

Essentials of MOSFETs

Lecture 3.5: MOS CV

Short Problem

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Assume a P-type semiconductor with the following properties

$$N_A = 5.0 \times 10^{17} \text{ cm}^{-3}$$

$$t_{ox} = 1.5 \text{ nm} \quad \kappa_{ox} = 3.9 \quad \kappa_{Si} = 11.8$$

$$N_V = 1.83 \times 10^{19} \text{ cm}^{-3}$$

$$T = 300 \text{ K}$$

and answer the following question.

- 1) What is the high frequency capacitance in F/cm² for the MOS capacitor biased in strong inversion?