

Lab 4 - MOSFET Operation

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ECE 3110

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1 Introduction

In this lab we are measuring the characteristics of operation of a MOSFET, specifically the 2N2700.

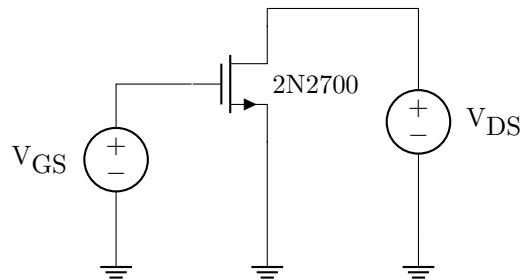


Figure 1: Circuit for the Lab.

Finding k_n :

$$k_n = k'_n \left(\frac{W}{L} \right)$$

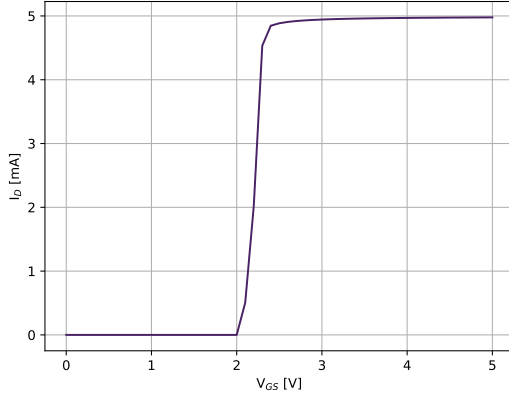
$$V_{OV} = V_{GS} - V_t$$

$$i_D = \frac{1}{2} k'_n \left(\frac{W}{L} \right) V_{OV}^2$$

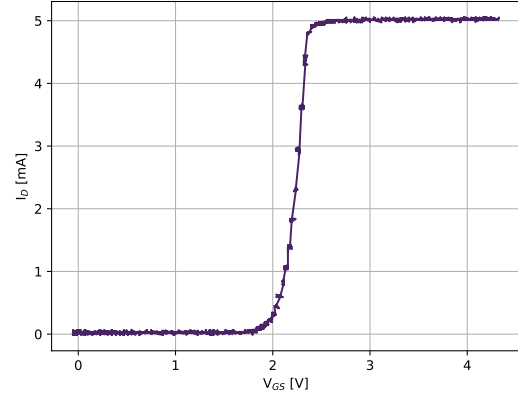
$$i_D = \frac{1}{2} k_n (V_{GS} - V_t)^2$$

$$k_n = \frac{2i_D}{(V_{GS} - V_t)^2} \quad (1)$$

2 Results

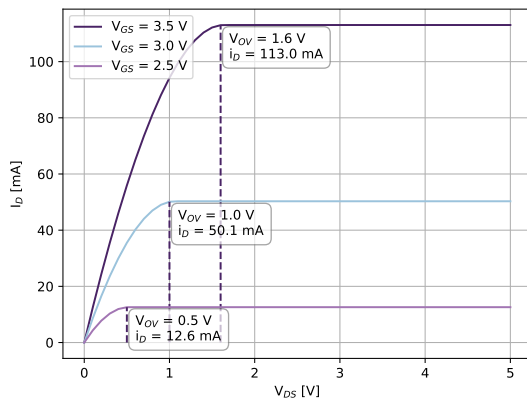


(a) Simulated

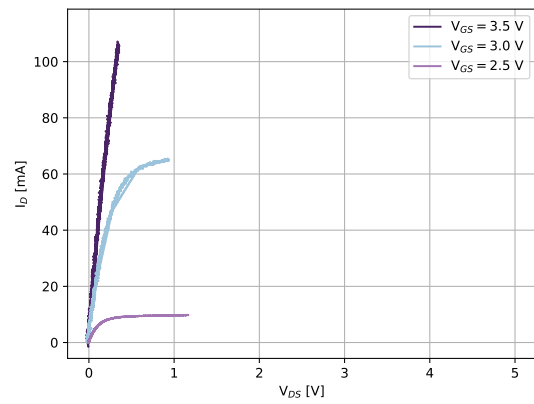


(b) Measured

Figure 2: Sweep V_{GS}



(a) Simulated



(b) Measured

Figure 3: Sweep V_{GS}

3 Conclusion