

Charge screening

The **External Efield** in the gain layer is due to **Bias+Doping**

When there are charges in the gain implant, on average, the electrons are on one side while the holes are on the opposite side.

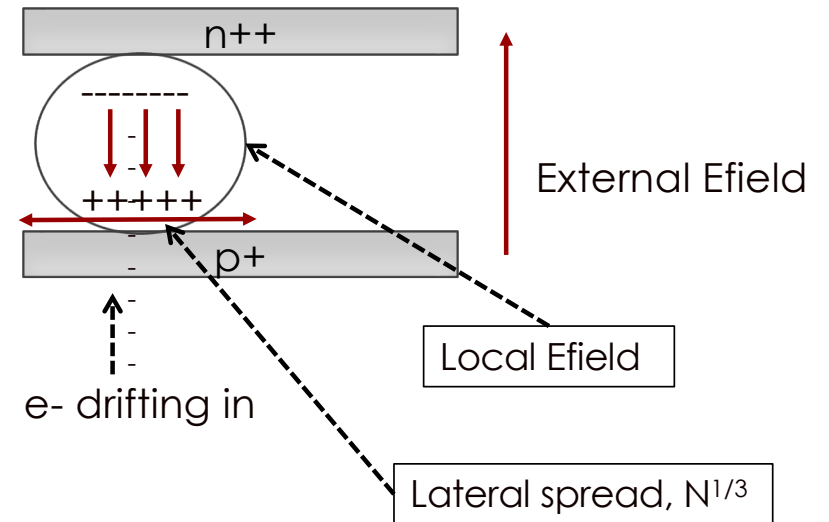
This imbalance creates a local Efield that is opposite to the external Efield.

The field is proportional to the density of charge.

N = number of charges

$N^{1/3}$ = lateral spread of the charge cloud

Density of charge: $N / N^{1/3} = N^{2/3}$



$$\sigma = \frac{Q}{A}$$

$$E_{local} = \frac{\sigma}{\epsilon}$$