

ELEC-313  
Lab 6: MOSFET Characterization

November 4, 2013

Date Performed: October 30, 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

Transistor: 1N4007

Power supply: HP E3631A

Resistors:  $330\ \Omega$  (x3),  $2.2\ \text{k}\Omega$ ,  $33\ \text{k}\Omega$

Multimeters: Fluke 8010A (x2),

## 3 Schematics

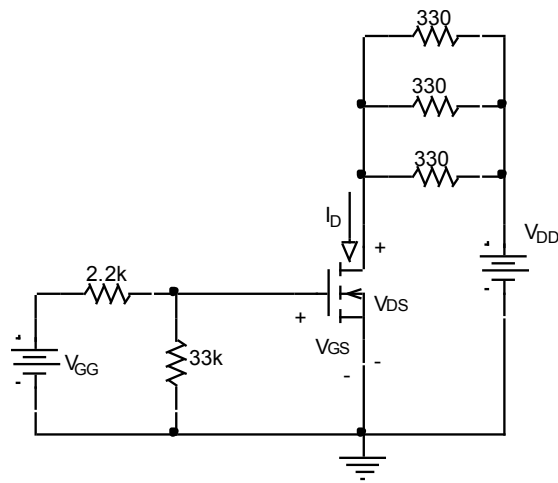


Figure 1: Circuit used in this lab.

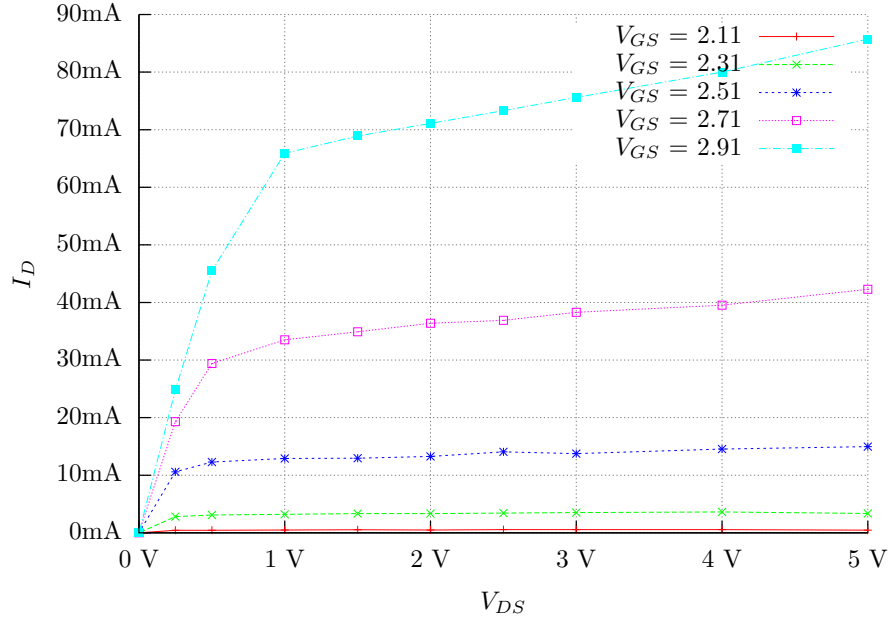


Figure 2: Graph

## 4 Procedure

### 4.1 DC Characteristics

### 4.2 Small-Signal Transconductance

## 5 Results

## 6 Conclusion

## 7 Equations

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