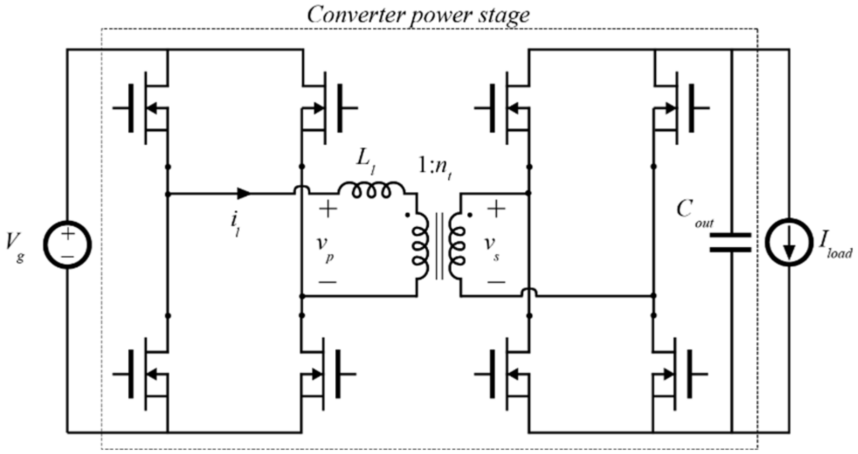
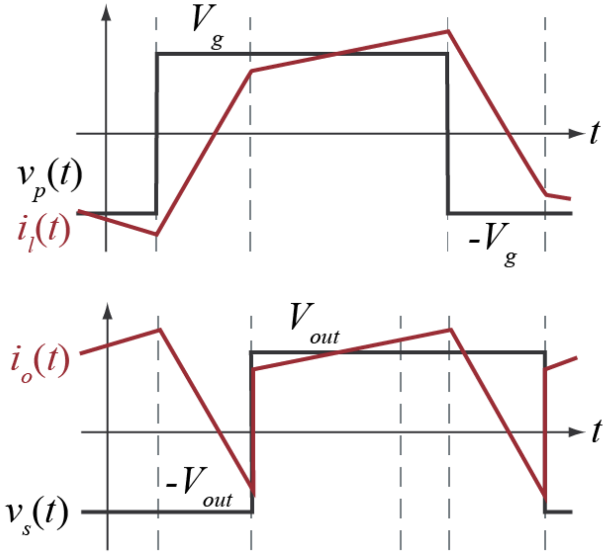
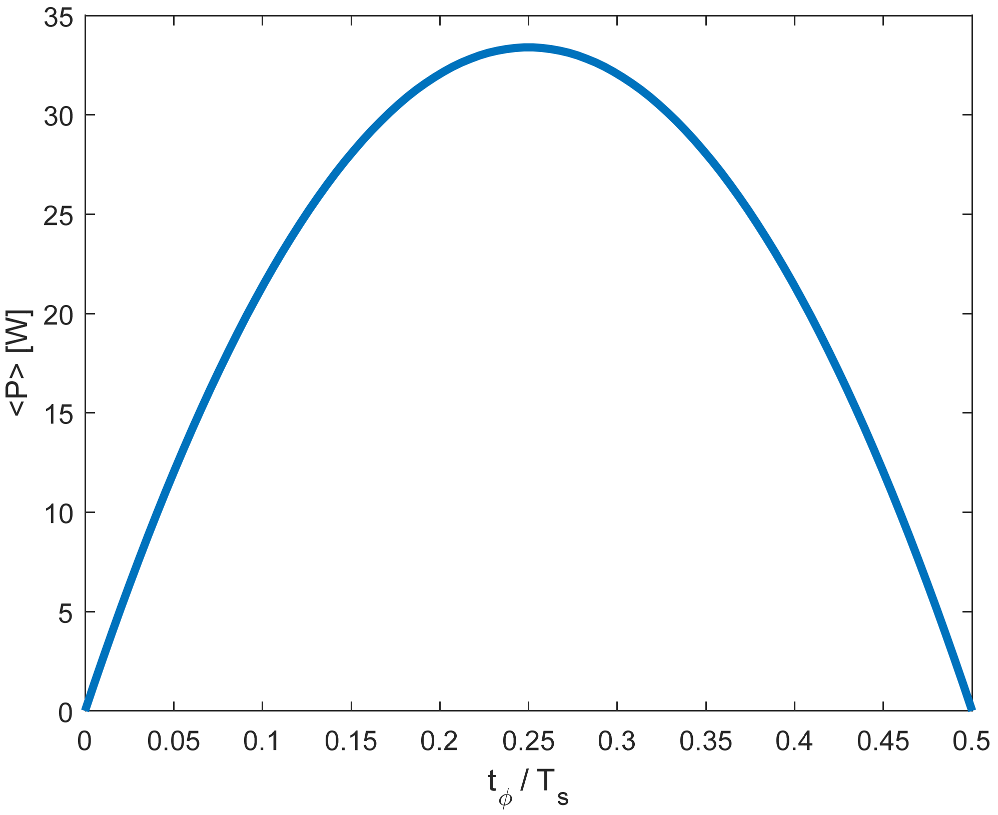
One Approach: Relaxing The Average





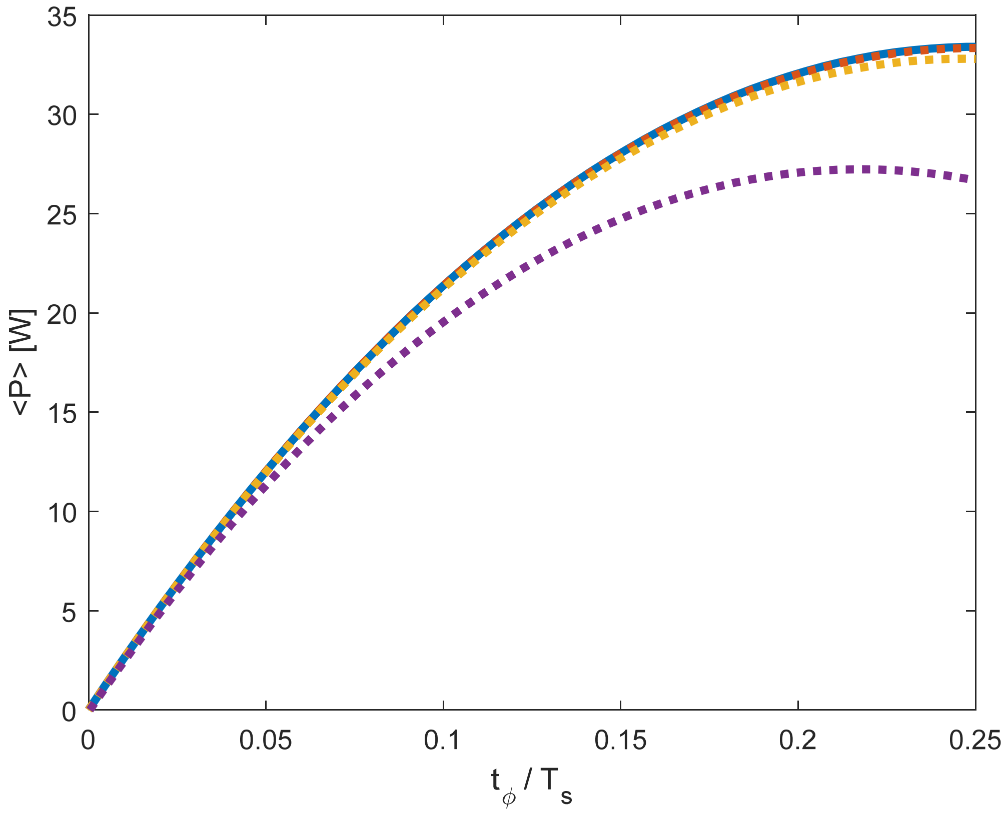
Output Power



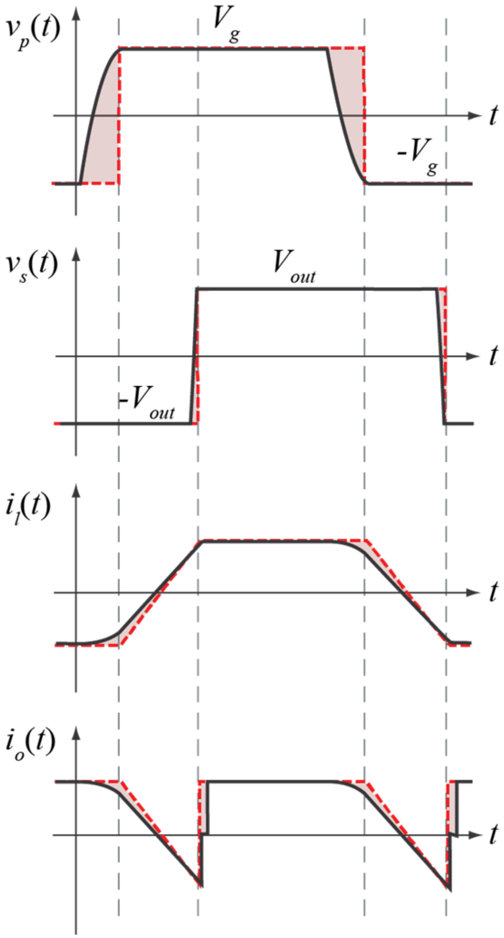
Including R_L

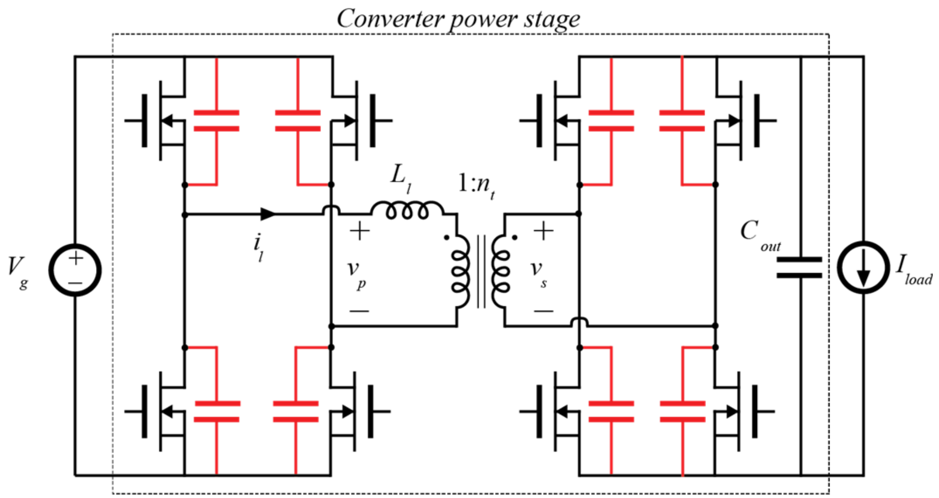
Including Losses

$$\langle P\rangle = \frac{nV}{R_L{}^2 T_s}\left(\frac{4L_l\left(\left(1+\mathrm{e}^{\frac{R_L Ts}{2L_l}}-2\mathrm{e}^{\frac{R_L(-2t_\varphi+T_s)}{2L_l}}\right)V_g+\left(-1+\mathrm{e}^{\frac{R_L Ts}{2L_l}}\right)nV\right)}{1+\mathrm{e}^{\frac{R_L T_s}{2L_l}}}+R_L\left(-4t_\varphi Vg+T_s(V_g-nV)\right)\right)$$



DAB Operated at High Frequency





- At high switching frequency, resonant ZVS transitions become significant