

$$J_p(x) = -qD_p \frac{dp}{dx} \quad , \quad x_n \leq x \leq w_n$$

$$= -\frac{qD_p p_{n0}}{L_p} (e^{V_a/V_t} - 1) \left[\sinh \frac{x - x_n}{L_p} - \coth \frac{w'_n}{L_p} \cosh \frac{x - x_n}{L_p} \right]$$