

## State Plane Solution: Averaging Step

$$\langle i_{out} \rangle_{T_s} = I_{out} = \langle i_c \rangle_{T_s} = \frac{1}{T_s} \int_0^{T_s} i_c dt$$

$$I_{out} = \frac{1}{T_s} \left[ \int_0^{t_1} i_c dt + \int_{t_1}^{t_2} i_c dt + \dots \right]$$

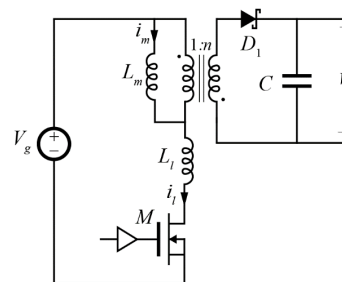
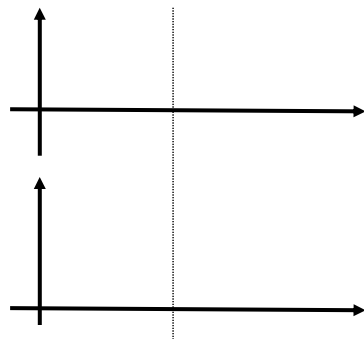
$$I_{out} = \frac{1}{T_s} \left[ \frac{I_1 - I_u}{2} t_1 + \cancel{g_c} + \frac{I_2 - I_s}{2} t_3 + \cancel{g_c} \right]$$

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②
③
④

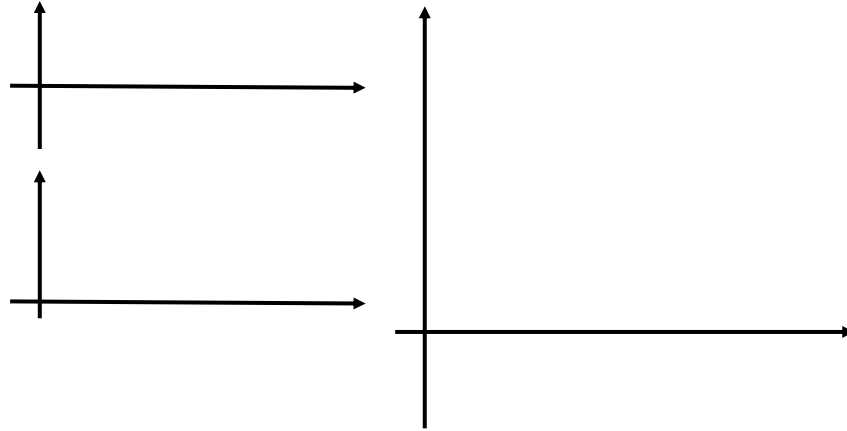
## Normalized Period

## Matlab Solution

## CCM Flyback: Ringing Due to $L_l$



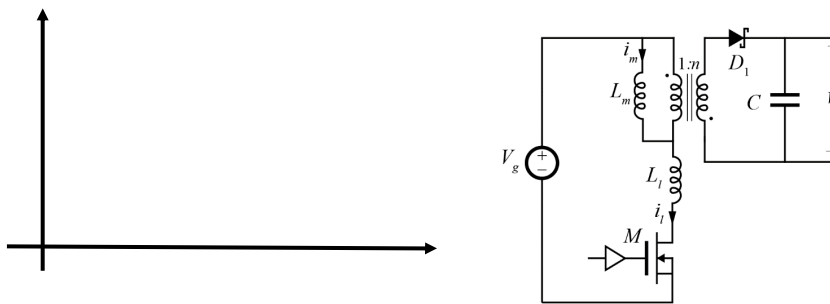
## MOSFET turn off



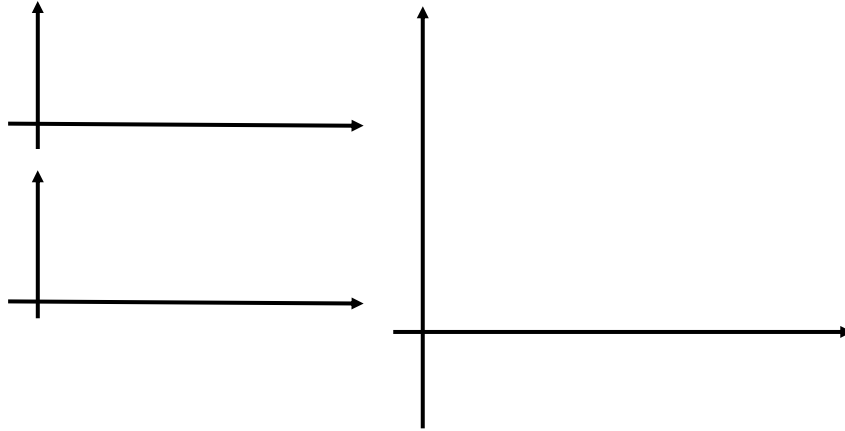
## Leakage Voltage Stress

## Leakage Switching Loss

## CCM Flyback: Clamping Circuit



## Clamped State Plane



## Snubber Implementations

