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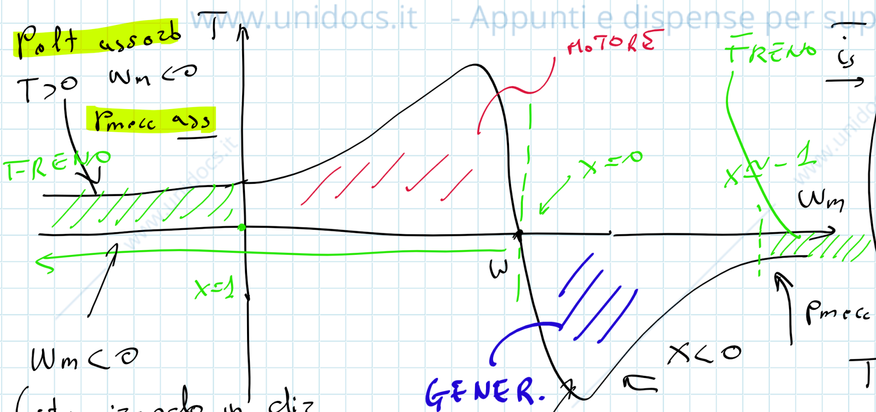
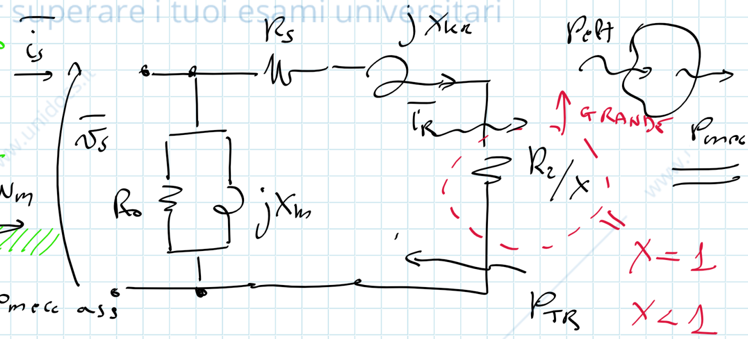


$W_m < 0$
(sto girando in dir. opp. al campo magn rotante)

$P_{mecc} = T \cdot \omega$ (ass.)
P_{elet} erogata



$$T = \frac{\frac{R_R}{x} \cdot i_R^2}{\omega}$$

$x<0$
$T<0$

pol. alim.

$$x = \frac{\omega - \omega_m}{\omega}$$ vel rot

$T>0$, $\omega>0$ } P_{mecc} erogata

$$T = \frac{P_{mecc}}{\omega_m} \qquad P_{mecc} = T\omega_m$$

$R_s \simeq R_R$

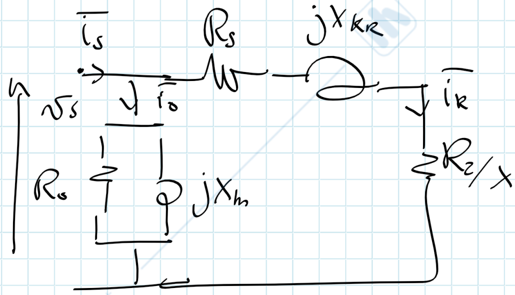
$$v_s = \left(R_s + \frac{R_R}{x}\right) i_R + j X_{kR}\, i_R \qquad R_s = R_R$$

$x < -1$ $\quad \left|\frac{R_R}{x}\right| < R_s \Rightarrow R_s + \frac{R_R}{x} > 0 \Rightarrow$ Pelet assorbita

$\frac{R_R}{x} + R_s > 0$ Pelet assorbita $\qquad \frac{R_R}{x} + R_s < 0$ p elett. erogata

CAMPO DI OPERATIVITÀ A V_s e f costanti

$$\bar{v}_s = \left(R_s + \frac{R_R}{x}\right)\bar{i}_R + j X_{kR}\, \bar{i}_R$$



$$\underbrace{\frac{\bar{v}_s}{j X_{kR}}}_{\bar{i}_{RMAX}} = \frac{\left(R_s + \frac{R_R}{x}\right)}{j X_{kR}}\bar{i}_R + \bar{i}_R = \overbrace{\frac{R(x)}{j X_{kR}}\bar{i}_R}^{\bar{i}_R'} + \bar{i}_R = \bar{i}_R' + \bar{i}_R = \bar{i}_{RMAX}$$

$\bar{i}_R' \rightarrow$ è sempre $\perp$ a $\bar{i}_R$

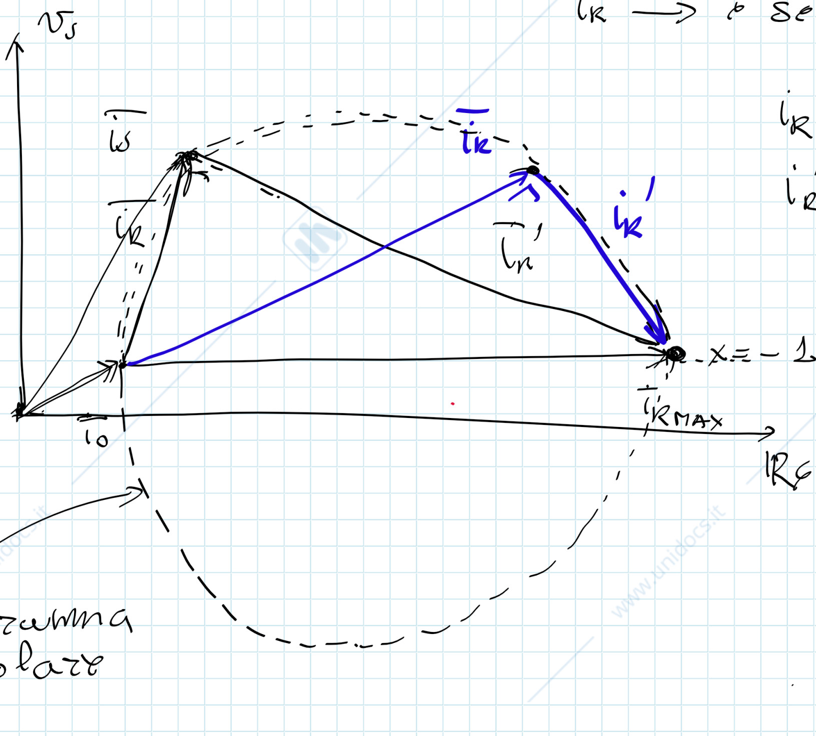


Diagramma circolare

$i_R = i_{RMAX}$
$i_R' = 0 \qquad R_s + \frac{R_R}{x} = 0$
$x \cong -1$

$\bar{i}_s = \bar{i}_R + \bar{i}_o$

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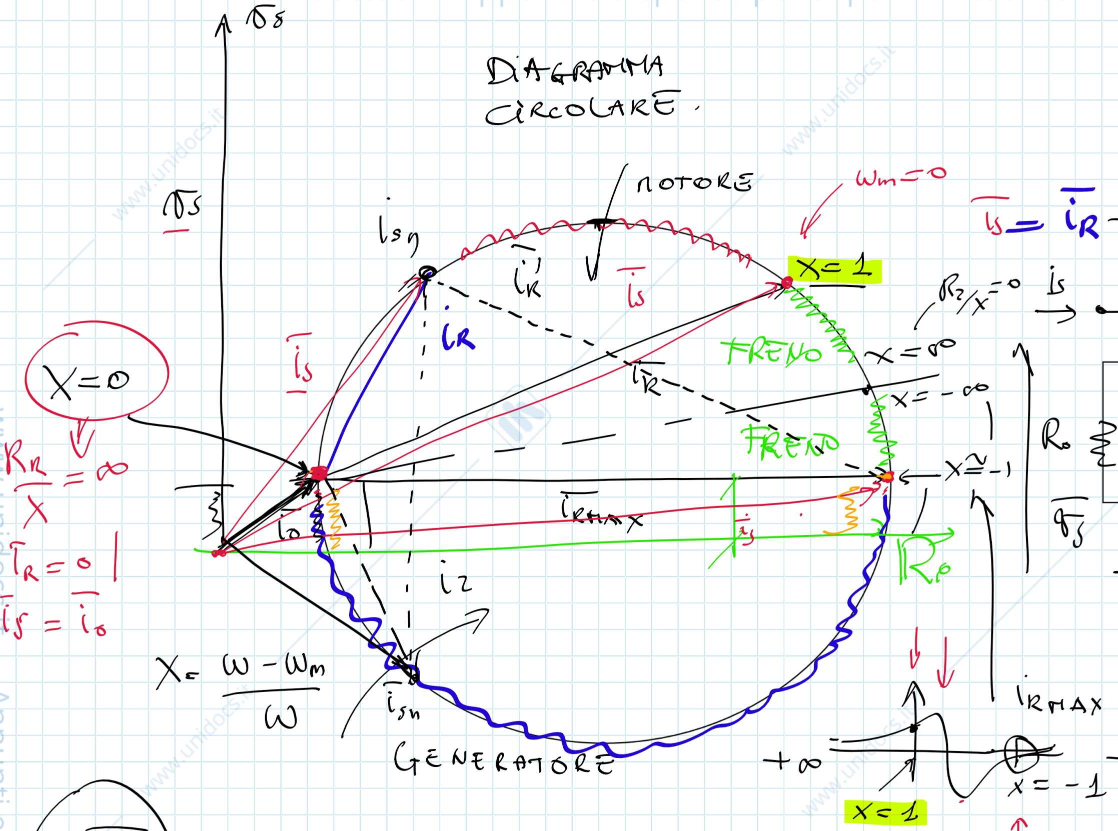
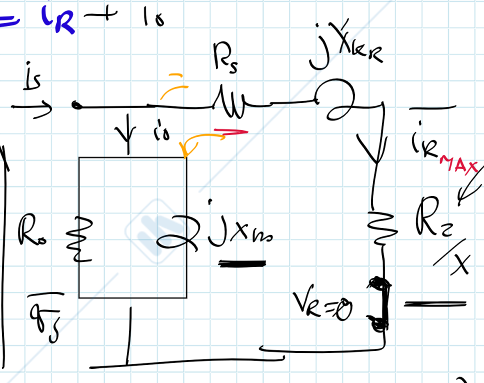
DIAGRAMMA CIRCOLARE.

$\bar{i}_{RMAX} = \dfrac{\bar{V}_s}{jX_{kR}}$



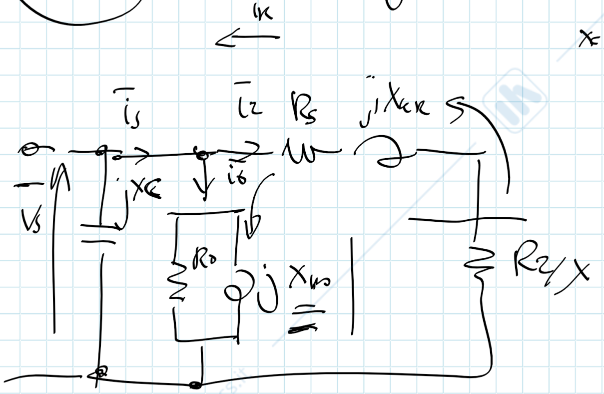
$\bar{I}_s = \bar{i}_R + \bar{i}_0$

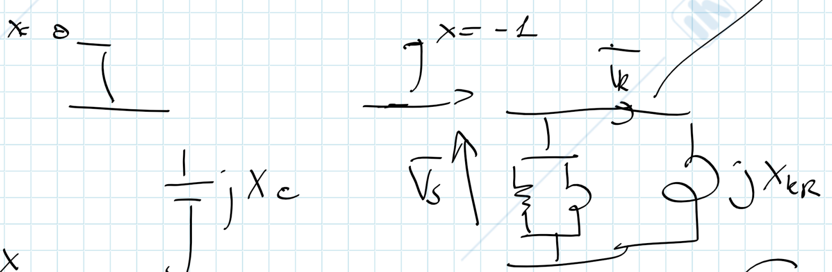


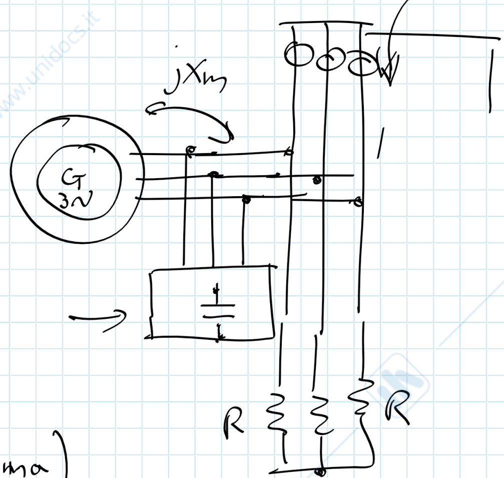
$R(x)$

$R_s + \dfrac{R_R}{x} = 0$

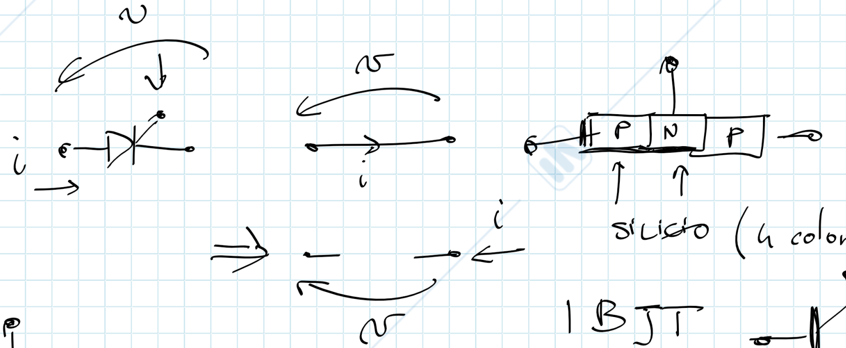
$\dfrac{\bar{V}_s}{jX_{kR}} = \bar{i}_{RMAX} = \dfrac{R(x)}{jX_{kR}}$ $\quad \bar{i}_R + \bar{I}_R = \bar{i}'_R + \bar{i}_R$ $\quad \bar{i}'_R \perp \bar{i}_R$





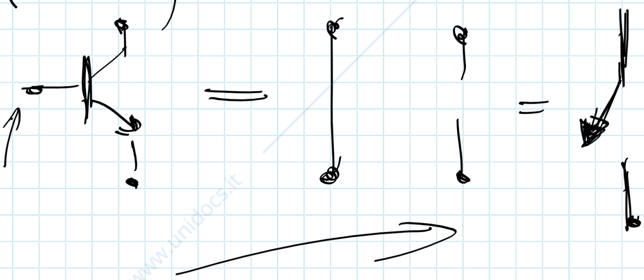


Dovo ass. pot. reattiva (j Xm)



silicio (4 colonna)

- IBJT
- MOSFET
- IGBT
- SiC



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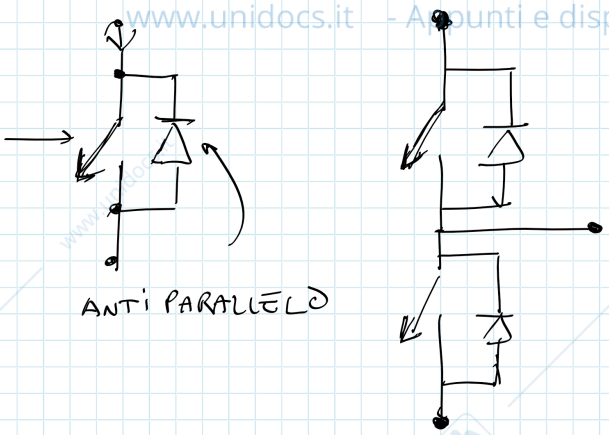


ANTI PARALLELO

GAMBA

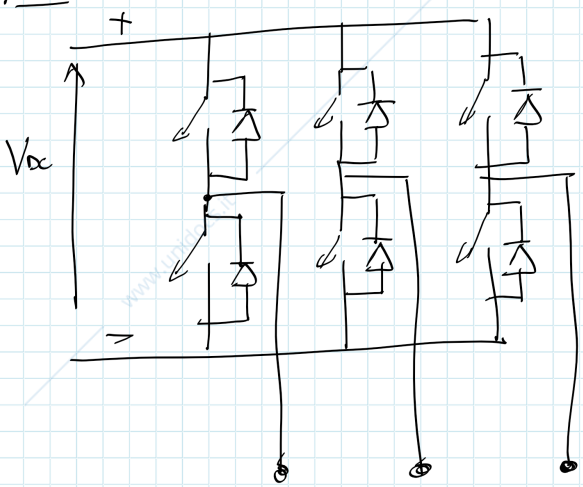
V al tozzo mot.

V = 0

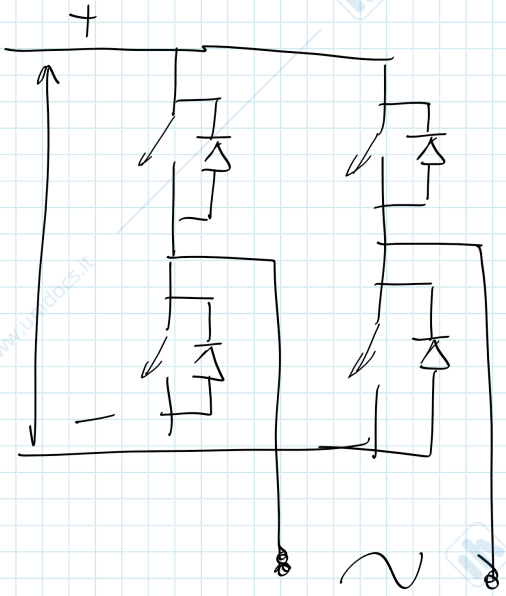
2000000

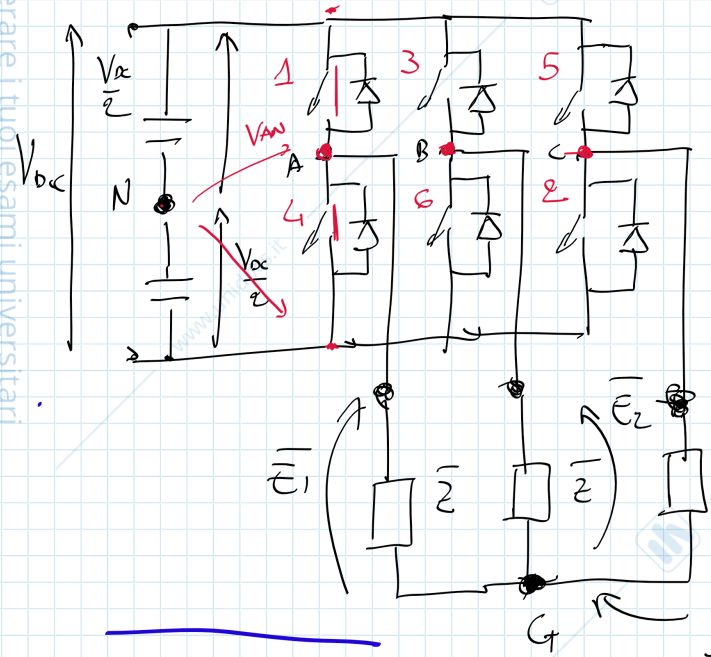
1% cond

INVERTER



3 V

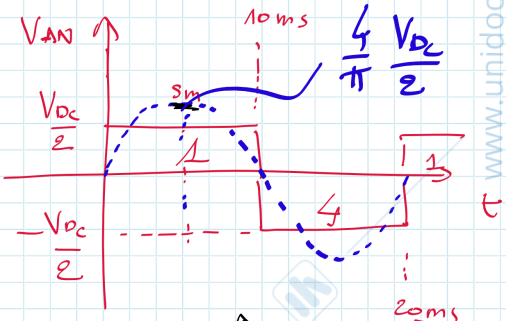




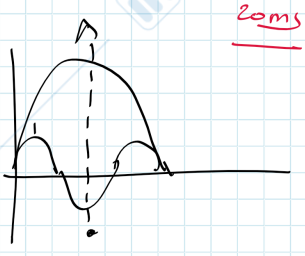
$\bar{E}_1 + \bar{E}_2 + \bar{E}_3 = 0$ (nel tempo)

$$\Downarrow$$

$$e_1 + e_2 + e_3 = 0$$



CENTRO TEORICO



$$\frac{4}{\pi}\frac{V_{DC}}{2}\left(\cos(\omega t) - \frac{1}{3}\cos(3\omega t) + \frac{1}{5}\cos(5\omega t) - \frac{1}{7}\cos(7\omega t) + \right.$$

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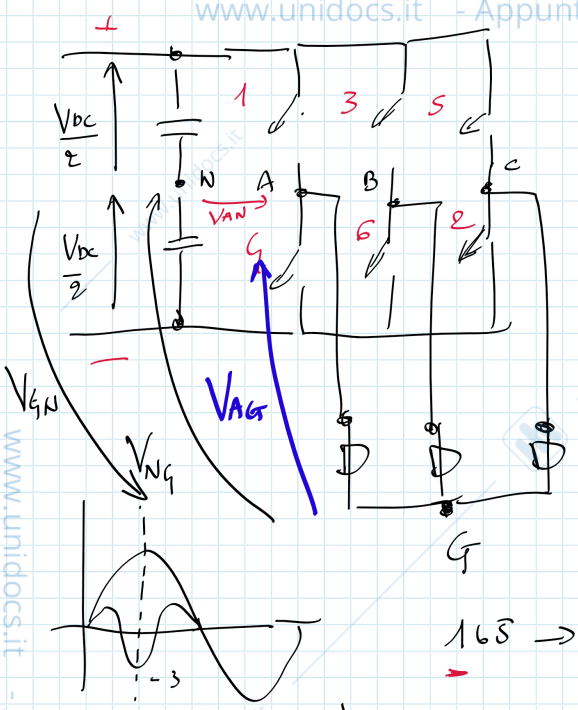
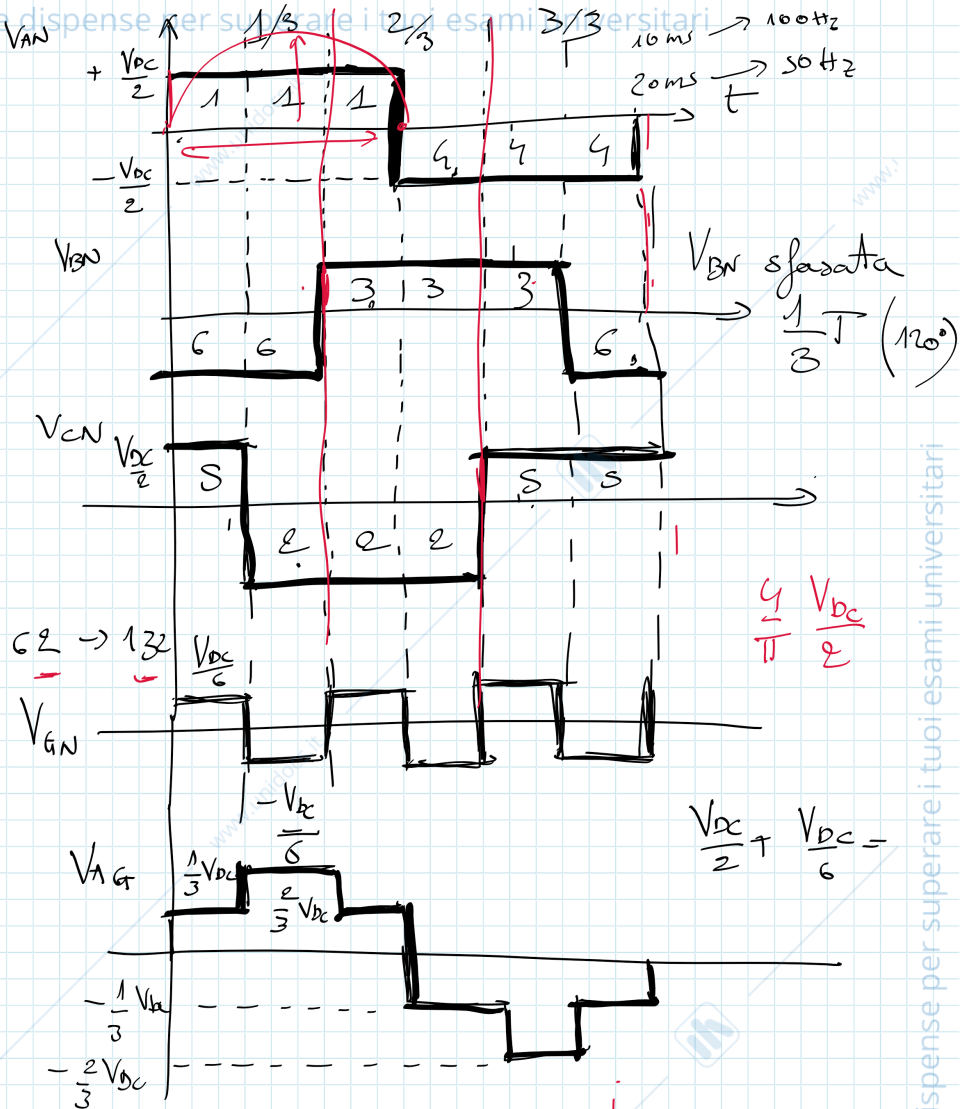




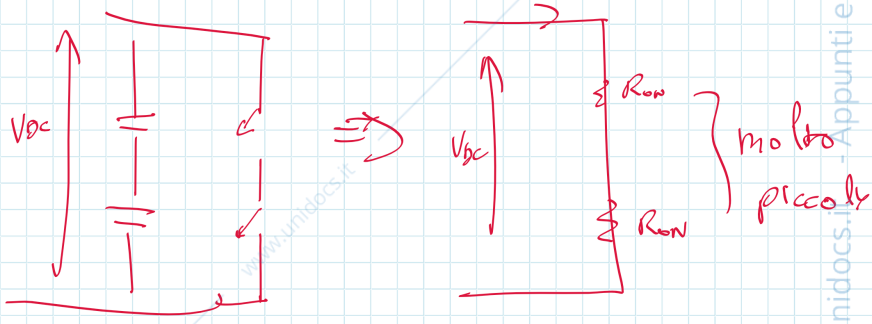
$$\begin{cases} V_{AG} = V_{AN} + V_{NG} \\ V_{BG} = V_{BN} + V_{NG} \\ V_{CG} = V_{CN} + V_{NG} \end{cases}$$

$$V_{AG} + V_{BG} + V_{CG} = 0$$

$$3V_{NG} + V_{AN} + V_{BN} + V_{CN} = 0$$

$$-3V_{GN} + V_{AN} + V_{BN} + V_{CN} = 0$$

$$V_{GN} = \frac{V_{AN} + V_{BN} + V_{CN}}{3}$$



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