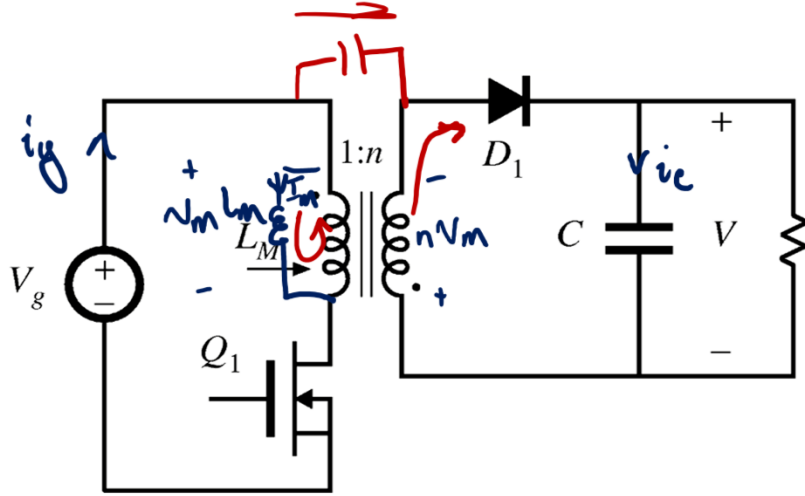


# Flyback Waveforms

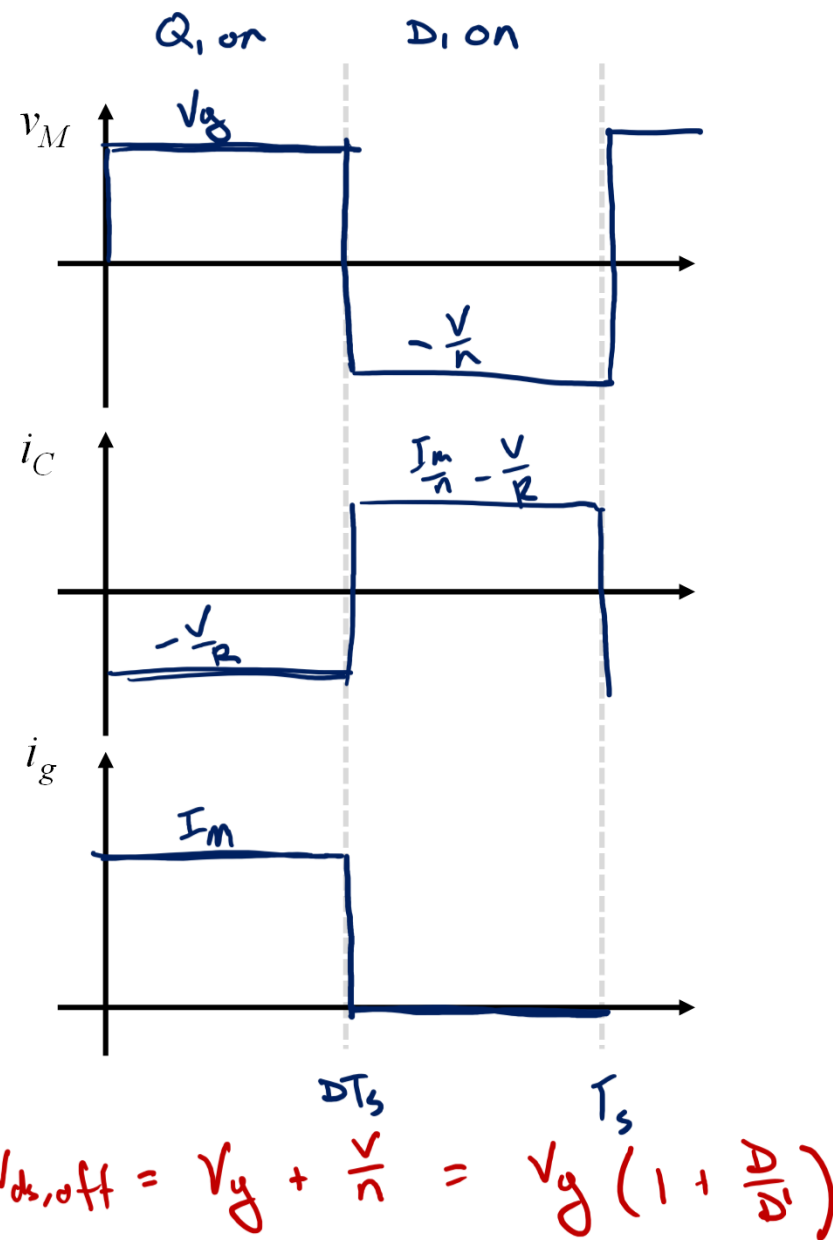


$$\langle N_m \rangle = \phi = D V_g + D' \left( -\frac{V}{n} \right)$$

$$V = n \frac{D}{D'} V_g \quad \boxed{M = \frac{V}{V_g} = n \frac{D}{D'}}$$

$$\langle i_c \rangle = \phi = -\frac{V}{R} + D' \frac{I_m}{n} \rightarrow I_m = n \frac{V}{R D'}$$

$$\langle i_g \rangle = I_g = D I_m$$

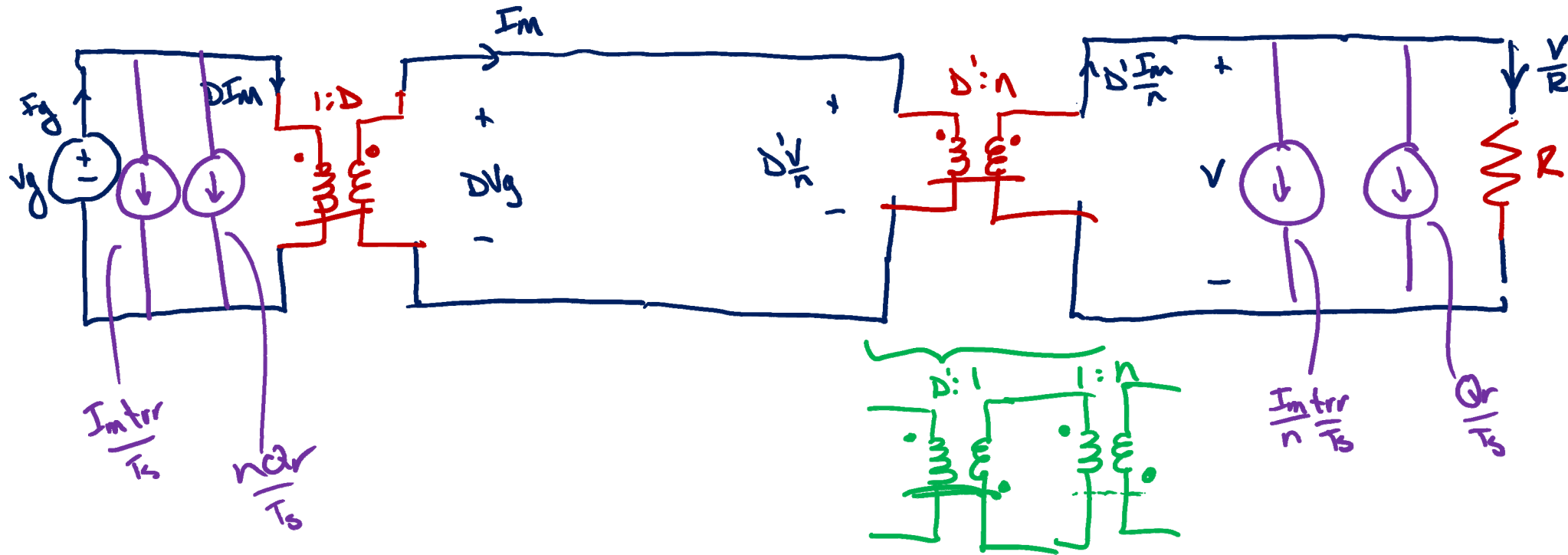


# Flyback Equivalent Circuit Model

$$I_g = D I_m$$

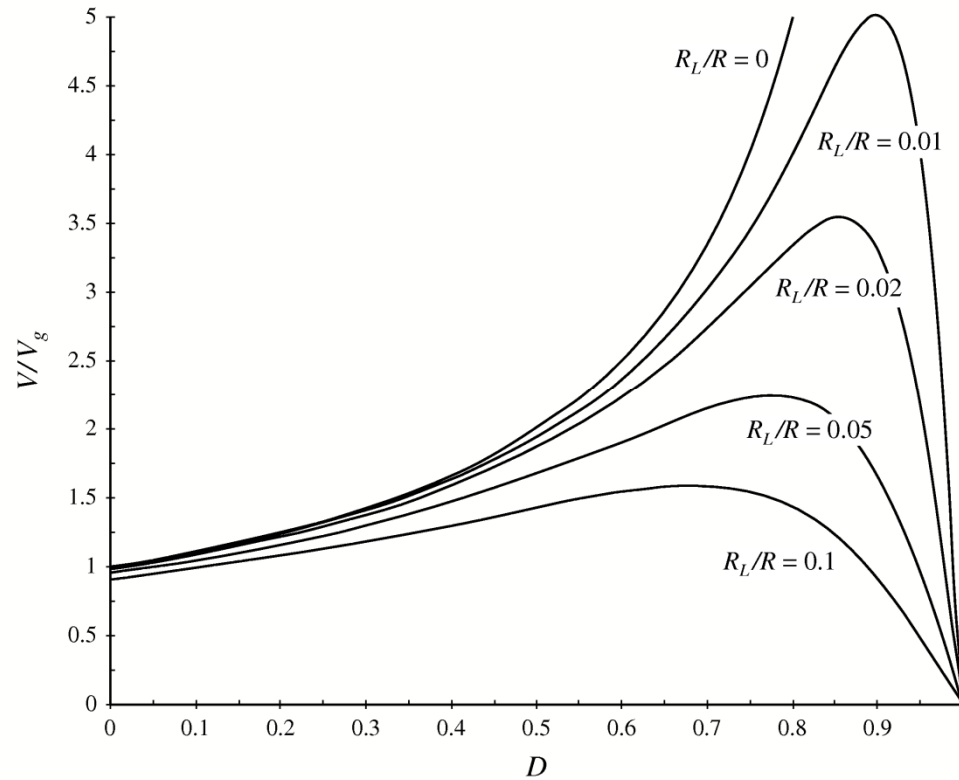
$$\langle v_m \rangle = \phi = D V_g + D' \left( \frac{V}{n} \right)$$

$$\langle i_e \rangle = \phi = -\frac{V}{R} + D' \frac{I_m}{n}$$

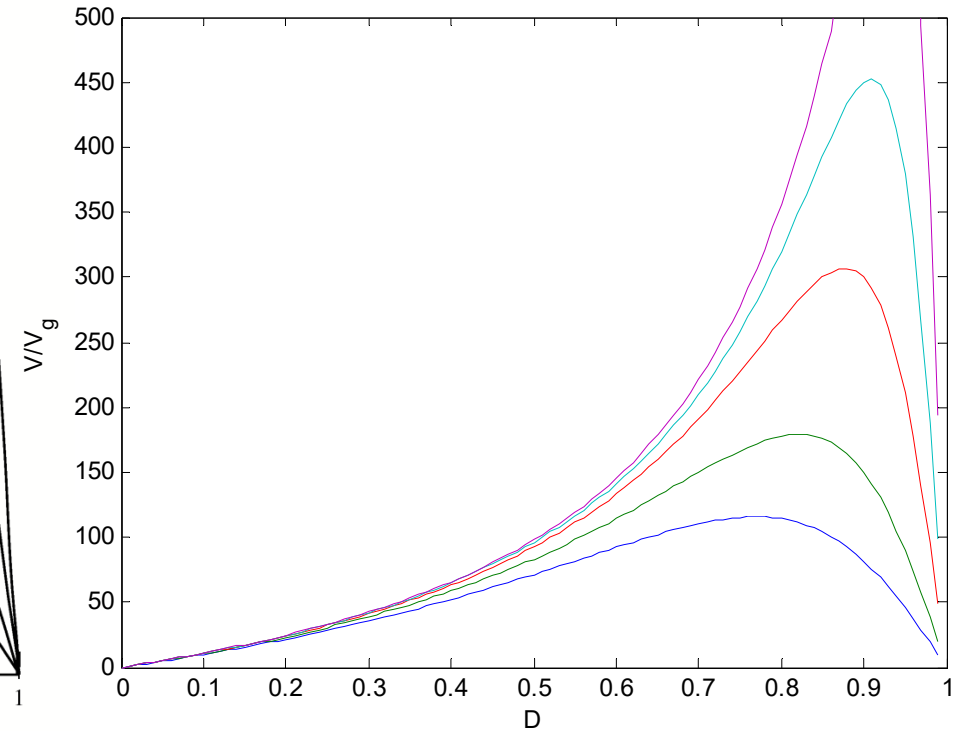


# High Step-Up Conversion Ratios

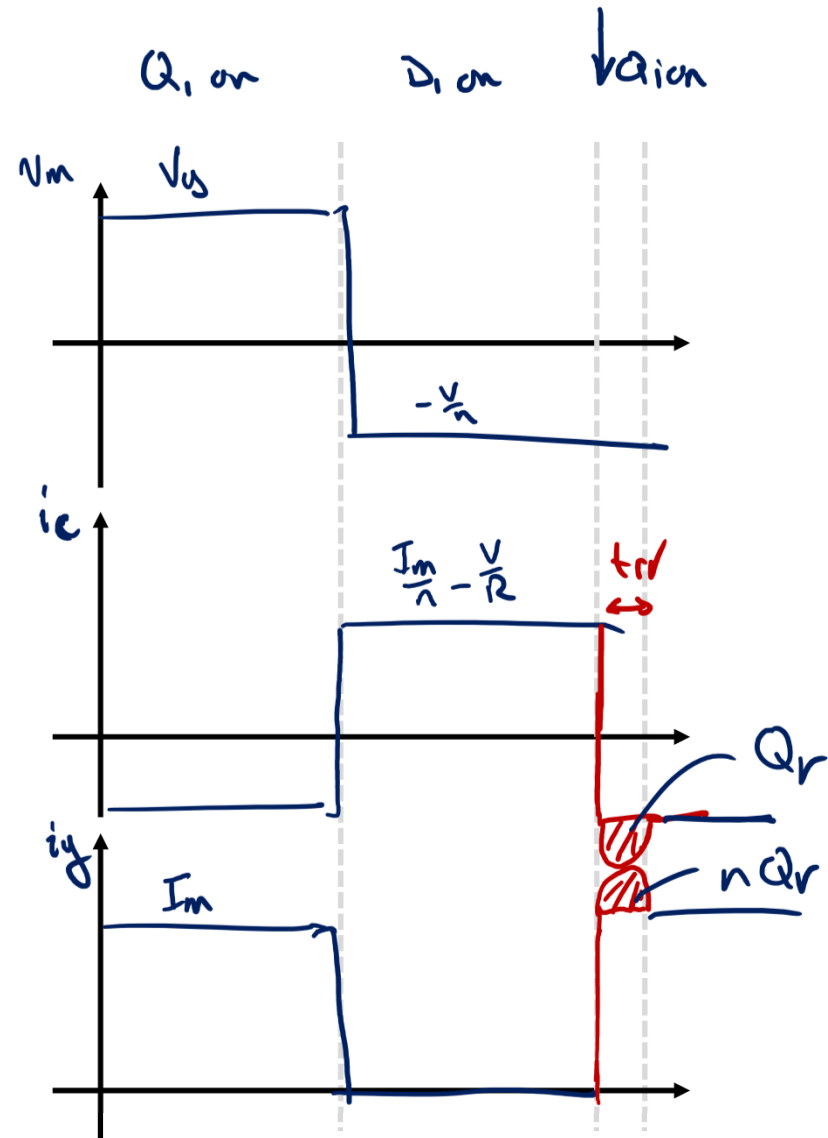
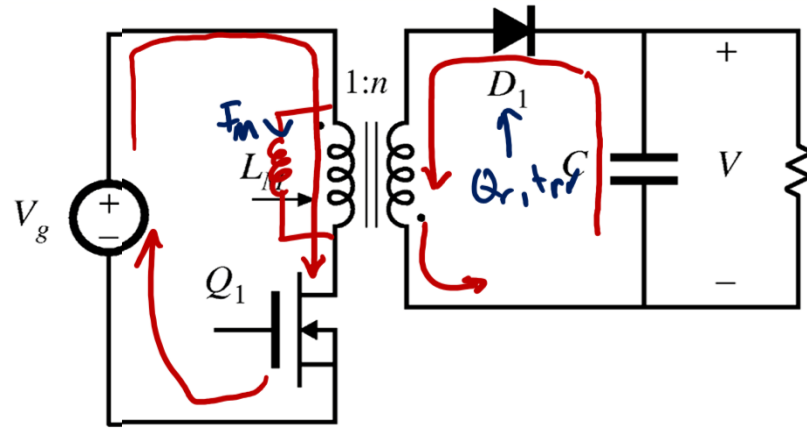
Boost Converter



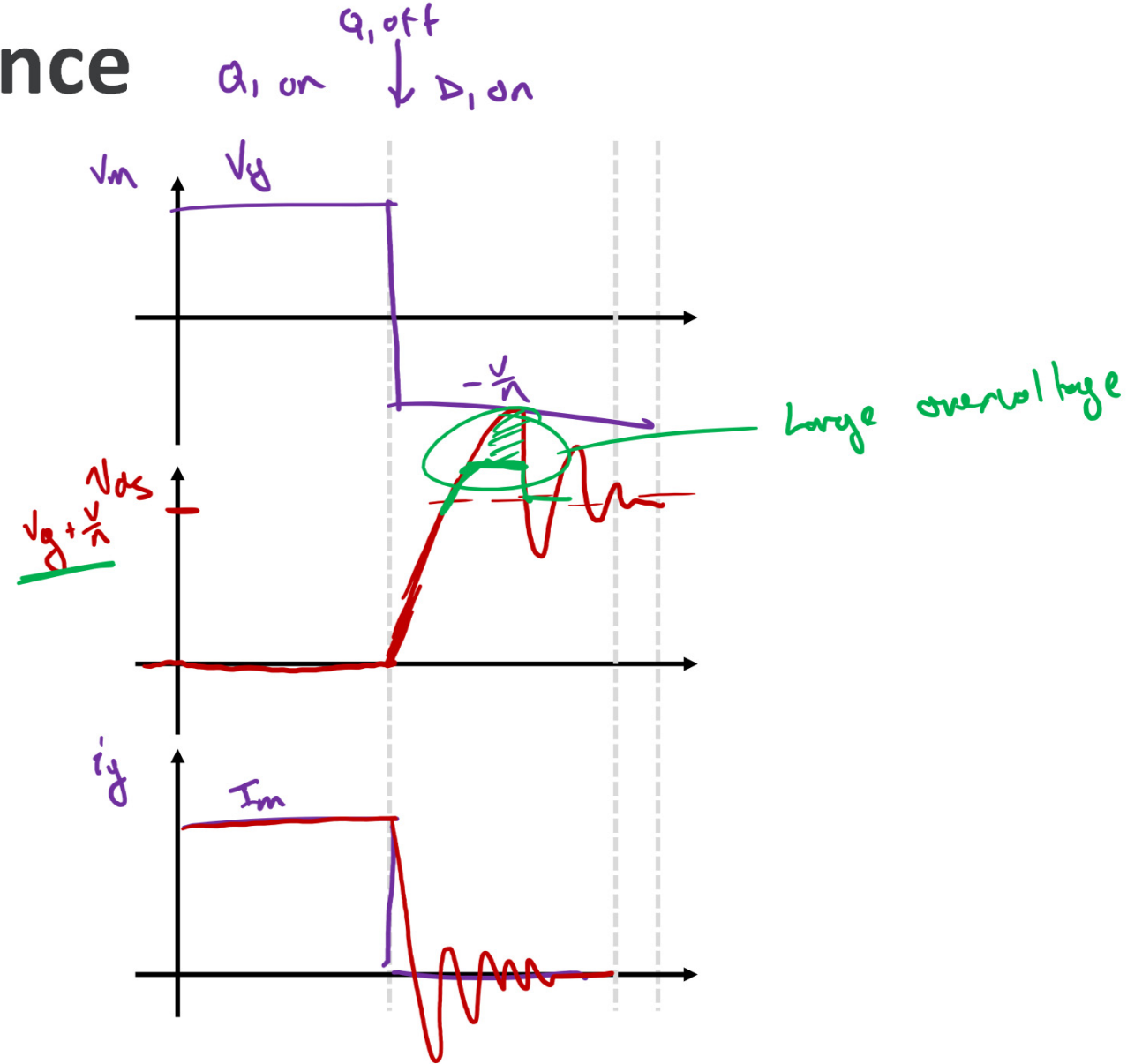
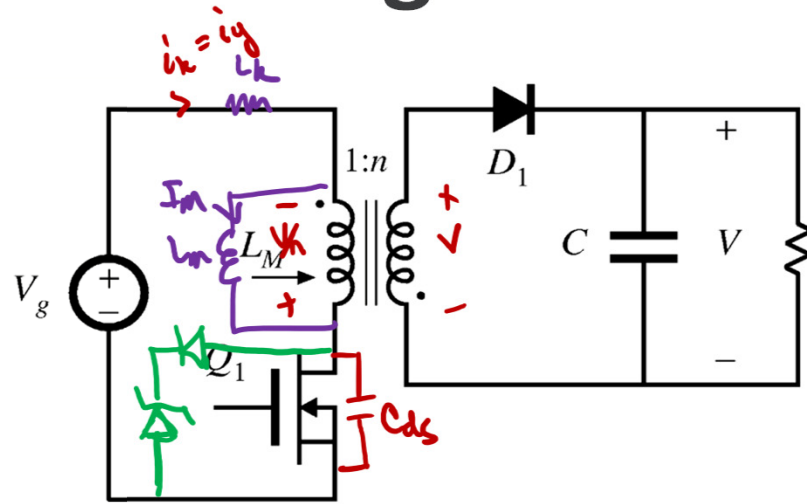
Flyback,  $n=100$



# Flyback Reverse Recovery



# Flyback Leakage Inductance



# Experiment 2: SMPS Simulation

