Story of Pinned Photodiode

Japanese Patent Application JAP1975-134985
on Double Junction Dynamic Photo Transistor type
Pinned Buried Photodiode
invented by Hagiwara at Sony in 1975
which showed the empty potential well of
the buried N Base charge collecting and storage region
meaning the complete charge transfer operation mode
and with the no-image-lag feature realizing
the electric shutter function
for filmless and mechanical-parts free
fast action video cameras .

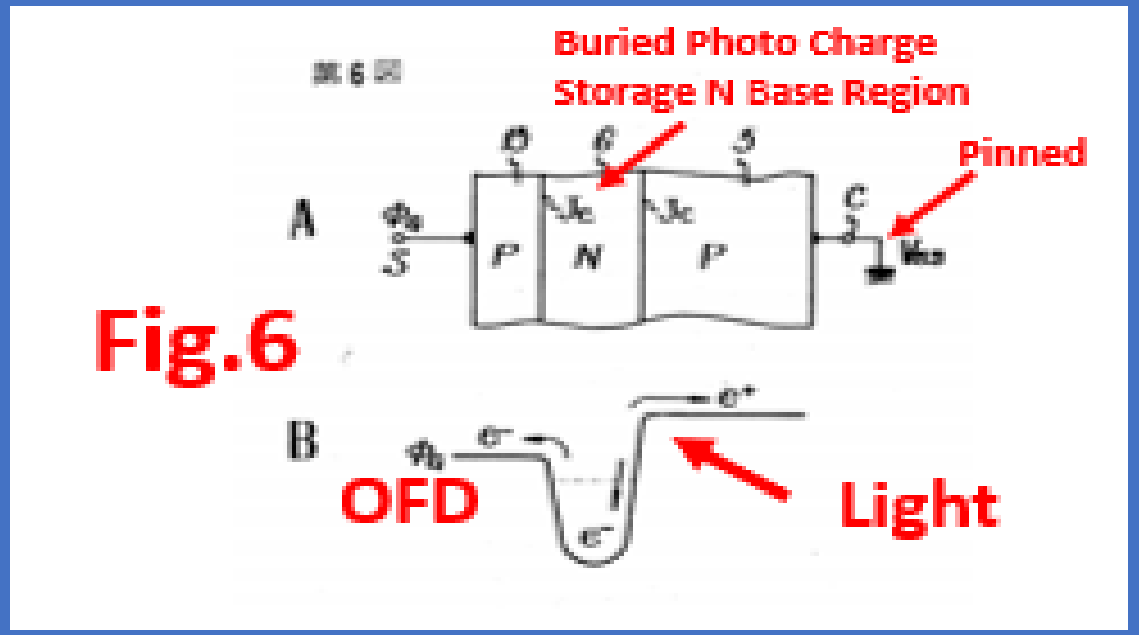


Fig.6

JPA 1975-124985 Claims

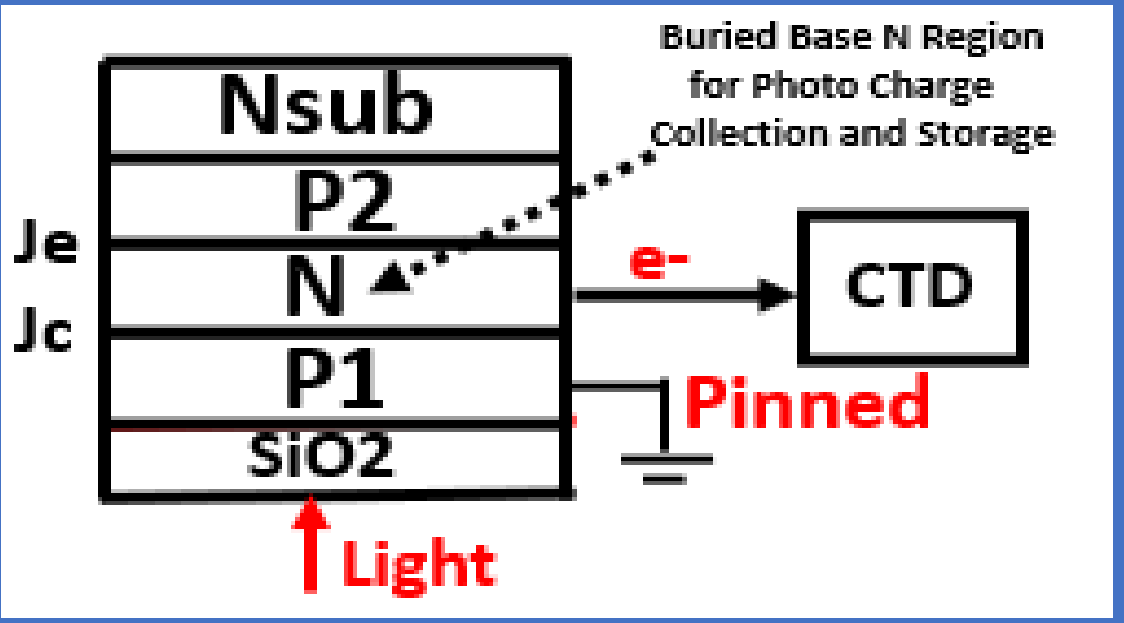
Japanese

㊧特許請求の範囲
1 半導体基体に、第1導電型の第1半導体領域と、之の上に形成された第2導電型の第2半導体領域よりが形成されて光感知部と之よりの電荷を転送する電荷転送部とが上記半導体基体の主面に沿う如く配置されて成る固体撮像装置に於いて、上記光感知部の上記第2半導体領域に整流性接合が形成され、該接合をエミッタ接合とし、上記第1及び第2半導体領域間の接合をコレクタ接合とするトランジスタを形成し、該トランジスタのベースとなる上記第2半導体領域に光学像に応じた電荷を蓄積し、ここに蓄積された電荷を上記転送部に移行させて、その転送を行うようにしたことを特徴とする固体撮像装置。

English Translation

In a semiconductor substrate (Nsub) the first region (P1) is formed. Then the second region (N) is formed upon it forming the collector junction (Jc). Then on the second region (N), the emitter Junction (Je) is formed. The photo charge is stored in the base region (N) and then transferred to the adjacent charge transfer device (CTD).

This is the invention of a PNP double junction dynamic photo transistor.



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