

ELEC-313  
Lab 6: MOSFET Characterization

November 4, 2013

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## 1 Objective

The objective is to construct and observe the operation of a CMOS inverter and NAND gate.

## 2 Equipment

- ALD1105 Dual N-channel and P-channel matched pair MOSFET
- Power supply: HP E3631A
- Oscilloscope: Agilent 54622D
- Function generator: HP 33120A

## 3 Schematics

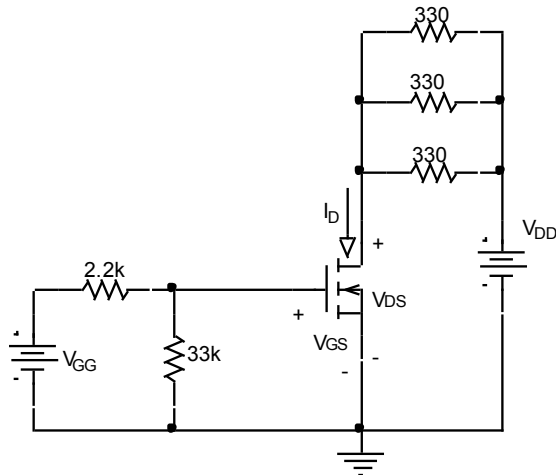


Figure 1: Circuit used in this lab.

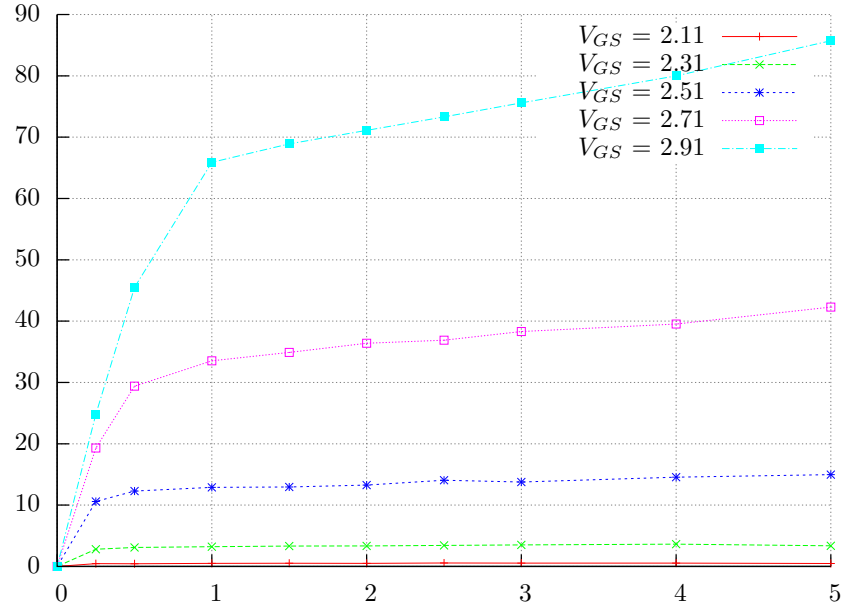


Figure 2: Graph

## 4 Procedure

### 4.1 DC Characteristics

### 4.2 Small-Signal Transconductance

## 5 Results

## 6 Conclusion

## 7 Equations

$$g_m = \frac{I_{D2} - I_{D1}}{V_{GS2} - V_{GS1}} \quad (1)$$