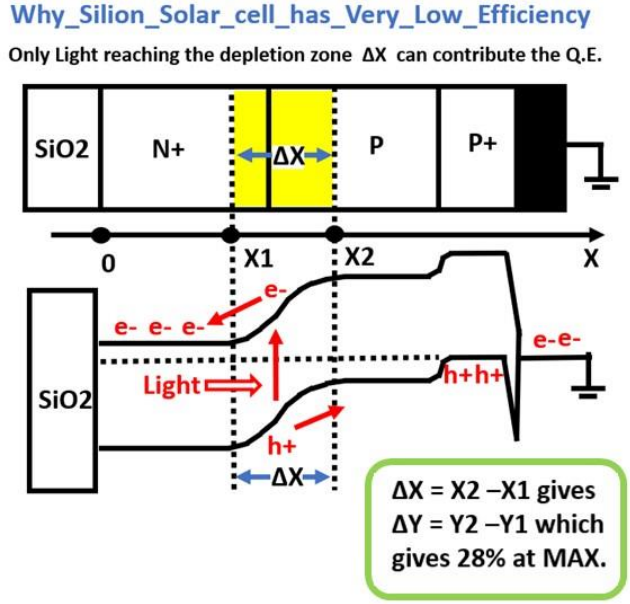
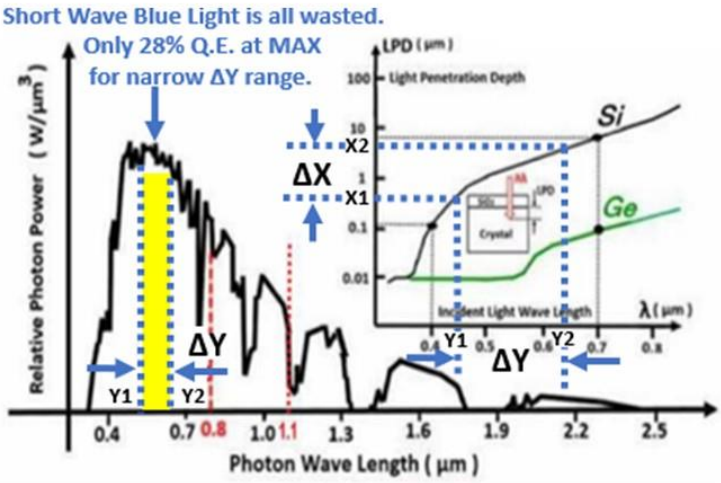
Single Junction type Solar Cell has a very low efficiency of less than 28%.





The N+P junction depletion width is given as (X2 − X1). Take X1 ~ 1 μm and X2 ~ 6 μm. The photon wave length of Y1 = 0.5 μm has the silicon crystal penetration depth of about X1 = 1 μm while the photon wave length of Y2 = 0.6 μm has the silicon crystal penetration depth of about X2 = 6 μm. Only the photon wave length between Y1 = 0.5 μm and Y2 = 0.6 μm can reach the N+P junction depletion region (X2 – X1) and contribute to the solar cell efficiency, which is very small < 28% at most. 030