

MOSFET Design Calculations I

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Create an Excel spreadsheet that calculates V_{FB} , ϕ_F (or ϕ_B), ϕ_S , T_{ox} , C_{ox} , V_{ox} and V_T for an NFET with a n+poly gate for N_A values of 10^{15} , 5×10^{15} , 10^{16} , 5×10^{16} , 10^{17} , and $5 \times 10^{17}/\text{cm}^3$ and T_{ox} values of 5, 10 and 15 nm. Use the format shown below.

							5 nm	10 nm	15 nm	5 nm	10 nm	15 nm	5 nm	10 nm	15 nm
N_A	ϕ_F	ϕ_S	V_{FB}	T_{ox}	T_{ox}	T_{ox}	C_{ox}	C_{ox}	C_{ox}	V_{ox}	V_{ox}	V_{ox}	V_T	V_T	V_T
cm^{-3}	V	V	V	nm	nm	nm	F/cm_2	F/cm^2	F/cm^2	V	V	V	V	V	V
10^{15}				5	10	15									
5×10^{15}				5	10	15									
10^{16}				5	10	15									
5×10^{16}				5	10	15									
10^{17}				5	10	15									
5×10^{17}				5	10	15									