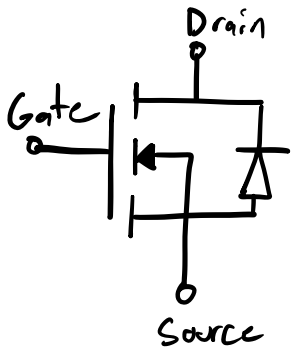
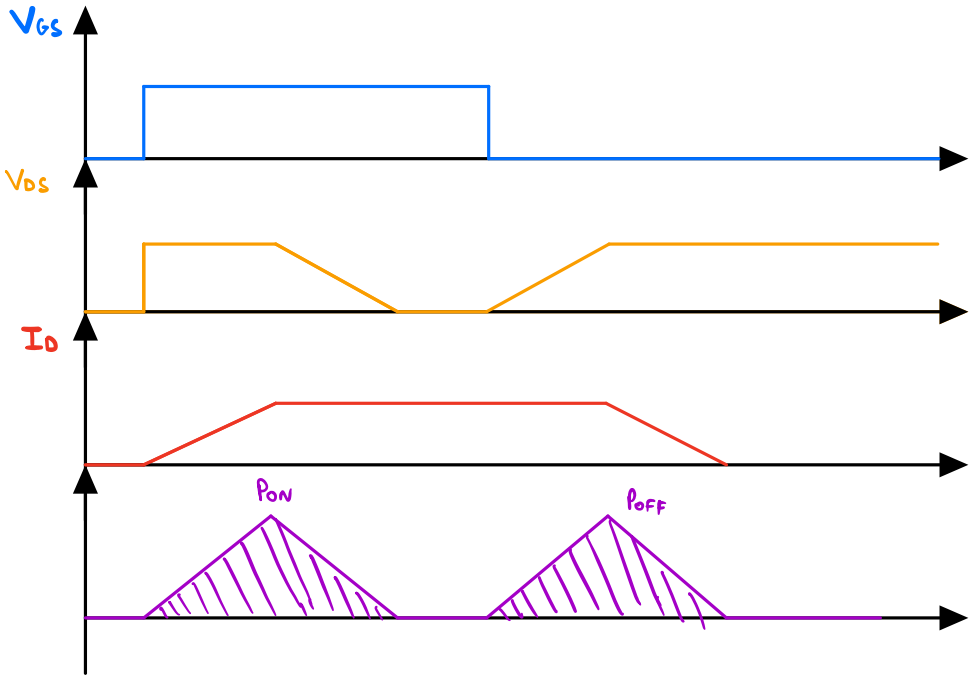
MOSFET Power Losses



$V_{GS} > V_{th} \rightarrow$ ON State

$$P_{cond} = I_{DRMS}^2 \cdot R_{DSON}$$

$$P_{cond} = I_{D(ON)}^2 \cdot R_{DS(ON)} \cdot D$$

$$P_{ON} = I_{DON} \cdot V_{DD} \cdot \frac{t_{rise} + t_{fall}}{2} \cdot f_{sw}$$

$$P_{OFF} = I_{DON} \cdot V_{DD} \cdot \frac{t_{rise} + t_{fall}}{2} \cdot f_{sw}$$