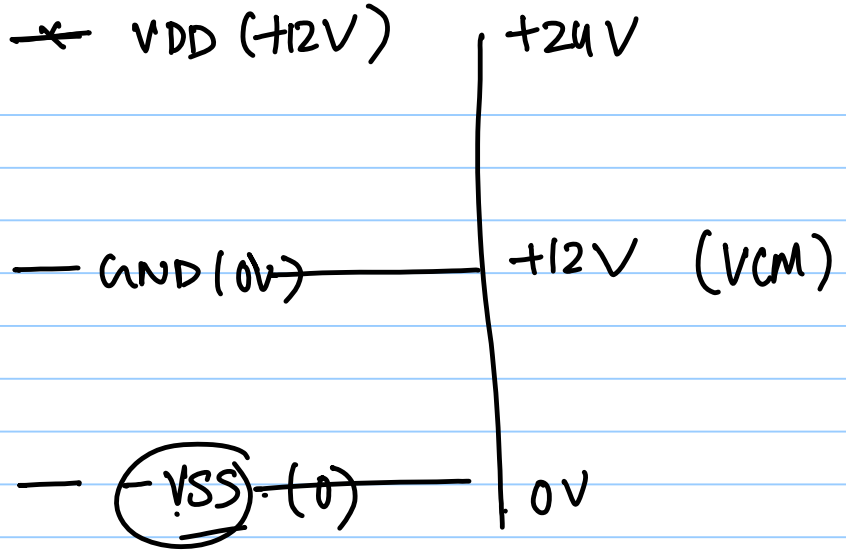
Duty Cycle = $\frac{T_{high}}{T}$





- Non-inverting amp. / Schmitt trigger
- inverting amp. / Schmitt trigger
- Comparator
- Integrator





Bipolar (BJTs) VDD / -VSS

CMOS VDD / 0