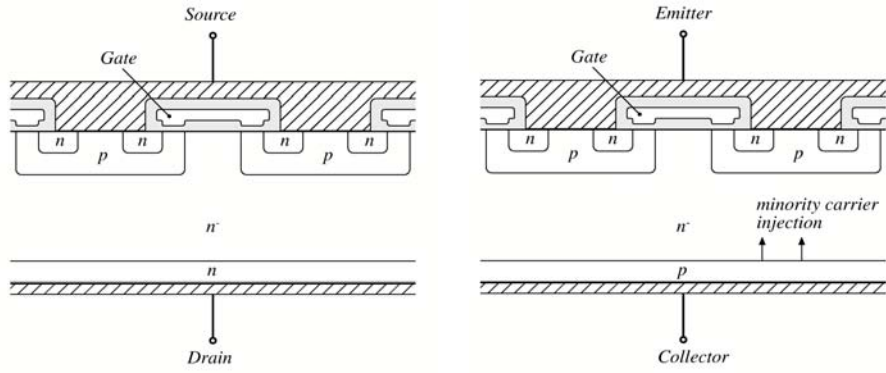
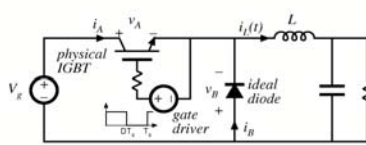




Charge Storage



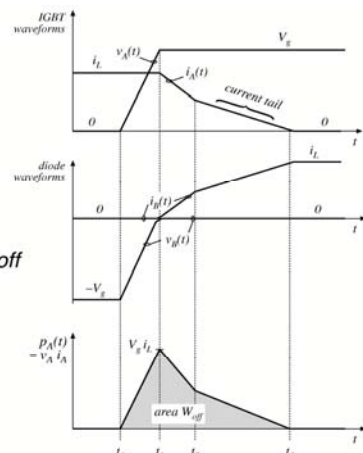
IGBT Current Tailing




Example: buck converter with IGBT

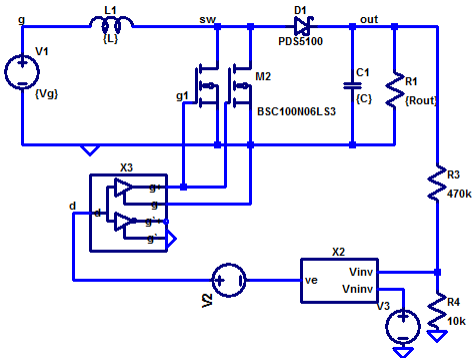
transistor turn-off transition

$$P_{sw} = \frac{1}{T_s} \int_{\text{switching transitions}} p_A(t) dt = (W_{on} + W_{off}) f_s$$

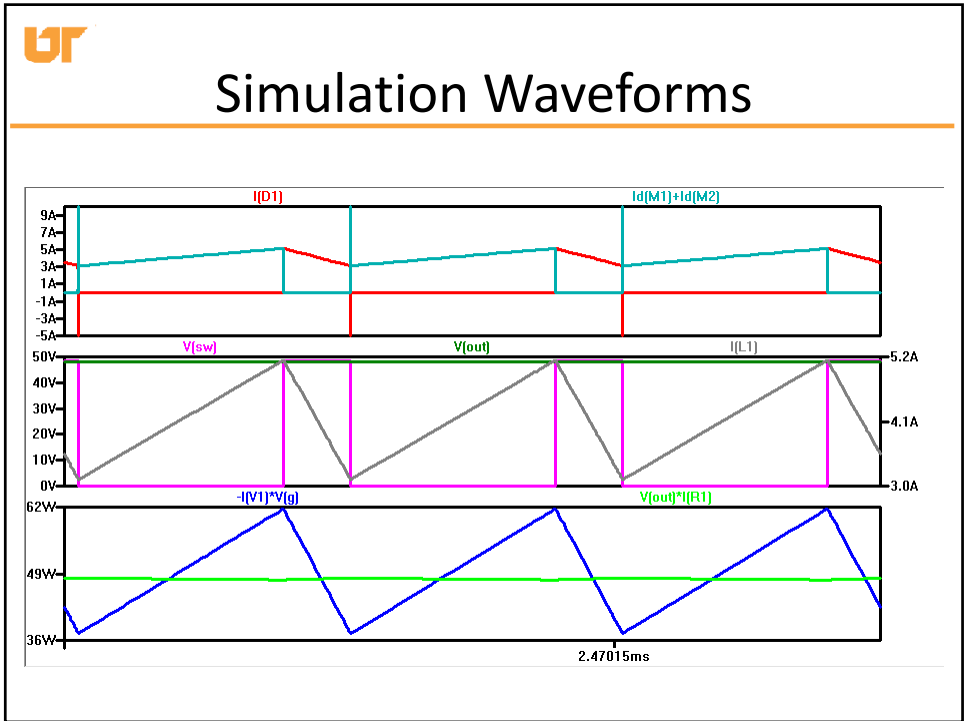


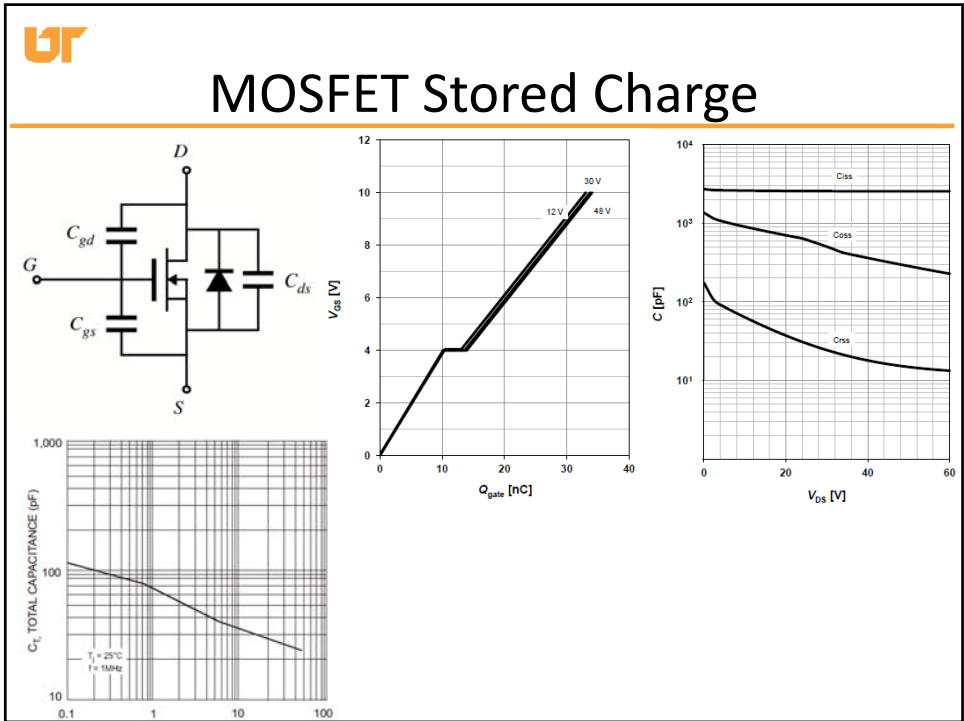
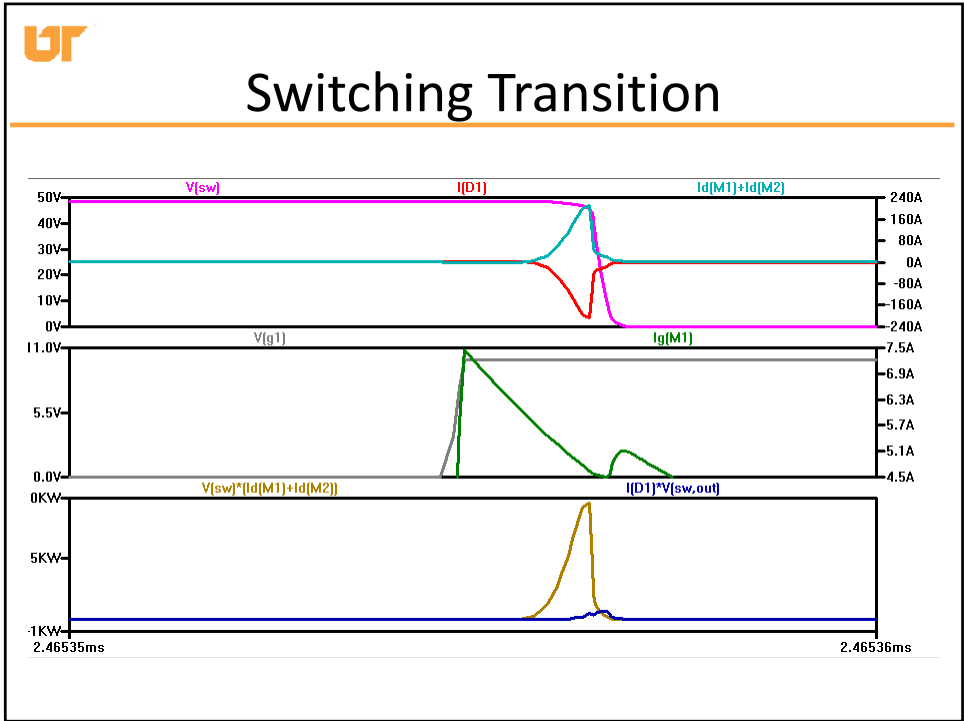


Schottky Diode



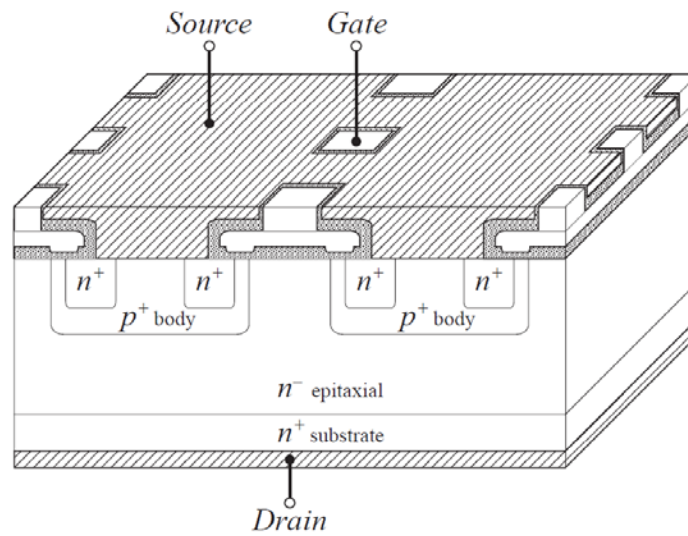
L	C_{out}	f_s	Diode	η (Sim)
22uH	22uF	202k	Si (FR)	93.9%
22uH	22uF	202k	Si Schottky	96.9%



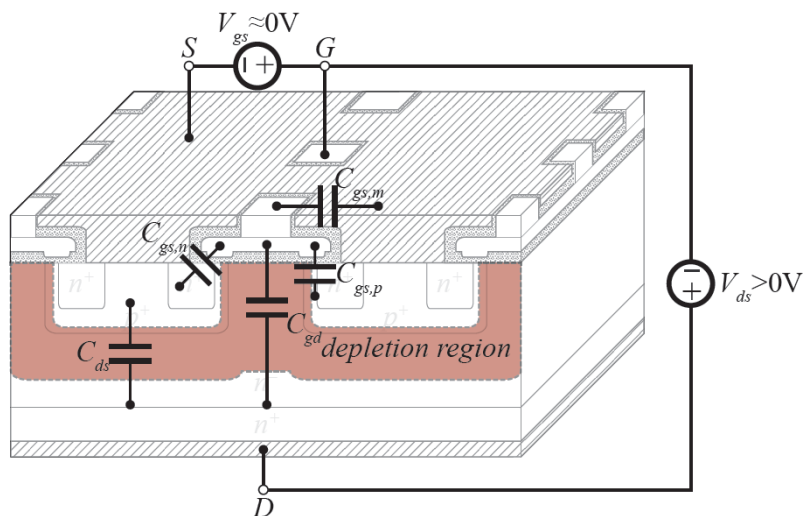




MOSFET Cross Section

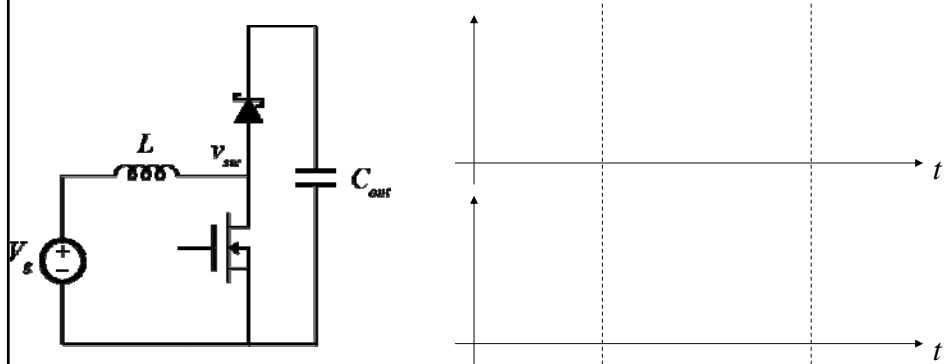


MOSFET Depletion capacitance

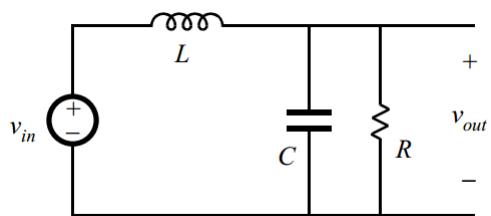




Device Capacitances

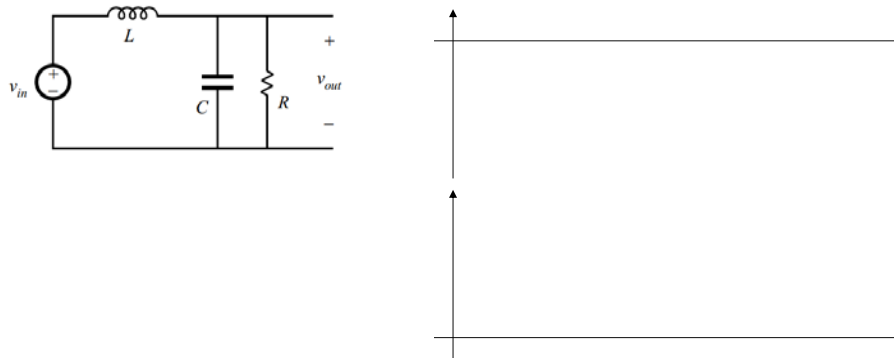


Resonant Circuits

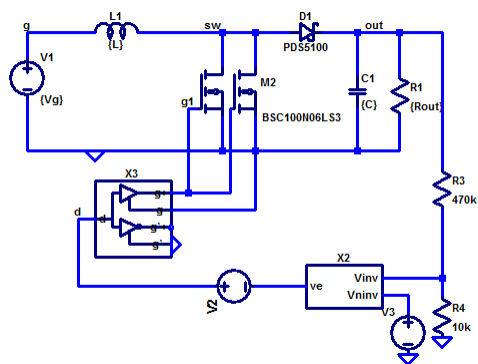


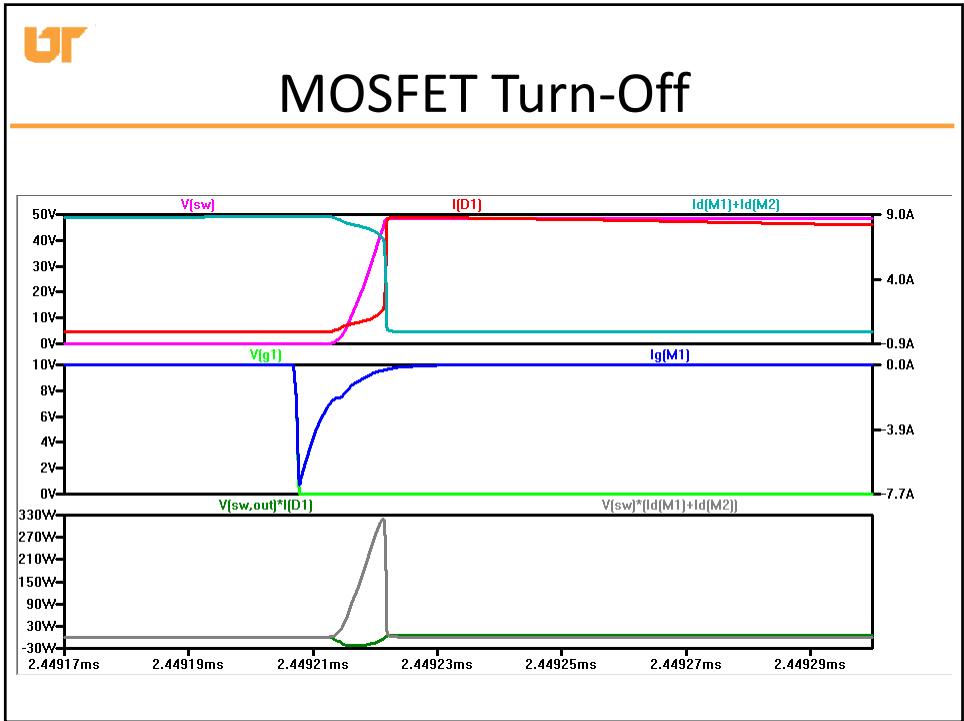
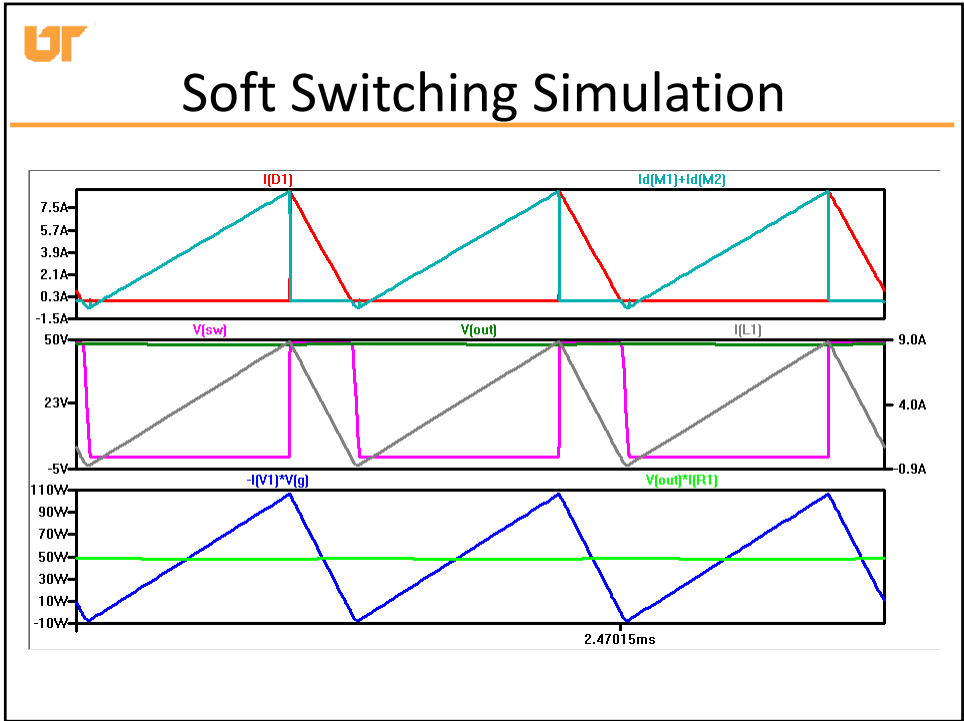


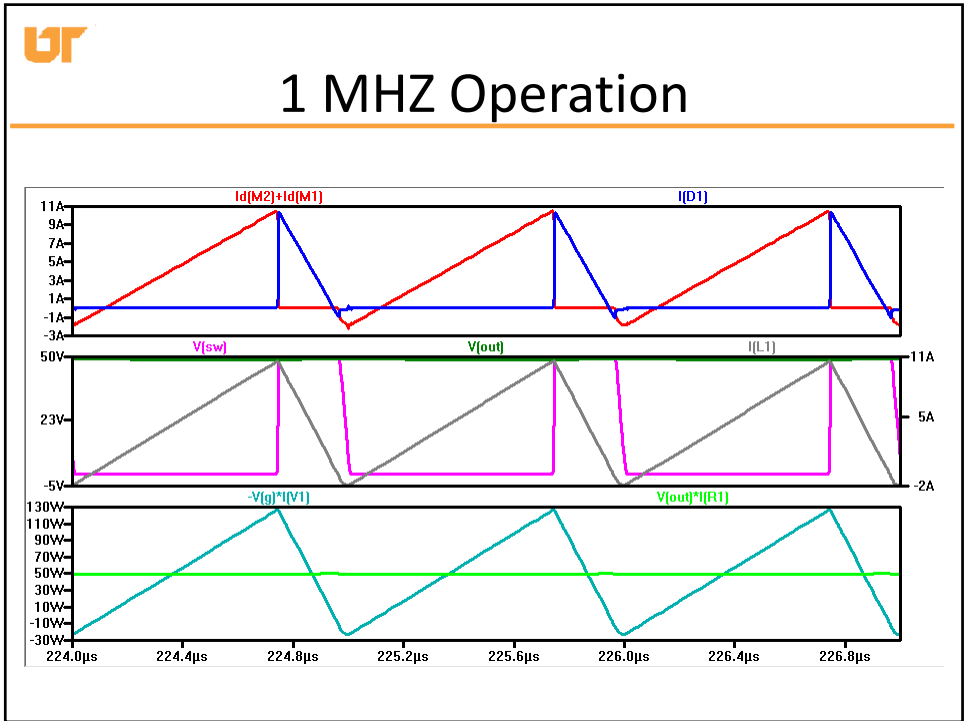
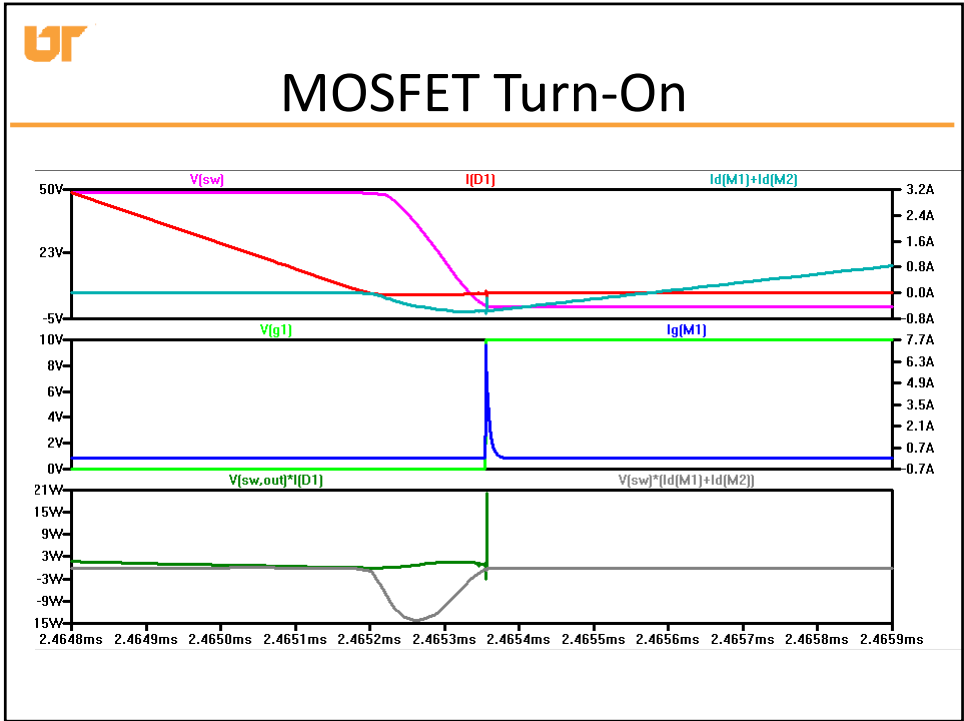
Resonant Circuit Analysis



Soft Switching









MOSFET Turn-On

