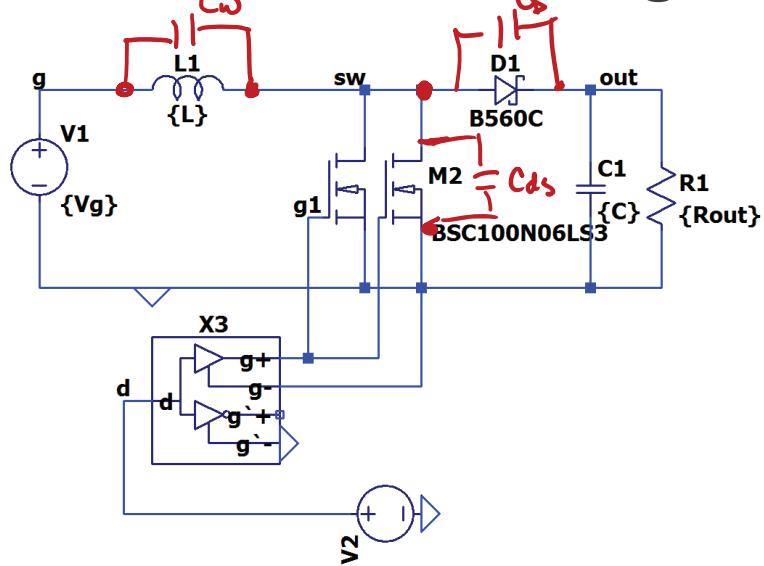


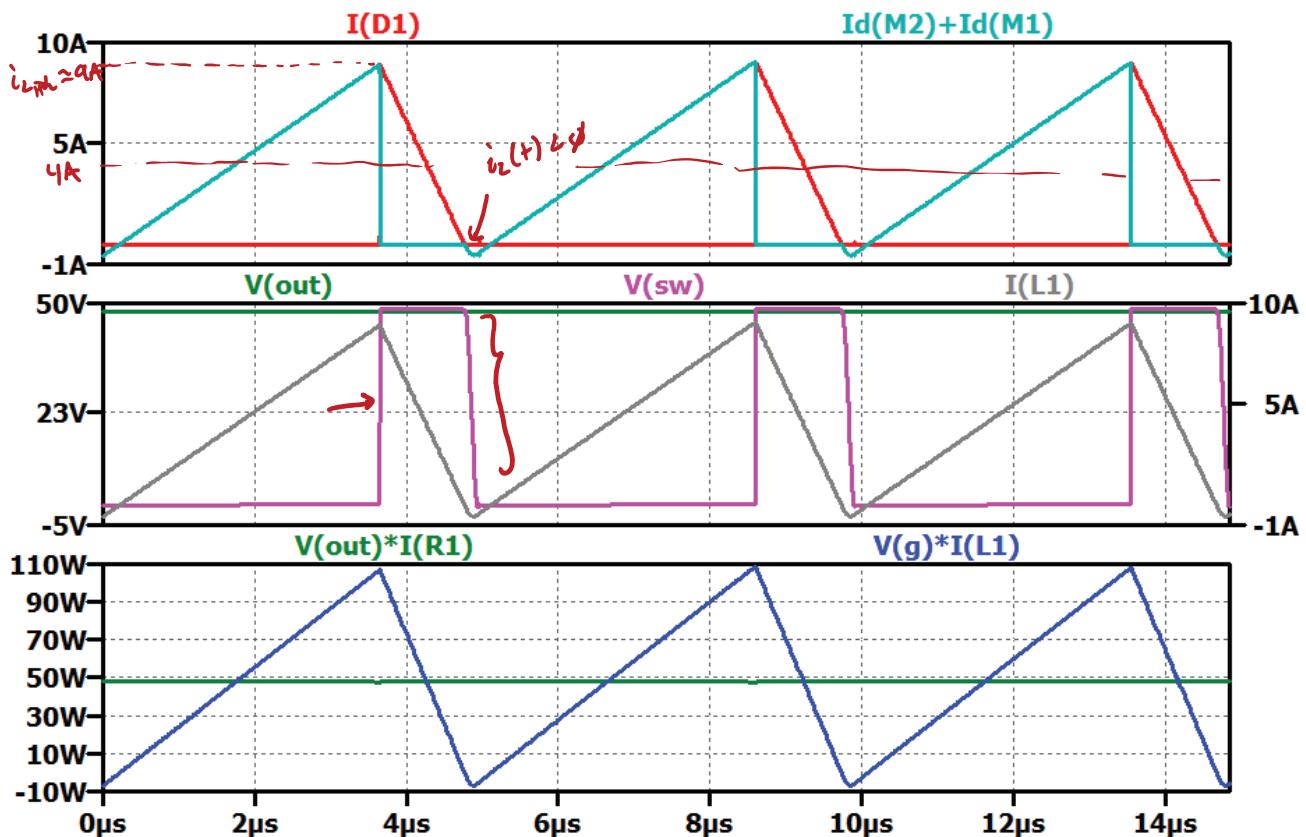
DCM: Soft Switching



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% ↓ 2.1% ↑ in η

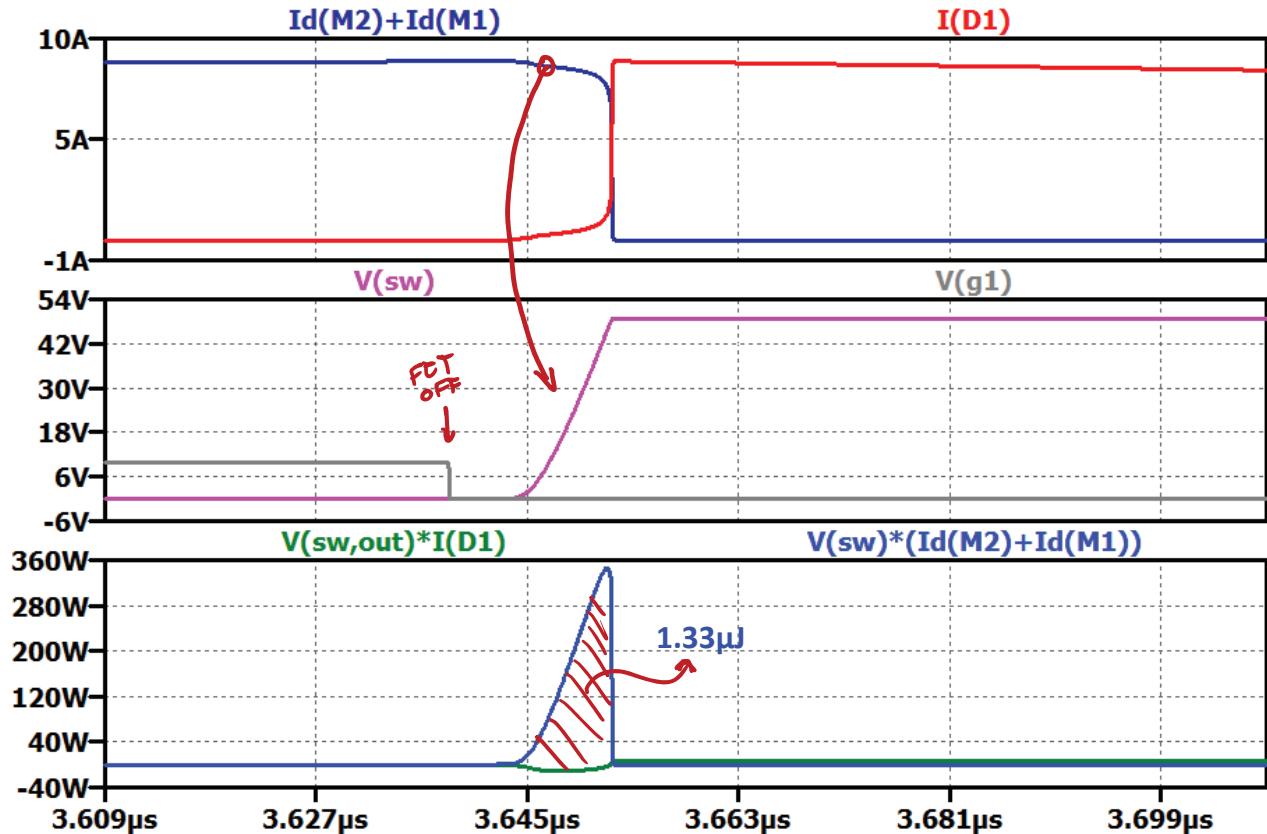
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DCM Simulation



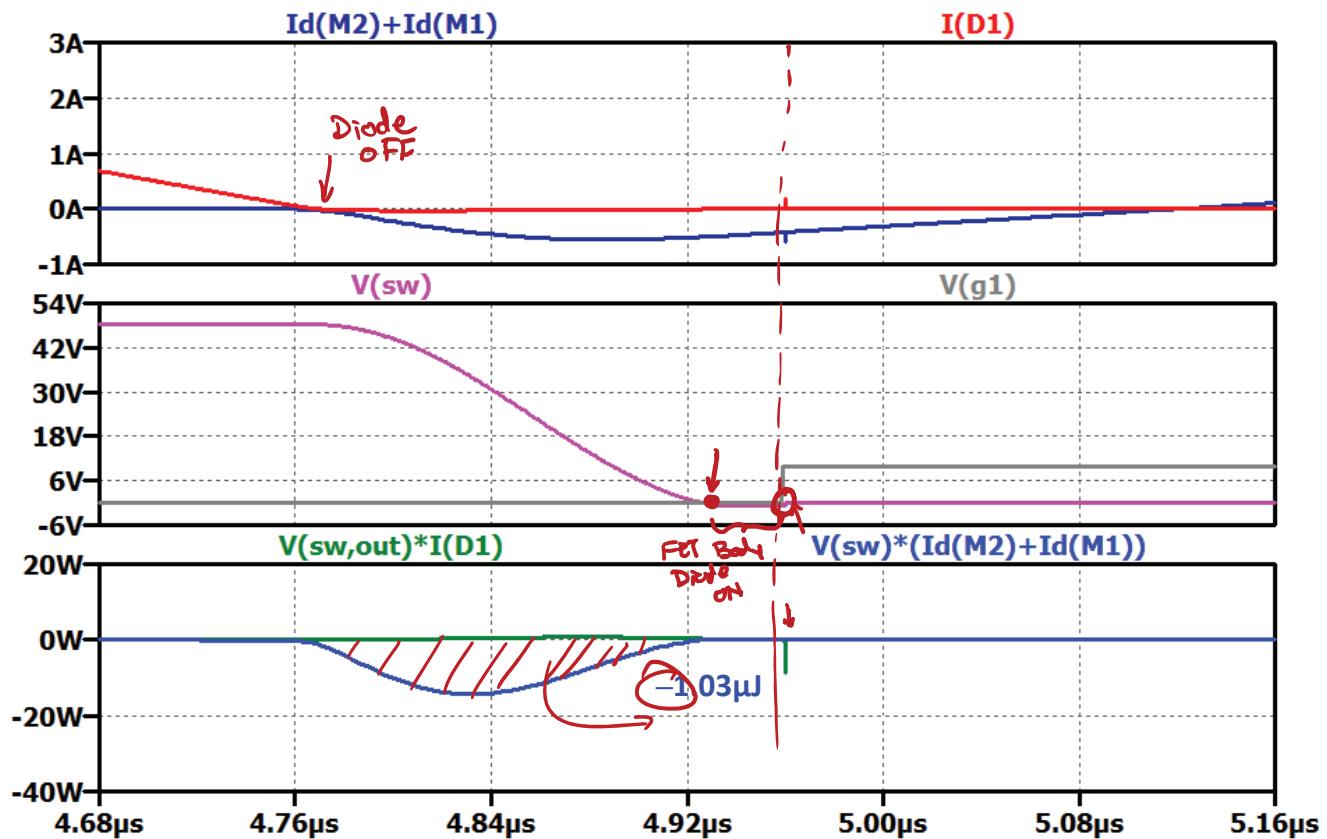
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MOSFET Turn-Off



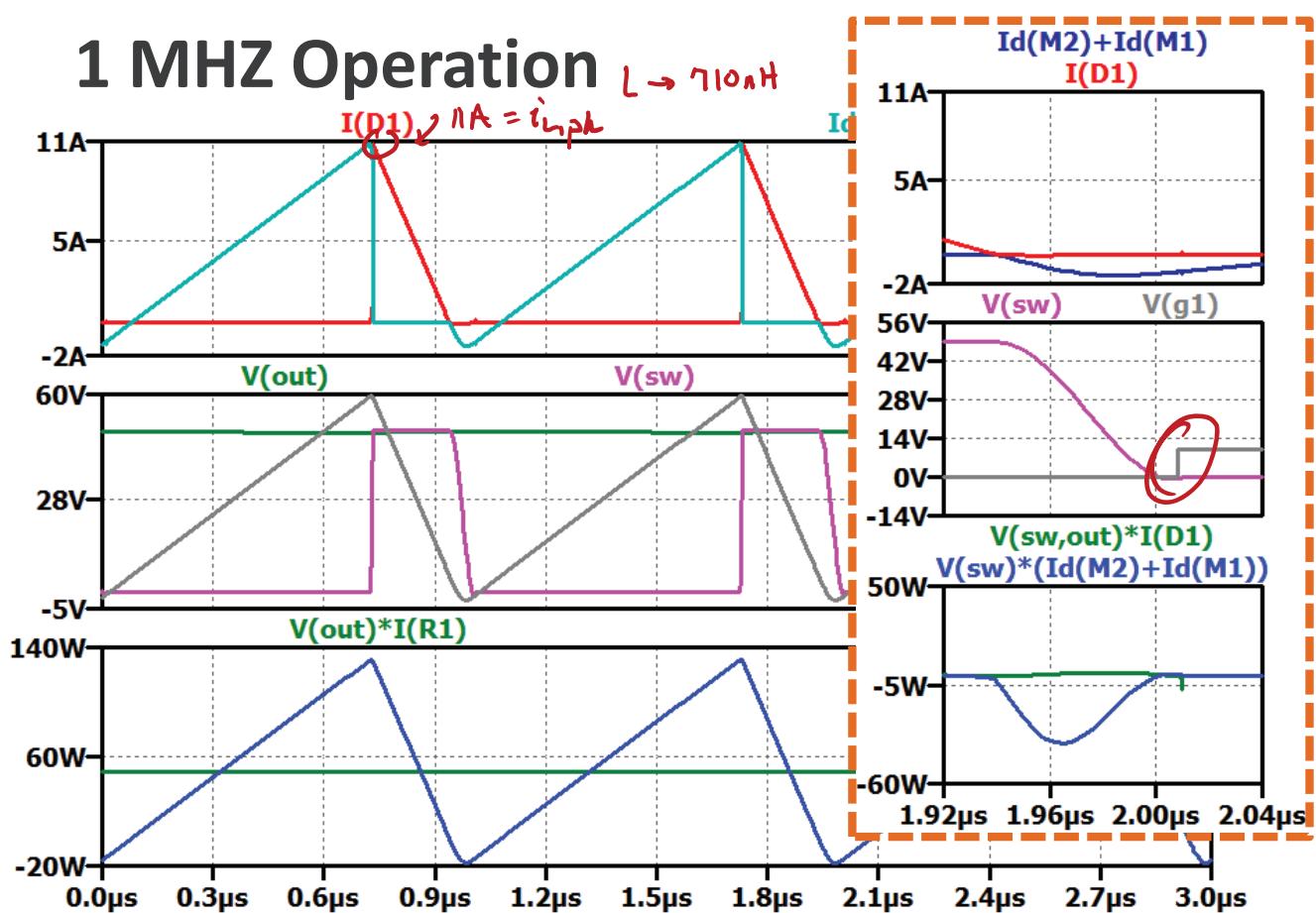
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MOSFET Turn-On



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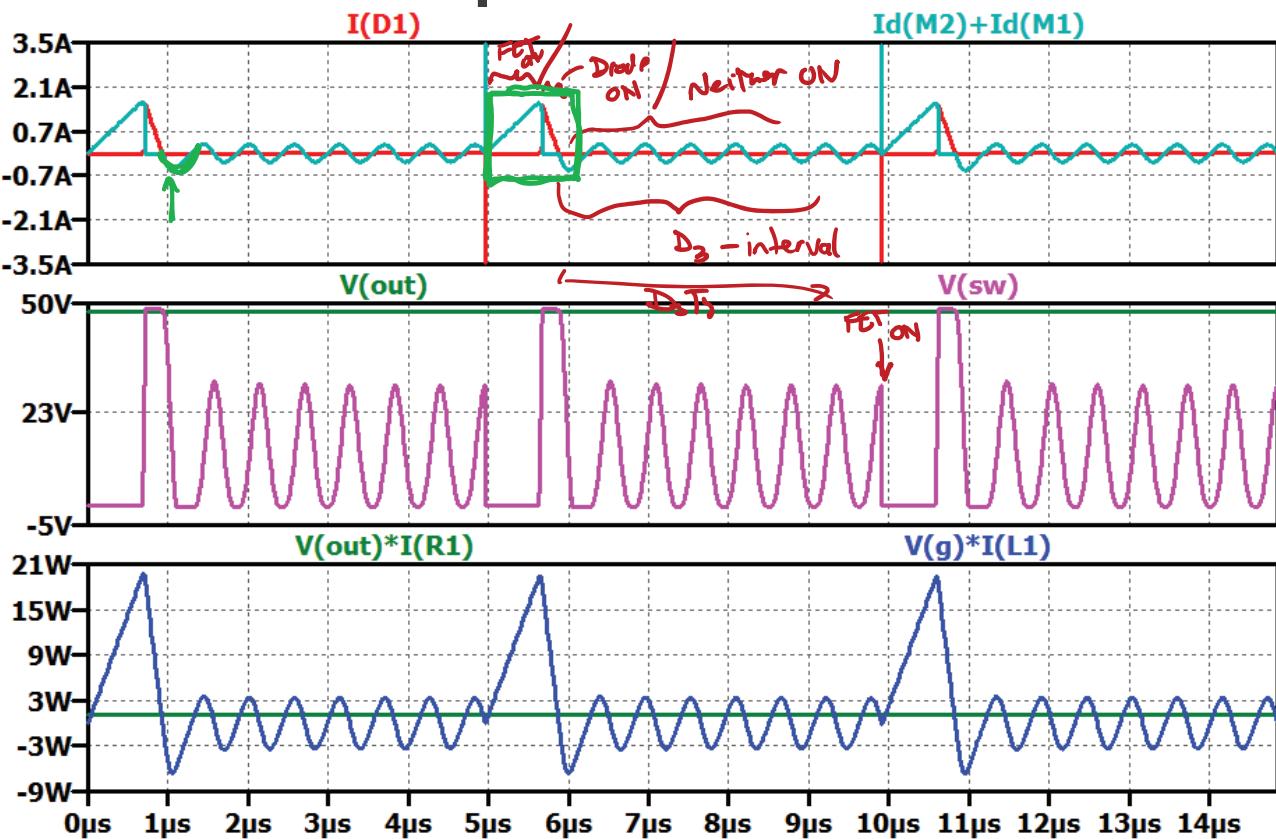
1 MHZ Operation



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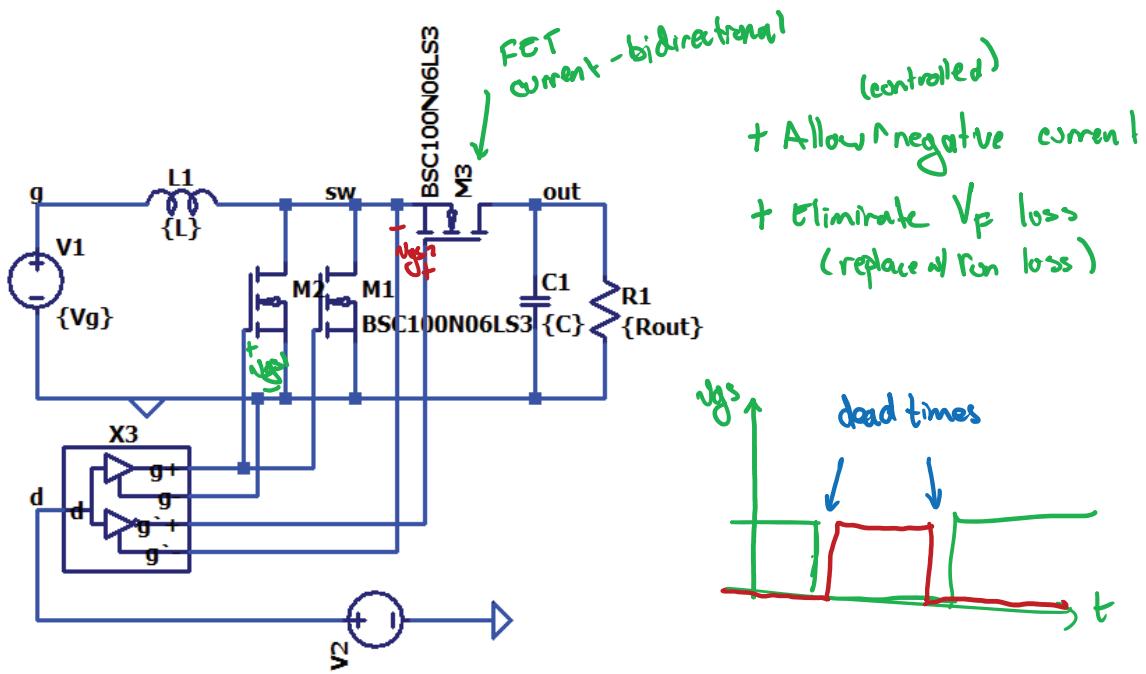
Low Power Operation

$$P_{out} = 1W, \eta = 68\%$$



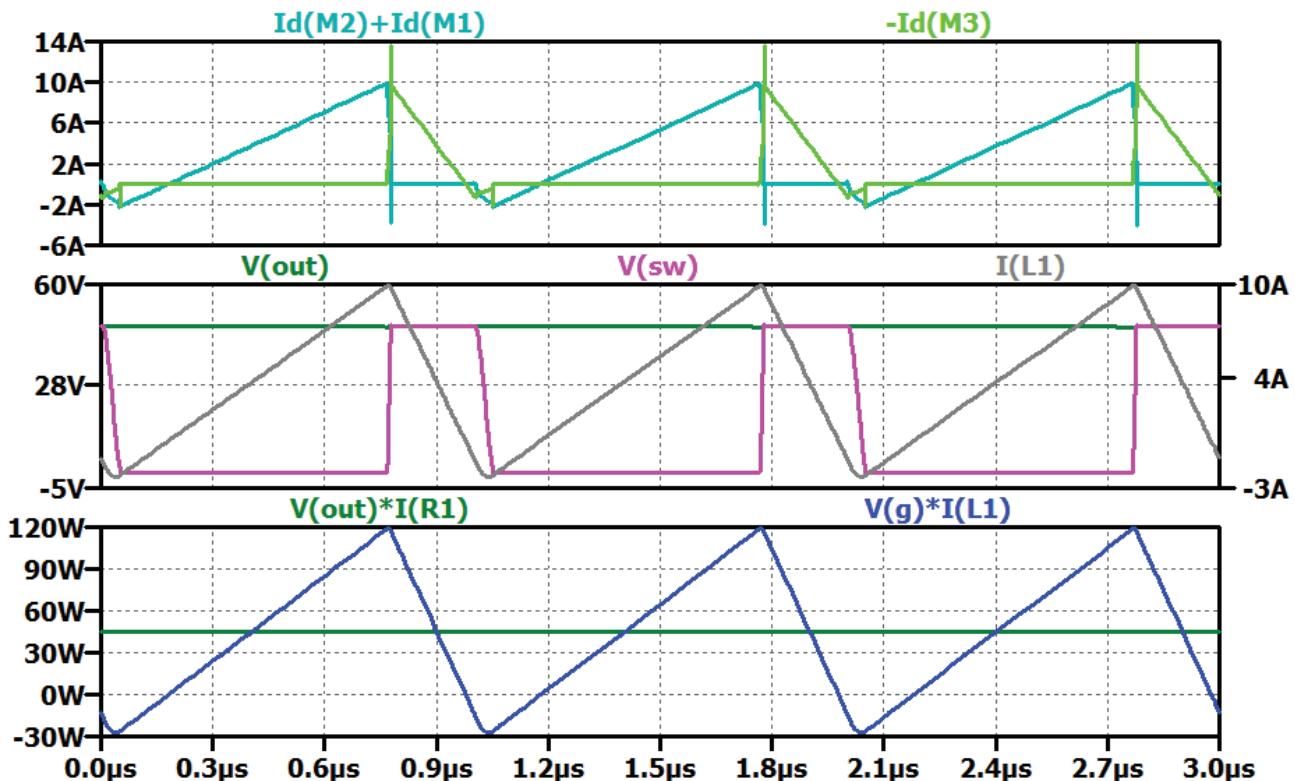
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Synchronous Operation

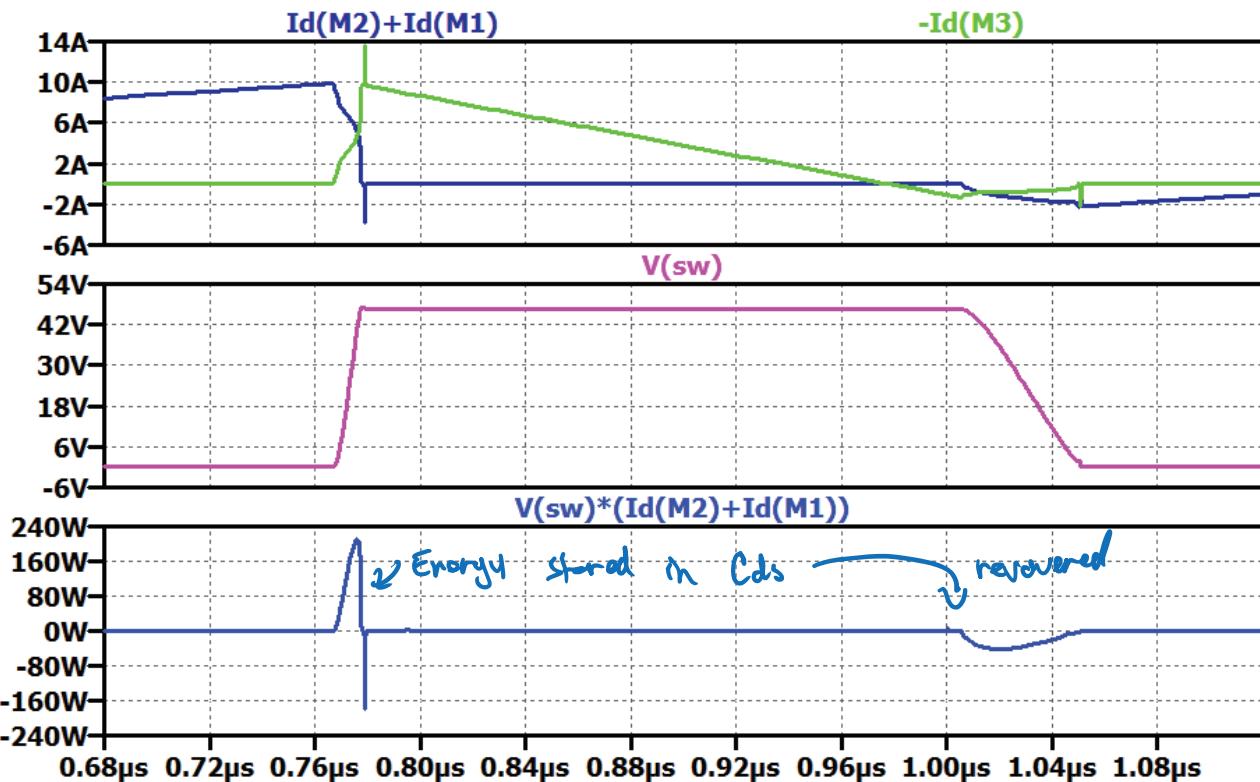


Synchronous Simulation

$$P_{out} = 48W$$

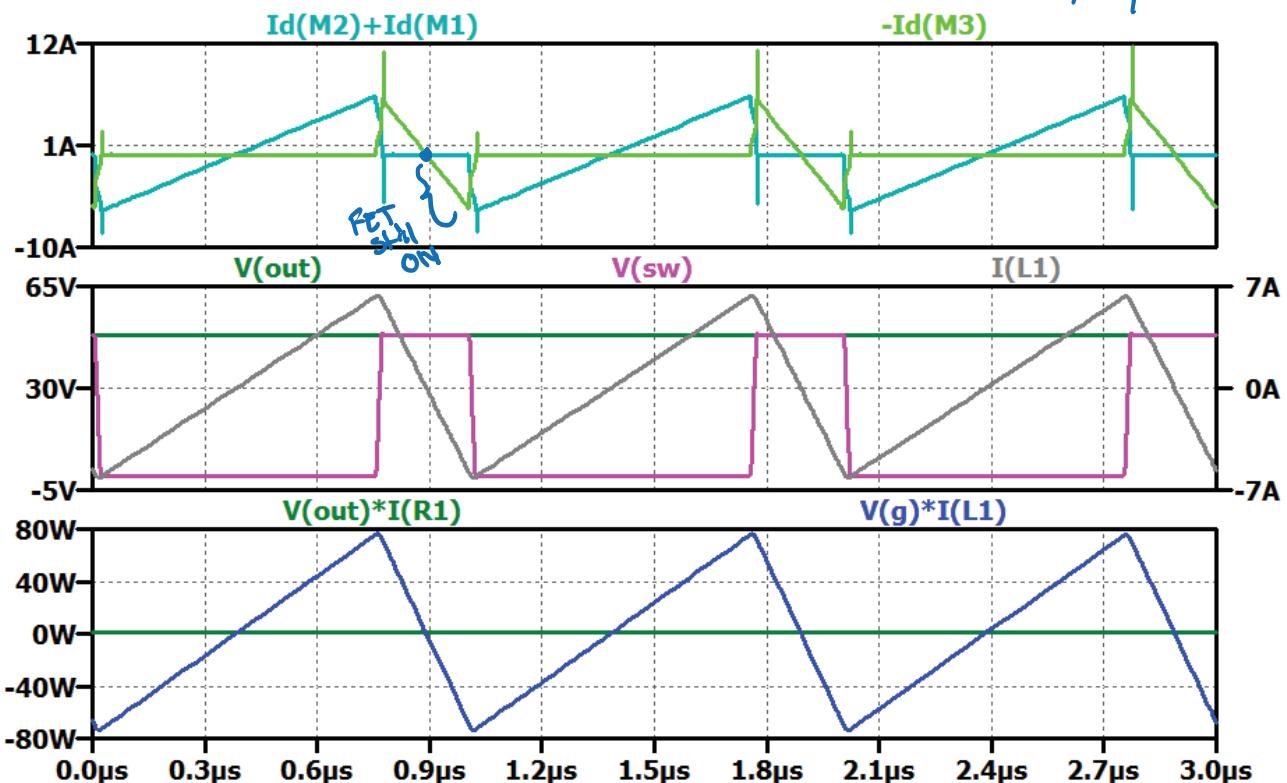


Switching Transitions

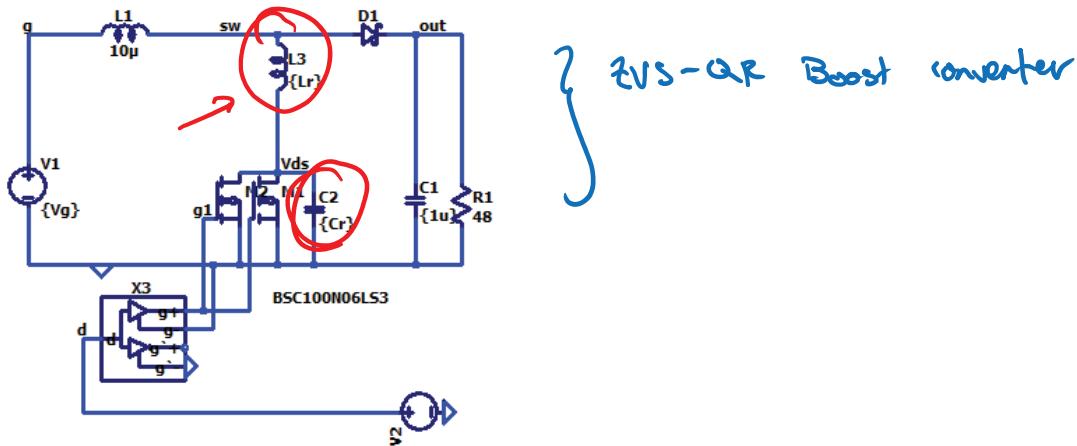


Low Power Operation

$$P_{out} = 1W, \eta = 91\%$$



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%

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Resonant Boost Converter

