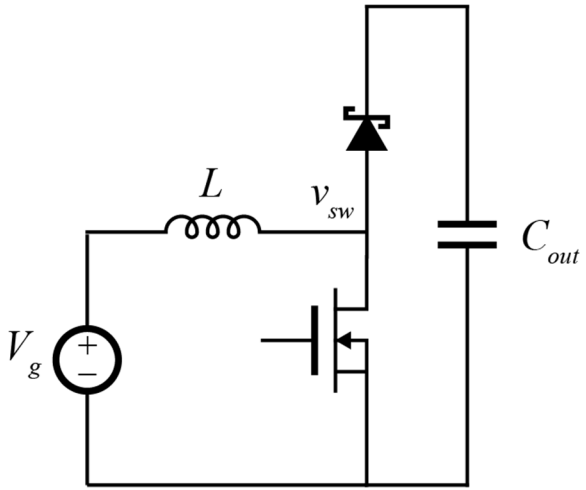
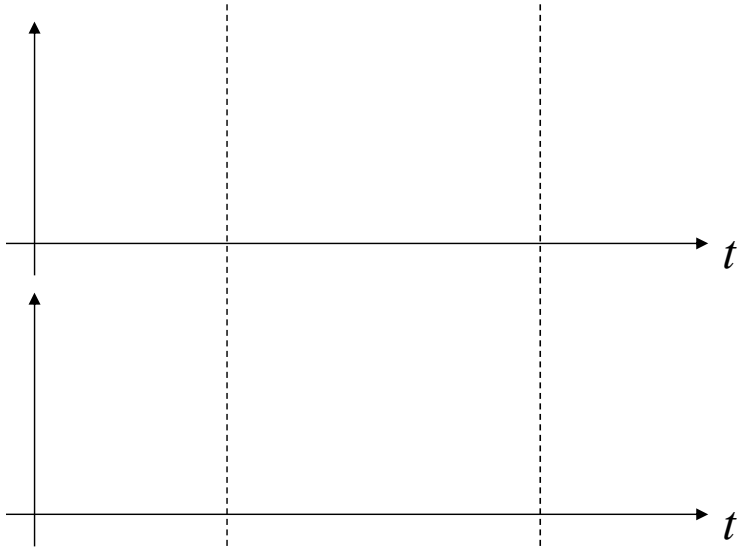
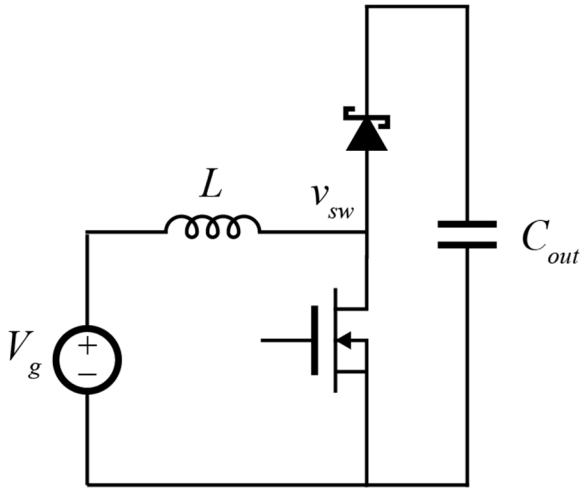
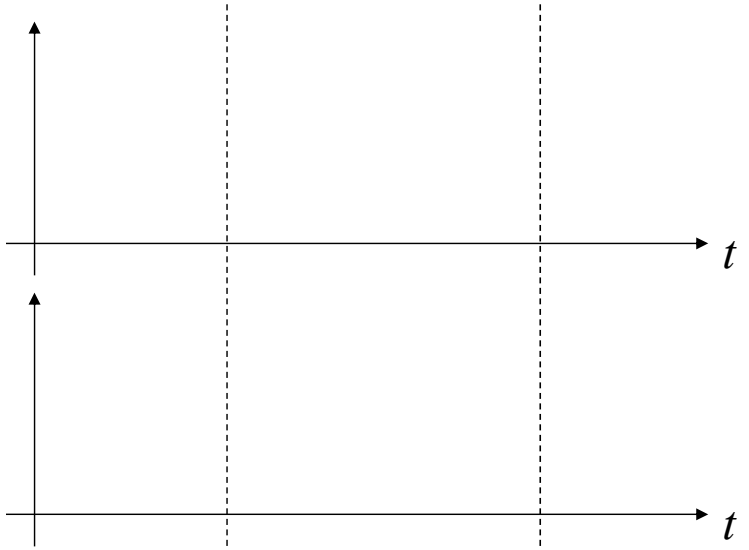
Device Capacitances



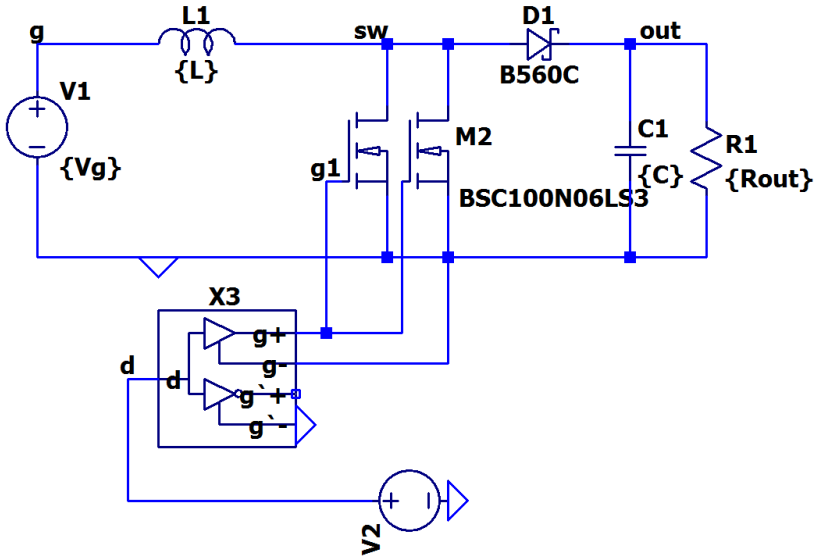


Device Capacitances



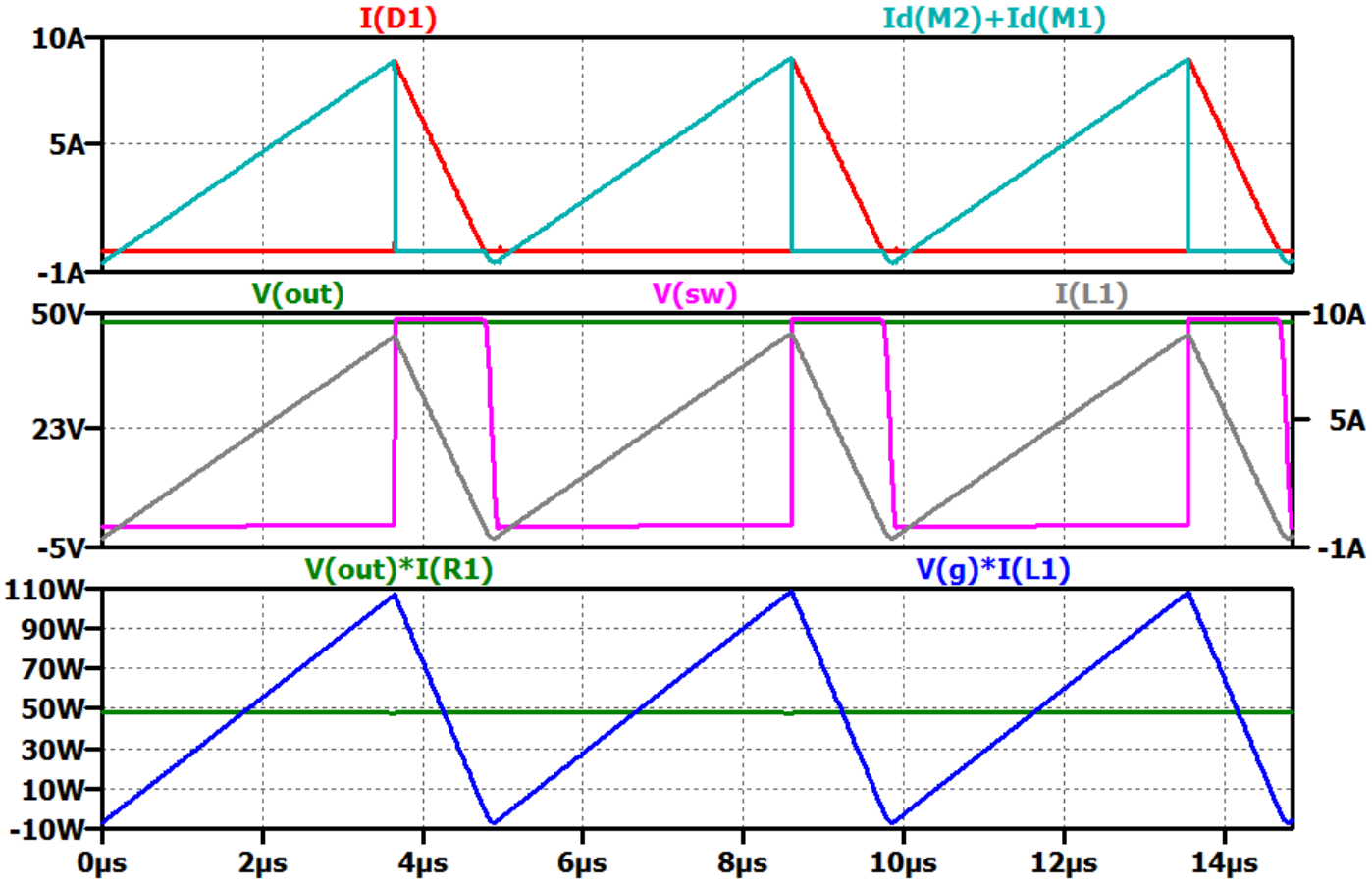


DCM: Soft Switching

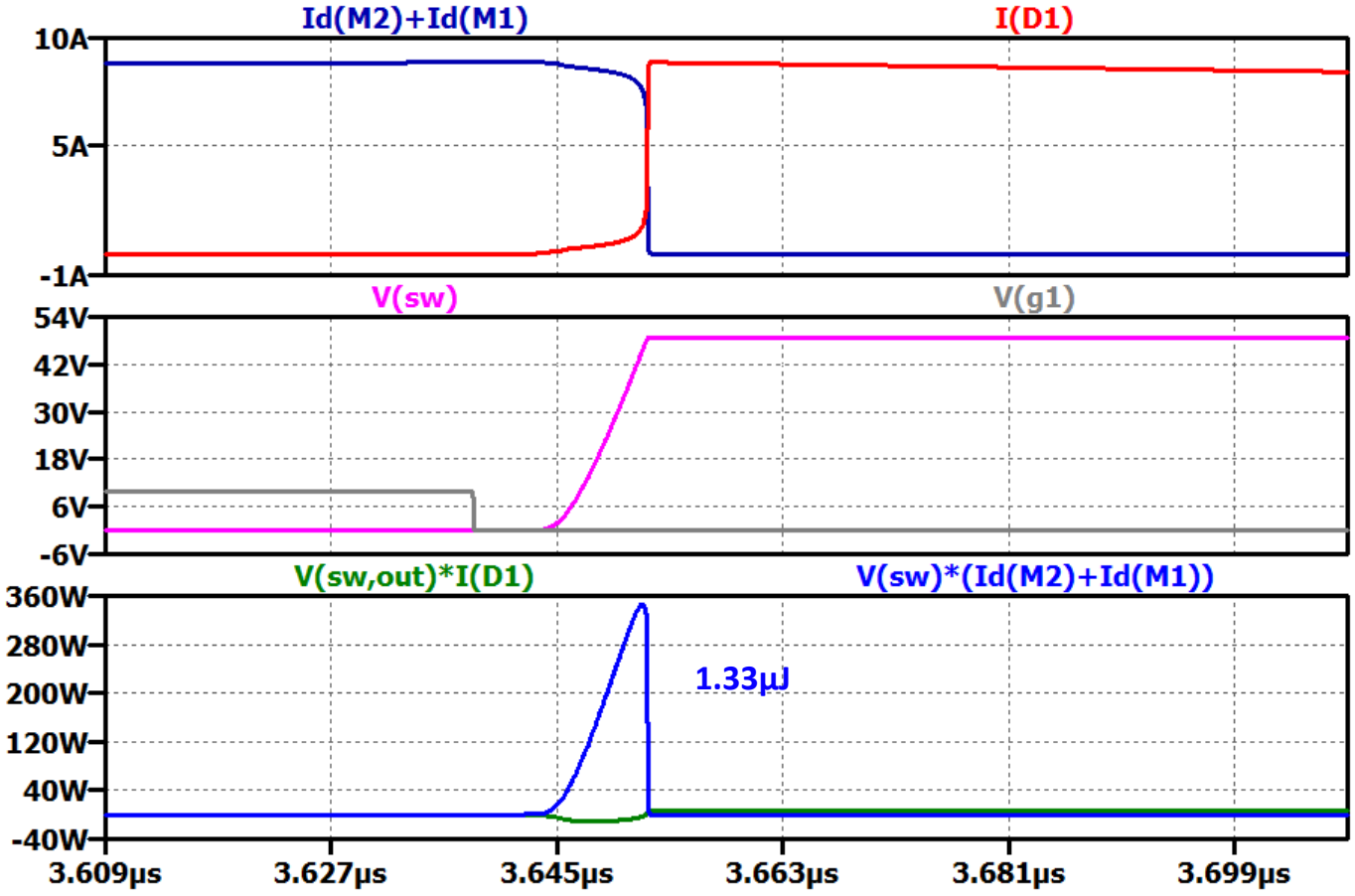


L	C_{out}	f_s	Diode	η (Sim)
22uH	22uF	202k	Si (FR)	93.9%
22uH	22uF	202k	Si Schottky	95.8%
4.6uH	22uF	202k	Si Schottky	98.2%

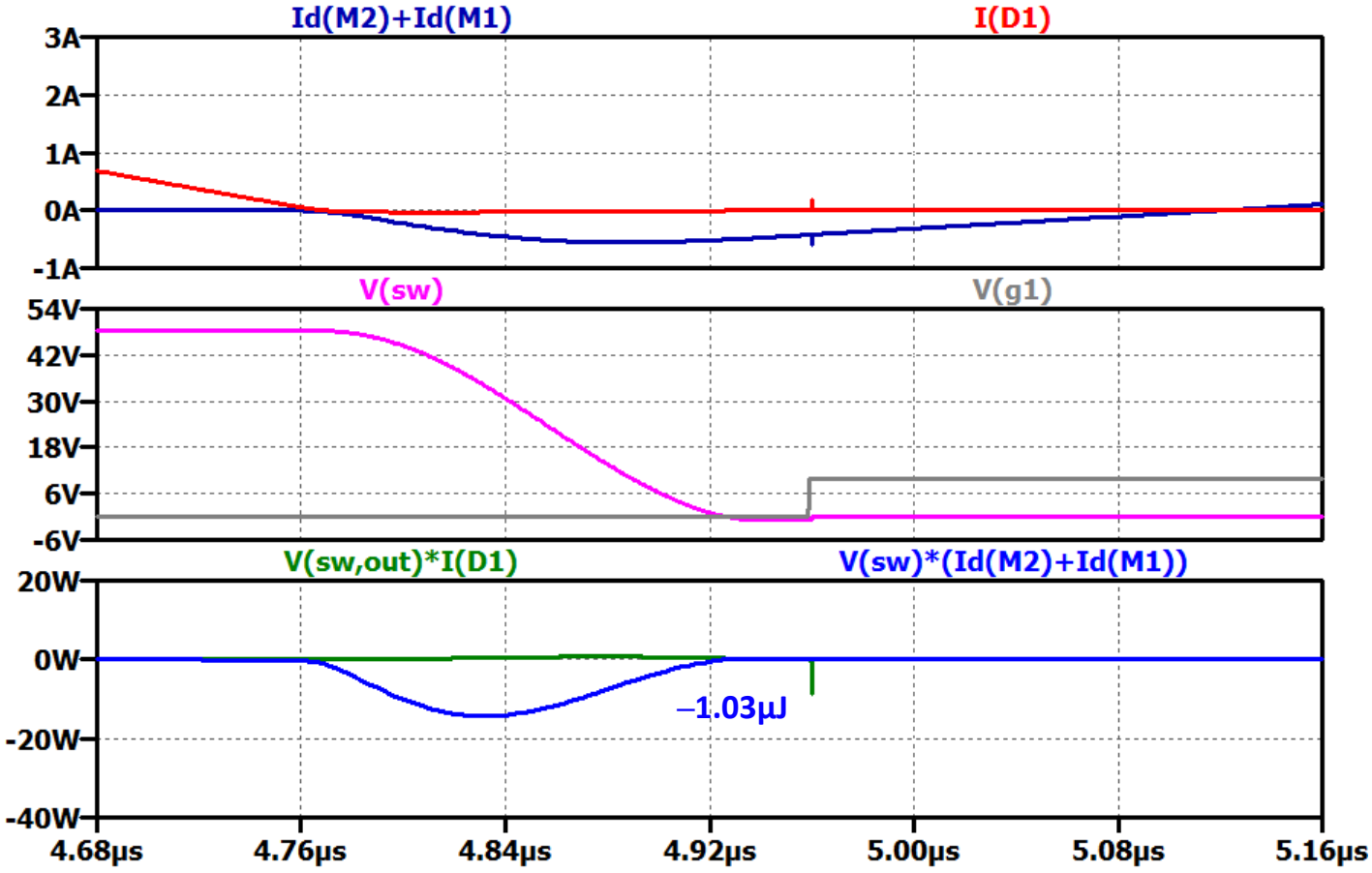
DCM Simulation



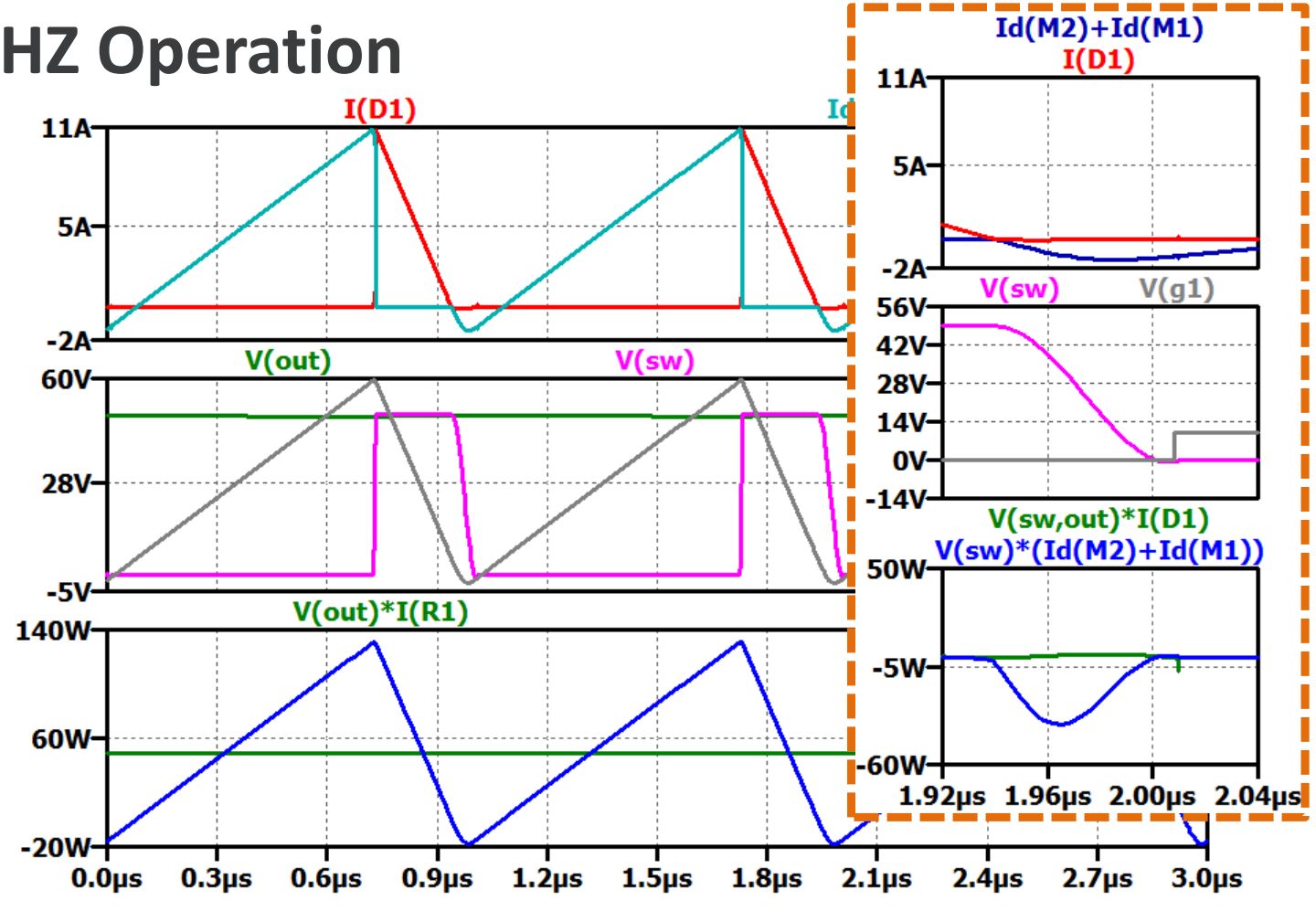
MOSFET Turn-Off



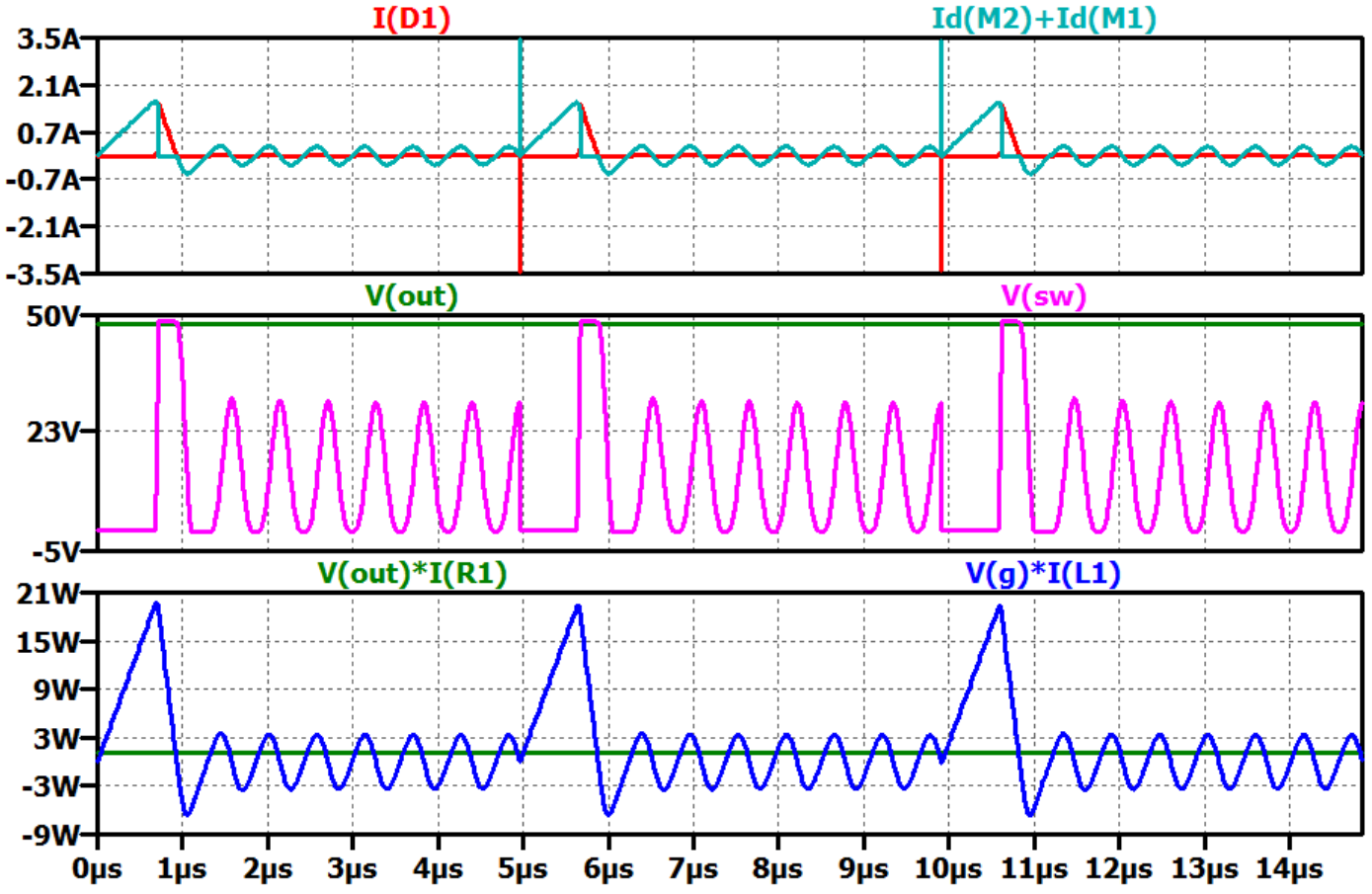
MOSFET Turn-On



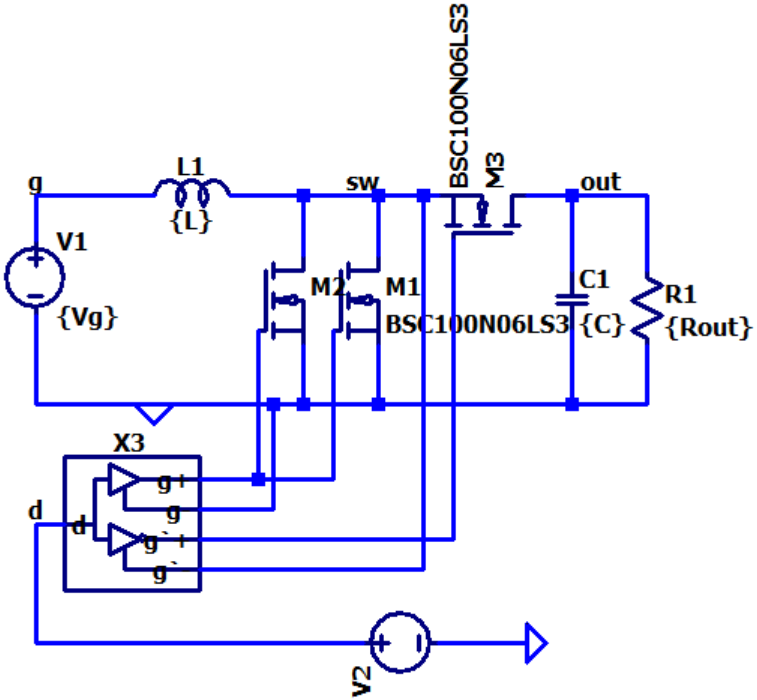
1 MHZ Operation



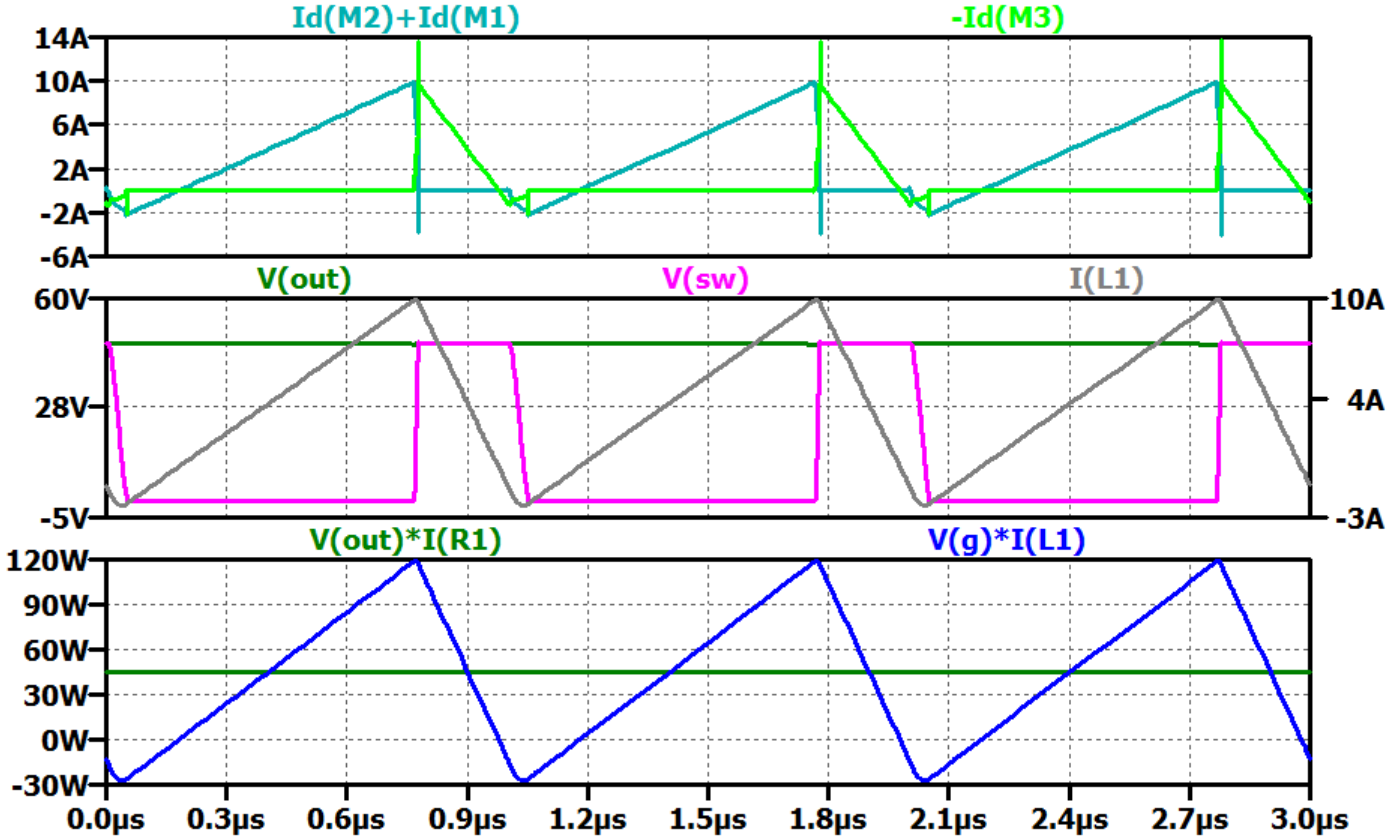
Low Power Operation



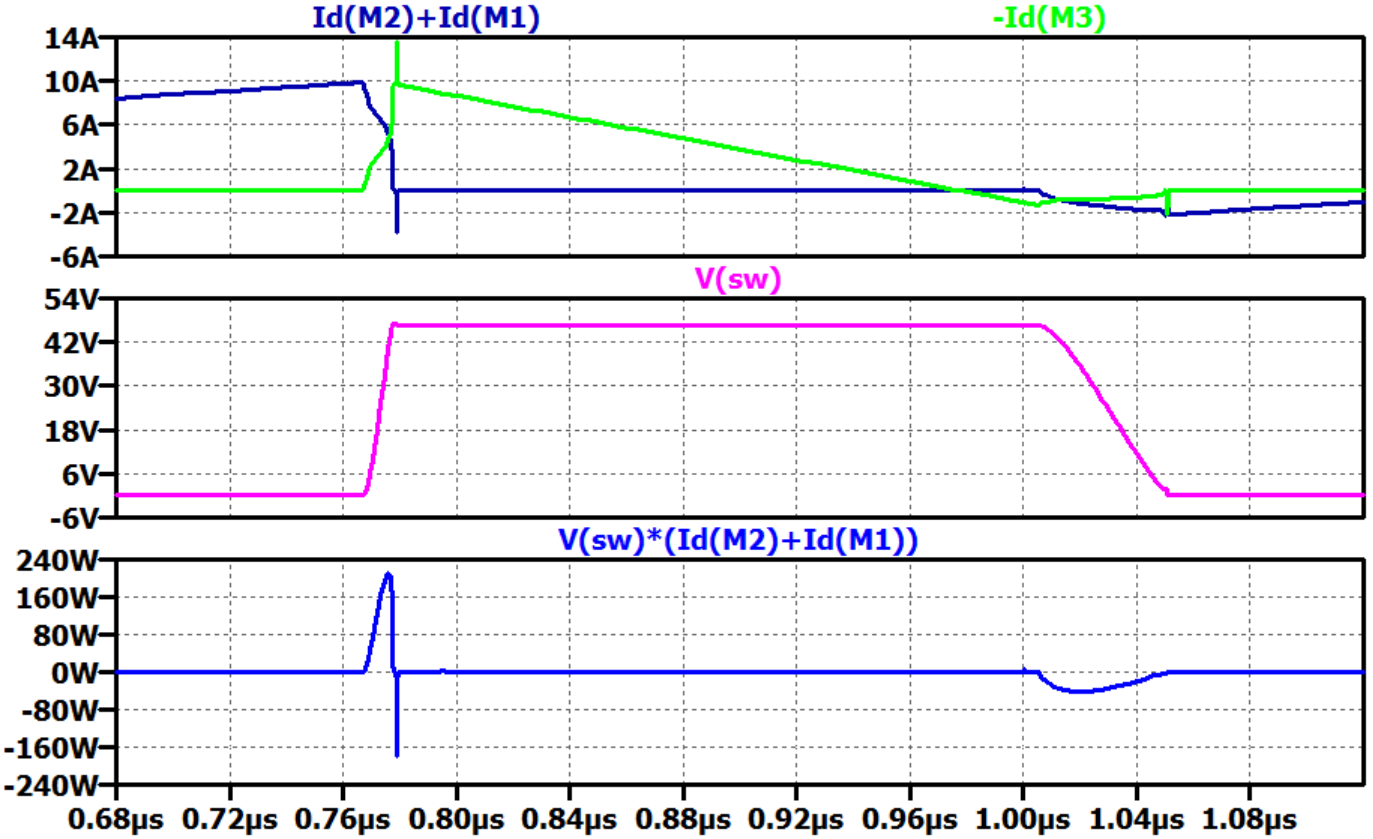
Synchronous Operation



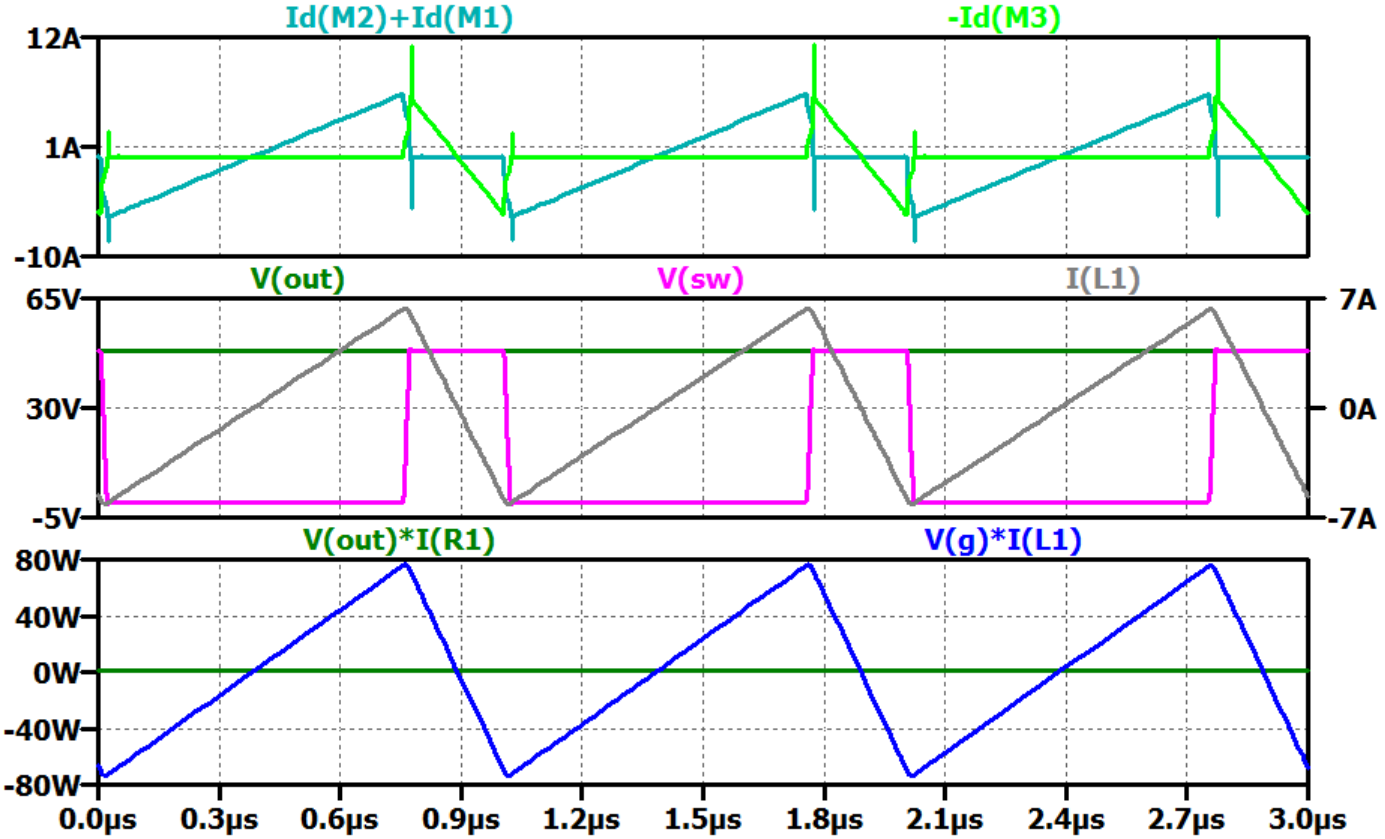
Synchronous Simulation



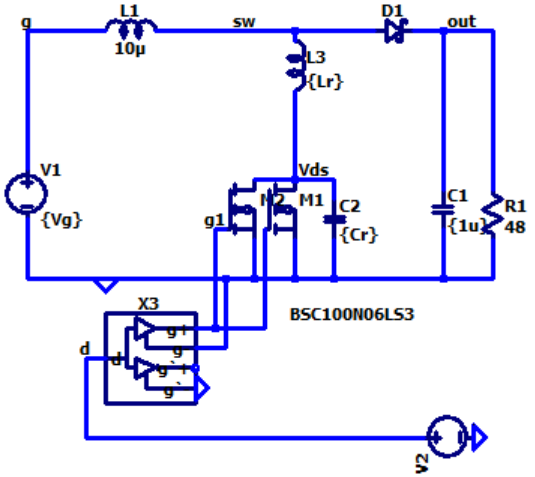
Switching Transitions



Low Power Operation

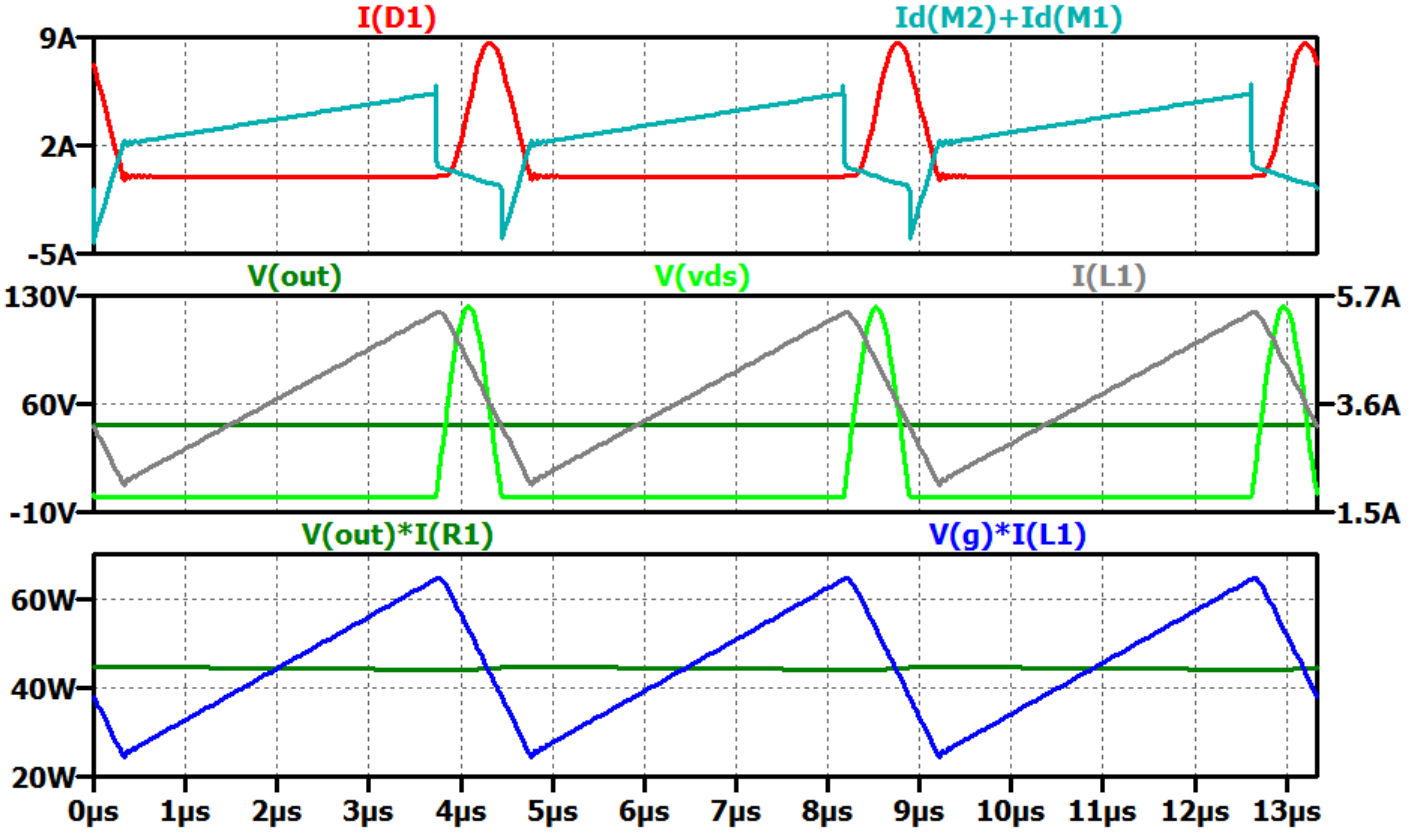


Resonant Operation

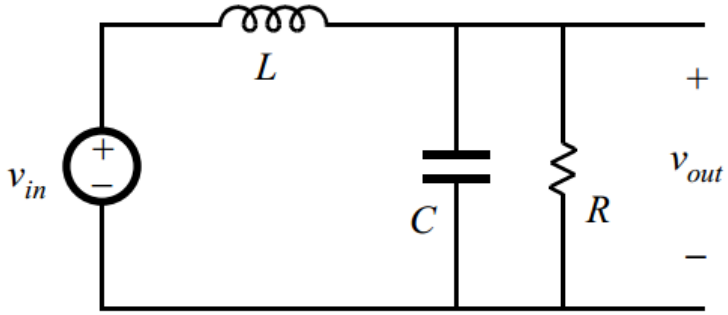


Switching	*L*	C_{out}	f_s	Diode	η (Sim)
Hard	22uH	22uF	202k	Si (FR)	93.9%
Hard	22uH	22uF	202k	Si Schottky	95.8%
Soft	4.65uH	22uF	202k	Si Schottky	98.4%
Soft	710nH	4.4uF	1 MHz	Si Schottky	98.2%
Soft	710nH	4.4uF	1 MHz	MOSFET	99.6%
Resonant	10uH + 2.4uH	1uF + 10nF	225 kHz	Si Schottky	98.6%
Resonant	10uH + 2.4uH	1uF + 10nF	225 kHz	MOSFET	99.96%

Resonant Boost Converter



Resonant Circuits



Resonant Circuit Analysis