Law of Mass action →

The product of majority and minority carrier concentration in an extrinsic semiconductor at a particular temperature is equal to the square of intrinsic carrier concentration at that temperature i.e.

$$n \cdot p = n_i^2$$

where,

n = Concentration of electrons

p = Concentration of holes

and n_i = Intrinsic carrier concentration

For p-type semiconductor material -

$$n_p \cdot p_p = n_i^2$$

For n-type semiconductor material -

$$n_n \cdot p_n = n_i^2$$