

$$\rho(x) = 0 \quad , \text{ for } x \leq -x_p$$

$$\rho(x) = -qN_a \quad , \text{ for } -x_p \leq x \leq 0$$

$$\rho(x) = qN_d \quad , \text{ for } 0 \leq x \leq x_n$$

$$\rho(x) = 0 \quad , \text{ for } x_n \leq x$$