



(saturation region)

$$I_{DS} = \frac{K_p}{2} \frac{W}{L} (V_{GS} - V_{TH})^2 \quad (\text{square-law Equation})$$

$$K_{Pn} = \mu_n \cdot \frac{\epsilon_{ox}}{t_{ox}} = \mu_n C_{ox}$$

C_{ox} : capacitance of the oxide layer

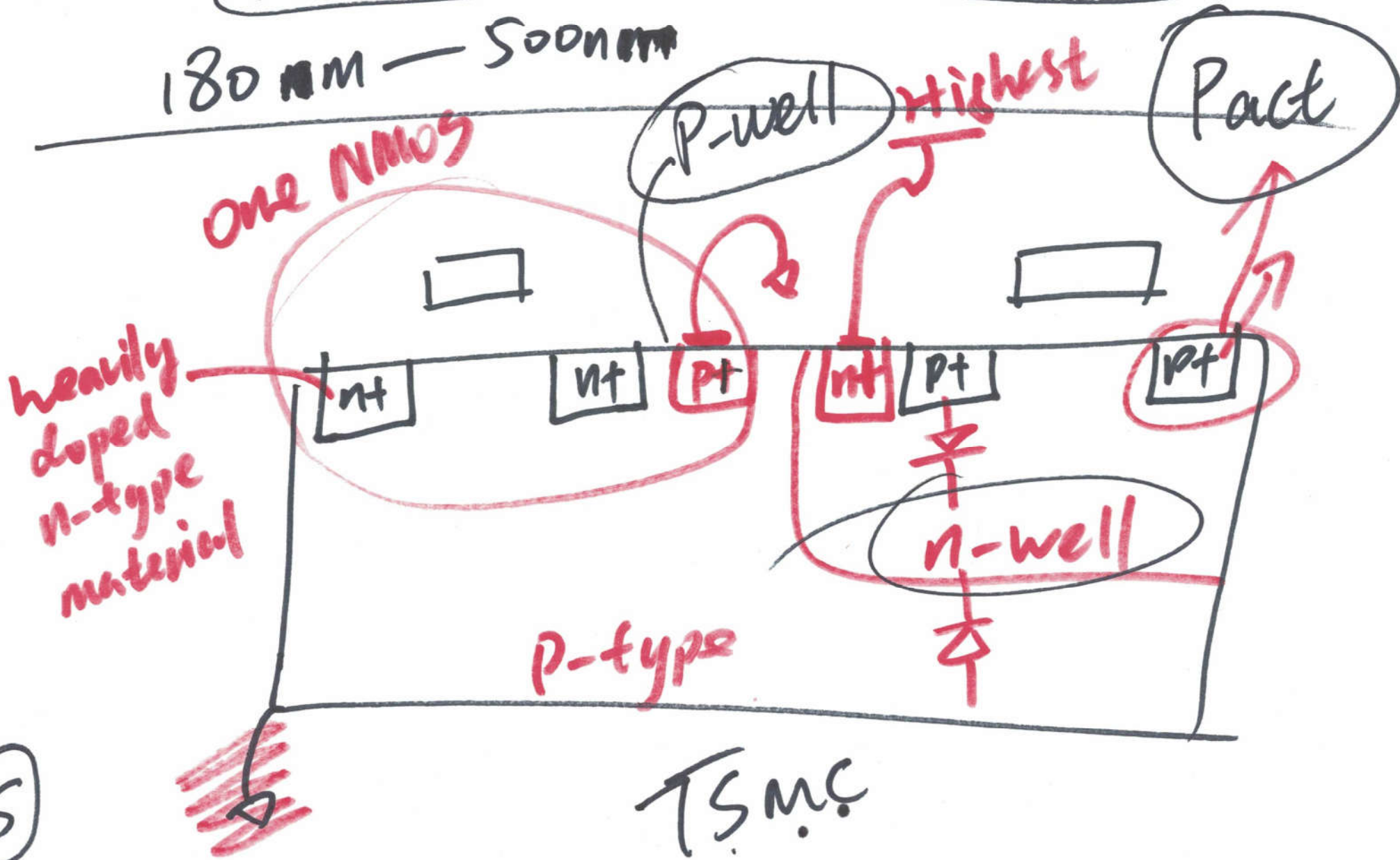
μ_n : mobility of the electrons

$\frac{\epsilon_{ox}}{t_{ox}}$ = Dielectric constant of the oxide layer
 = thickness of the oxide layer.

operated in the Triode or Linear Region

$$I_{DS} = K_P n \frac{W}{L} \left[(V_{GS} - V_{TH}) V_{DS} - \frac{V_{DS}^2}{2} \right]$$

180 nm — 500 nm



(5)