$_{l}ogic_{l}evelsouracceptablevoltagesforourCMOS"ON"staterangefrom2VtoVDD(whichtypicallyisaround\pm0.25V$

$$V_{on} \geq 2V \tag{1}$$

$$V_{on} > 4 \cdot V_{Tn} \tag{2}$$

$$V_{on} = 2V \tag{3}$$

$$4 \cdot V_{Tn} < 2V \Rightarrow V_{Tn} < 500mV \tag{4}$$

$_{d}imensioningandasurfaceconcentrationforourP-wellof^{22}\frac{1}{m^3}$
$\approx$
$0.28V$
$N_p =$
$10^{16}\frac{1}{cm^3} =$
$10^{22}\frac{1}{m^3}$
$W_{dmax} \approx$
$2.73 \cdot$
$10^{-7}m =$
$273nm$
$_{r}ange_{a}nd_{s}traggleorusethewebtoollinkedintheimplantchapter.$
$N_B \approx$
$7 \cdot$
$10^{14}\frac{1}{cm^3} =$
$7 \cdot$
$10^{20}\frac{1}{m^3}$

$$N_p - N_B = 10^{22}\frac{1}{m^3} - 7 \cdot 10^{20}\frac{1}{m^3} = 9.3 \cdot 10^{21}\frac{1}{m^3} \tag{5}$$

$\approx$
$2\mu m$
$_{d}rive_{i}n$

$$x_e = 2 \cdot \sqrt{D_e \cdot t_e} \gg 2 \cdot \sqrt{D_v \cdot t_v} = x_v \tag{6}$$