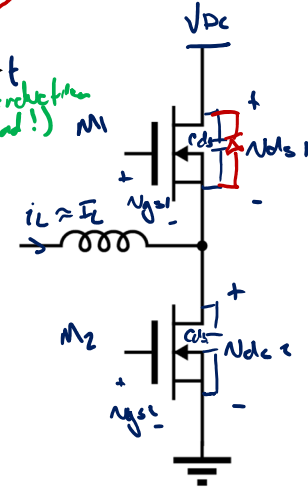
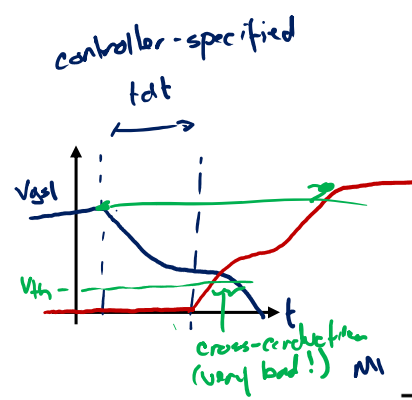
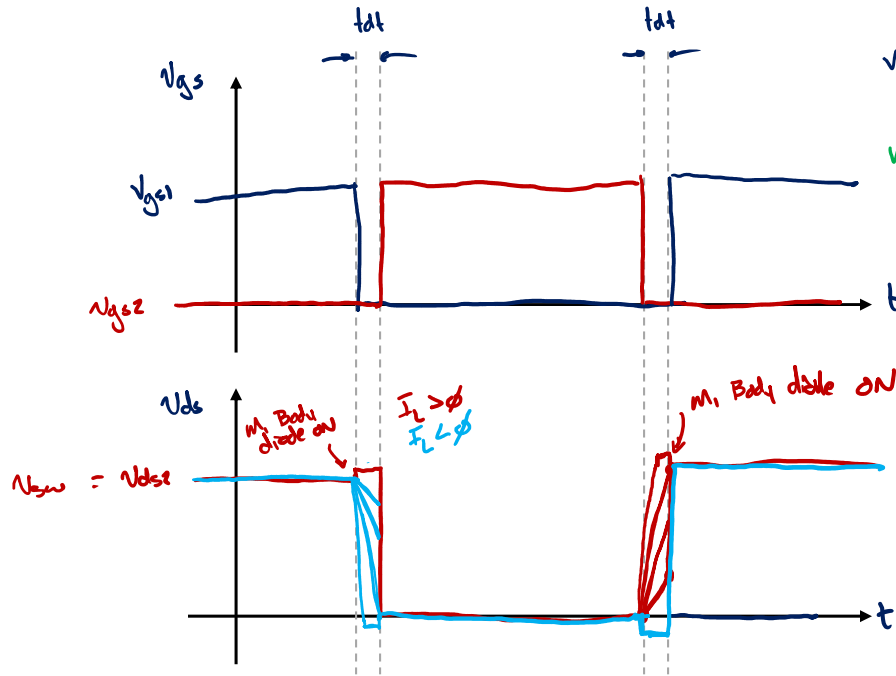


Synchronous Switching

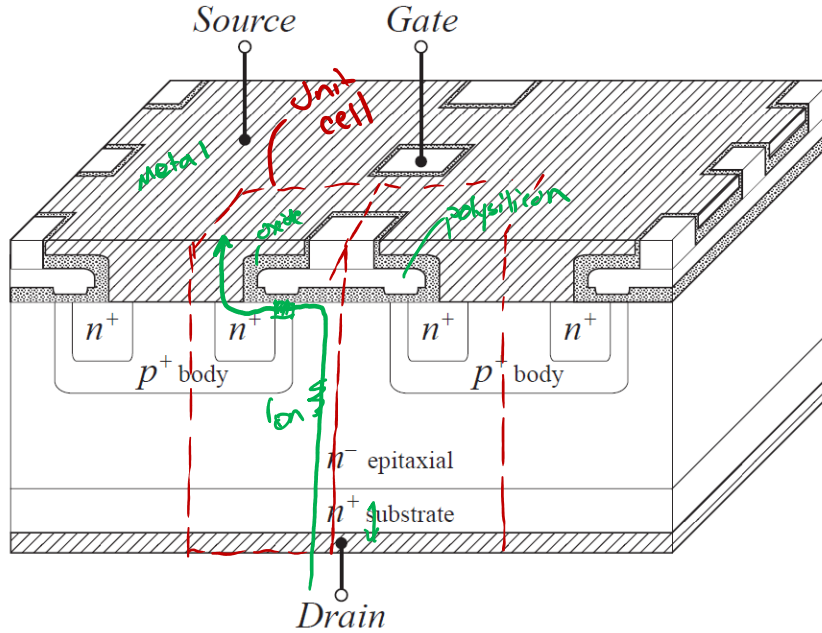


Inductively-clamped half-bridge

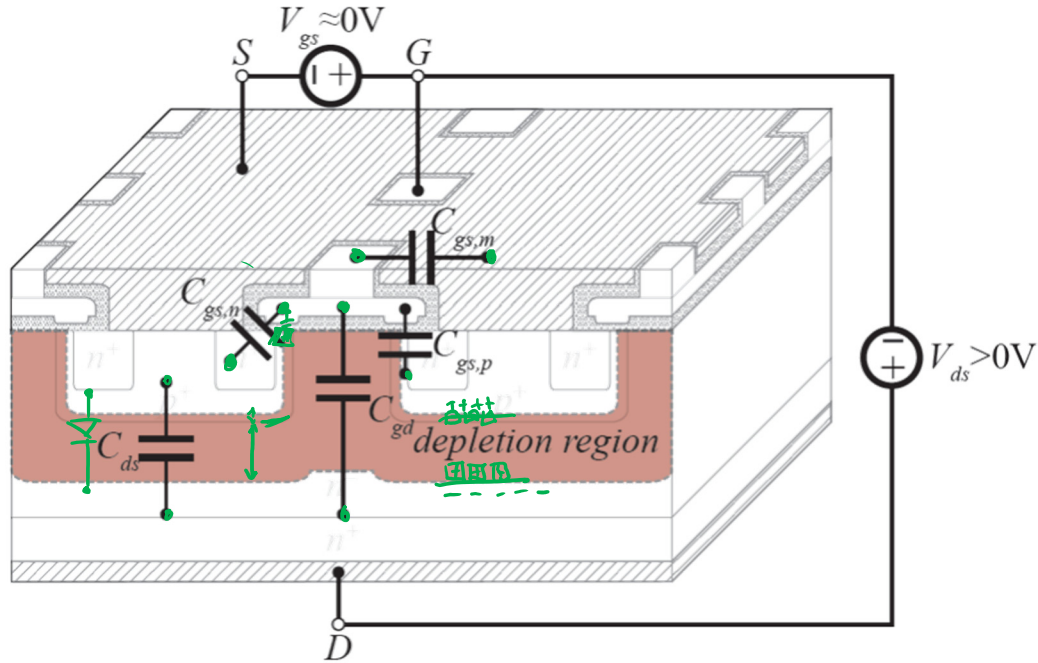
MOSFET Cross Section

Silicon

VDMOS



MOSFET Depletion Capacitance



Resistance Contributions Vs. Voltage

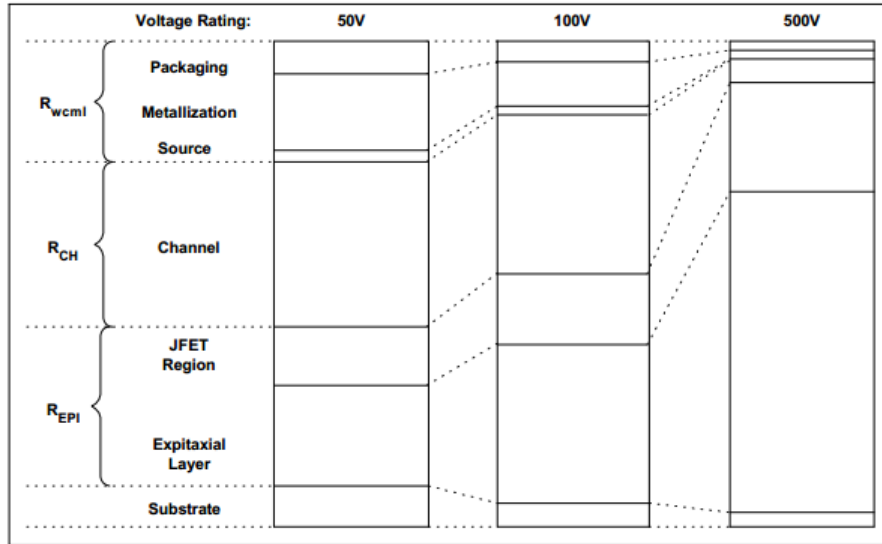
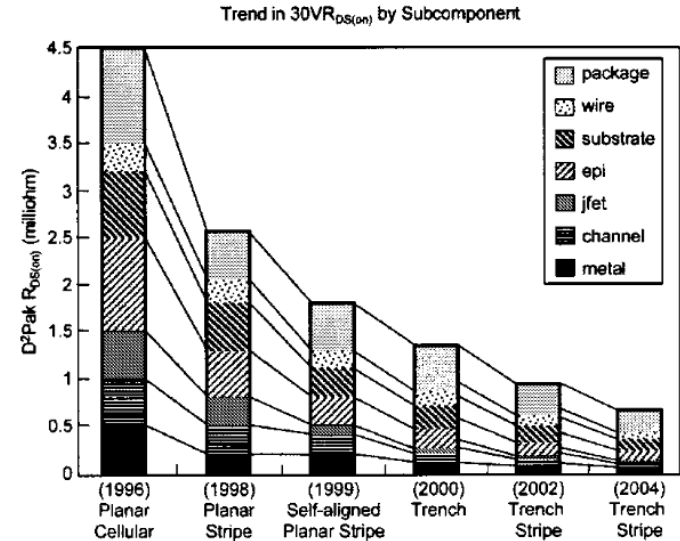


Figure 9. Relative Contributions to $R_{DS(on)}$ With Different Voltage Ratings.

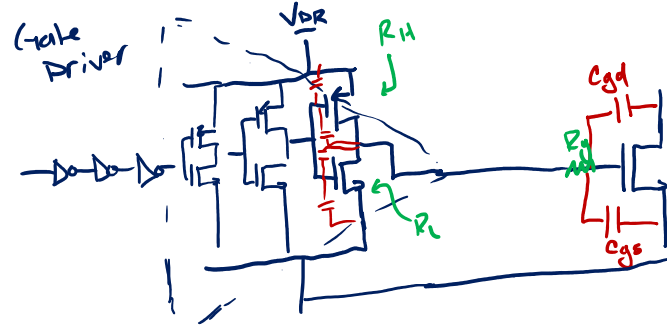
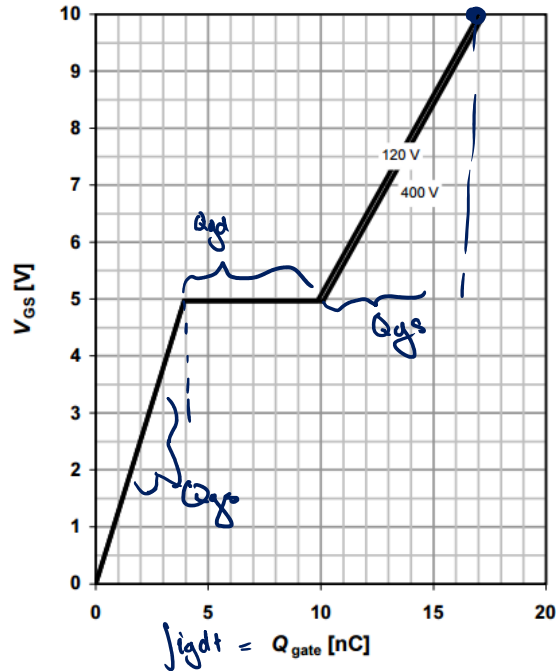


Gate Charge

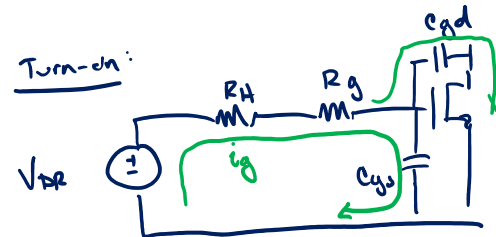
9 Typ. gate charge

$V_{GS} = f(Q_{gate}); I_D = 5.2 \text{ A pulsed}$

parameter: V_{DD}



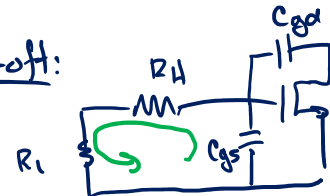
Turn-on:



$$\begin{aligned} \bar{E}_{supplied} &= \int V_{DR} i_g(t) dt \\ &= V_{DR} \int i_g(t) dt \\ &= \boxed{V_{DR} Q_g} \end{aligned}$$

some lost in R_H/R_g
some stored in C_{gs}

Turn-off:



all stored energy y
lost

$$P_g = V_{DR} Q_g f_s$$

(from V_{DR})