



Title: P+PNPP+ Double Junction Photodiode for AIPS Robot Vision and Solar Cell Applications

Abstract: The first silicon chip of a P+PNPP+ double junction type solar cell was fabricated for an AI self-energy robot vision application.

This P+PNPP+ double junction photodiode is very attractive cost-wise. We only need to add one low-energy ion implantation step to form

the surface P+P region and another high-energy ion implantation step to form the buried N-type region, which is completely depleted,

to provide a free underground long channel for photo-electrons to be directed swiftly to the small N+PP+ single junction outlet,

which is formed by the conventional single junction solar cell fabrication steps. In the external power-off mode, this AI self-energy robot vision chip, with the image sensor array

of N x M pinned-surface buried-channel P+PNPP+ double junction type photodiodes can also function as a solar cell energy source unit.