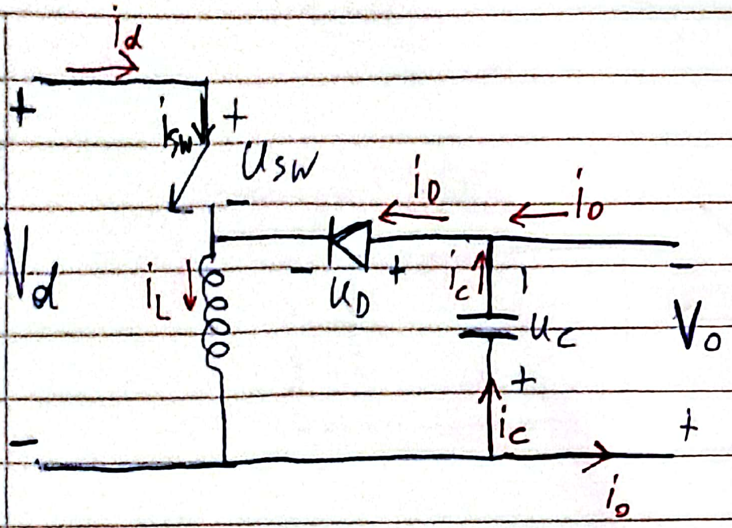
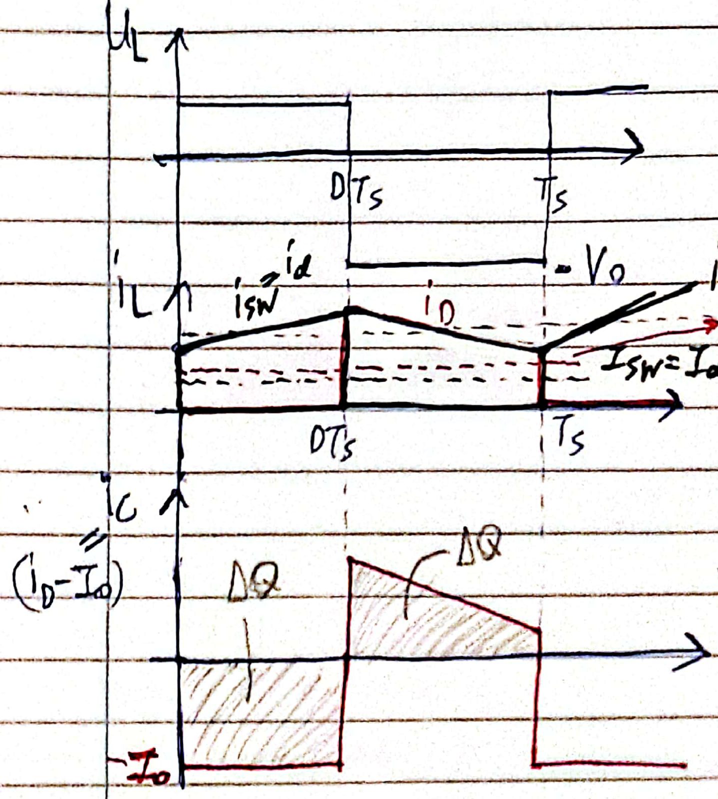


$t_{ON}: u_L = V_d$

$t_{OFF}: u_L = -V_o$

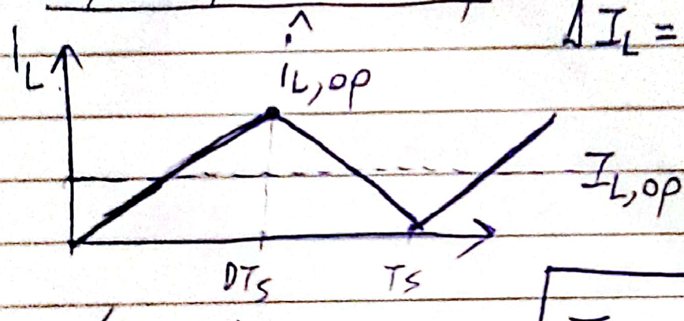
$i_D = i_C + i_o$



$$u_L = L\frac{\Delta I}{\Delta t}\ \begin{cases} \xrightarrow{ON} V_d = L\dfrac{\Delta I_L}{D\cdot T_s} \\ \xrightarrow{OFF} -V_o = L\dfrac{-\Delta I_L}{(1-D)T_s} \end{cases} \xRightarrow{ΚΣΑ}$$

$$\left.\begin{aligned} &\Rightarrow V_d\cdot D = L\frac{\Delta I_L}{T_s} \\ &\Rightarrow V_o(1-D) = L\frac{\Delta I_L}{T_s} \end{aligned}\right\} \Rightarrow \boxed{\frac{V_o}{V_d} = \frac{D}{1-D}}$$

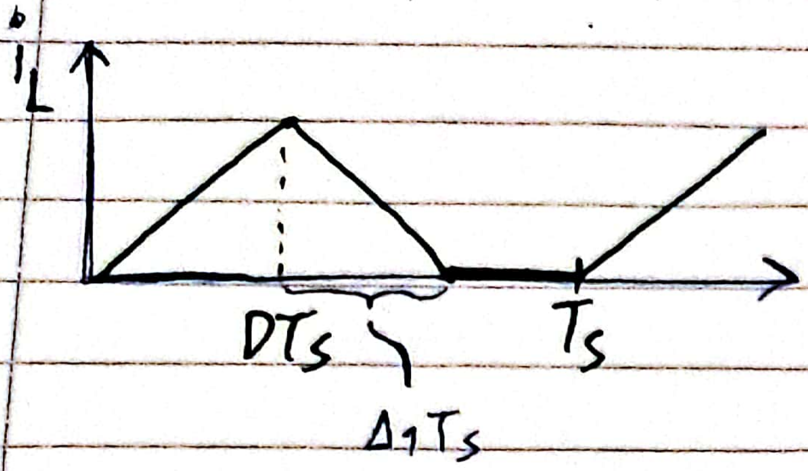
Οριακή κατάσταση



$$\Delta I_L = \hat{i}_{L,op} = 2\cdot I_{L,op} = \frac{V_d\cdot D}{L}T_s = \frac{V_o(1-D)}{L}T_s$$

Έστω $V_o = σταθ.$ $\Rightarrow$ $\boxed{I_{L,op} = \dfrac{V_o(1-D)}{2L\cdot f_s}}$

Κατάσταση Ασυνεχούς Αγωγής



$t_{OFF}: -V_0 = L \dfrac{-\Delta I_L}{\Delta_1 T_s}$.

$$\boxed{\text{Άρα } \frac{V_0}{V_d} = \frac{D}{\Delta_1}}$$