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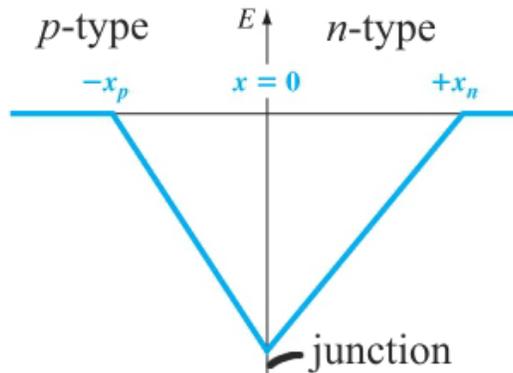


Figure 7.5 | Electric field in the space charge region of a uniformly doped pn junction.

- Note the electric field magnitude peaks at the junction ($x = 0$) and linearly decreases to zero at $-x_p$ & $+x_n$.
- Why? Maximum amount of charges on either side of junction. As you go into the charged region on either side, some of the electric field lines are originating/terminating on those charges. So, you have fewer and fewer as you approach $-x_p$ and $+x_n$.

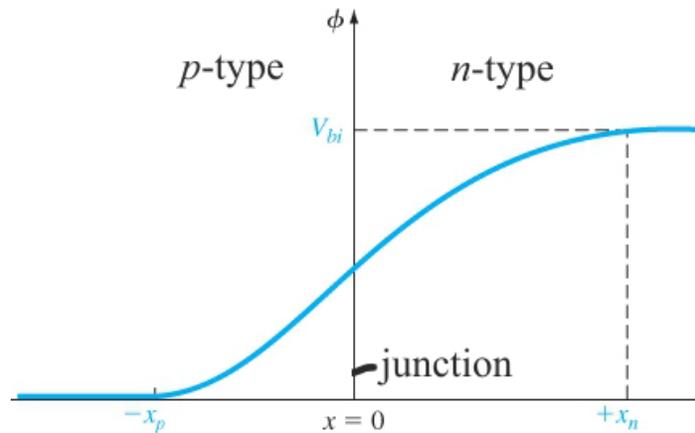


Figure 7.6 | Electric potential through the space charge region of a uniformly doped pn junction.

- Since $V = \phi = -\int \vec{E} \cdot d\vec{l}$, the potential/voltage starts at zero at $-x_p$ since the electric field is zero for $-\infty \leq x \leq -x_p$. It then build up across the space charge/depletion region to reach the final value V_{bi} at $+x_n$.