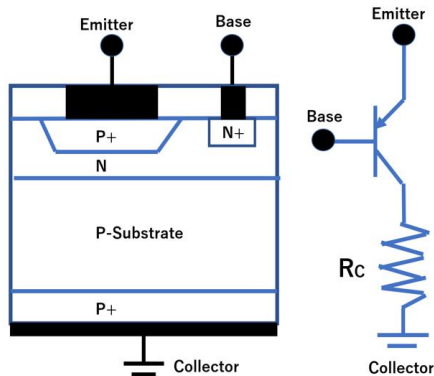
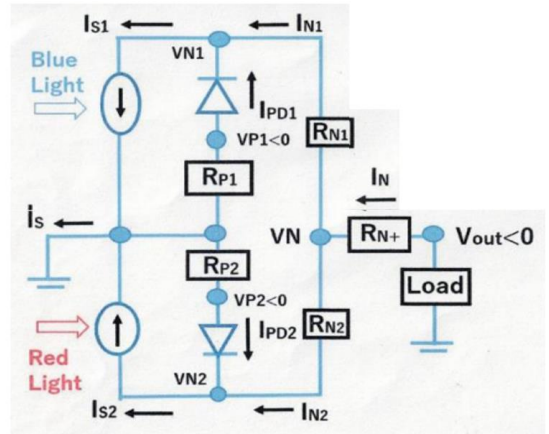
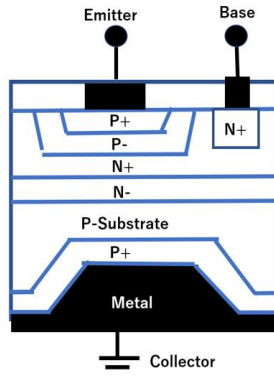


The short-wave blue-light has a very short silicon-penetration depth. In the case of the conventional floating-surface N+PP+ single junction type solar cell, the N+ region surface-potential is flat and the photo electron-and-hole pairs are recombined and wasted as heat.

Bell Lab 1948 Bipolar Transistor

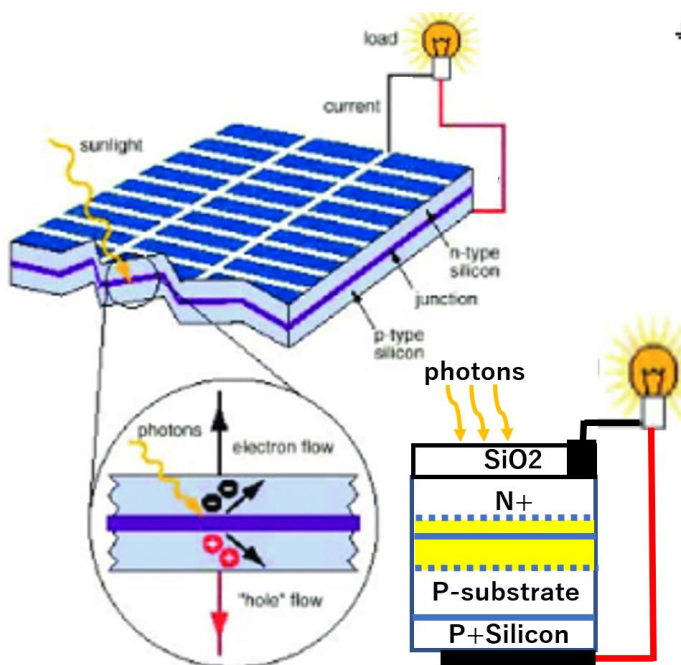


Sony 1971 Bipolar Transistor



However, in case of the pinned surface double junction type solar cell, the surface P+P doping variation creates the surface conduction-band bending which enhances the photo electron-and hole separation at the short wave length of 400 nm range and also with completely depleted lightly doped buried N-region, separated photo electrons are directed swiftly to the small N+ outlet diffusion region by the strong electric field in the empty potential well in the completely depleted N- region.

(A) Conventional Single Junction type Solar Cell



(B) Double Junction type Solar Cell

