

V. SONY DISCLOSED THE INVENTOR OF SONY HAD SENOSR

“After that, Sony succeeded in making a principle-prototype of a frame transfer CCD image sensor that adopted the PNP junction type PPD technology, having a high-impurity-channel stop region formed near a light receiving section by ion implantation technology for the first time in the world, and its technical paper was presented at the academic conference, SSDM 1978 (Y. Hagiwara, M. Abe, and C. Okada, "A 380H x 488V CCD imager with narrow channel transfer gates", Proc. The 10th Conference on Solid State Devices, Tokyo, (1978)). In 1980, Sony succeeded in making a camera integrated VTR which incorporated a one-chip frame transfer CCD image sensor that adopted the PNP junction type PPD. President Iwama in Tokyo, Chairperson Morita in New York, at the time held a press conference respectively on the same day, which surprised the world. In 1987, Sony succeeded in developing a 8 mm video camcorder that adopted, for the first time in the world, the interline transfer CCD image sensor, which incorporated "PPD having a high-impurity-concentration P+ channel stop region formed near the light receiving section by ion implantation technology" with VOD function, and became the pioneer of the video camera market. The PPD technology that has been nurtured through such a long history is still used in back-illuminated CMOS image sensors [16].” See Fig. 13.

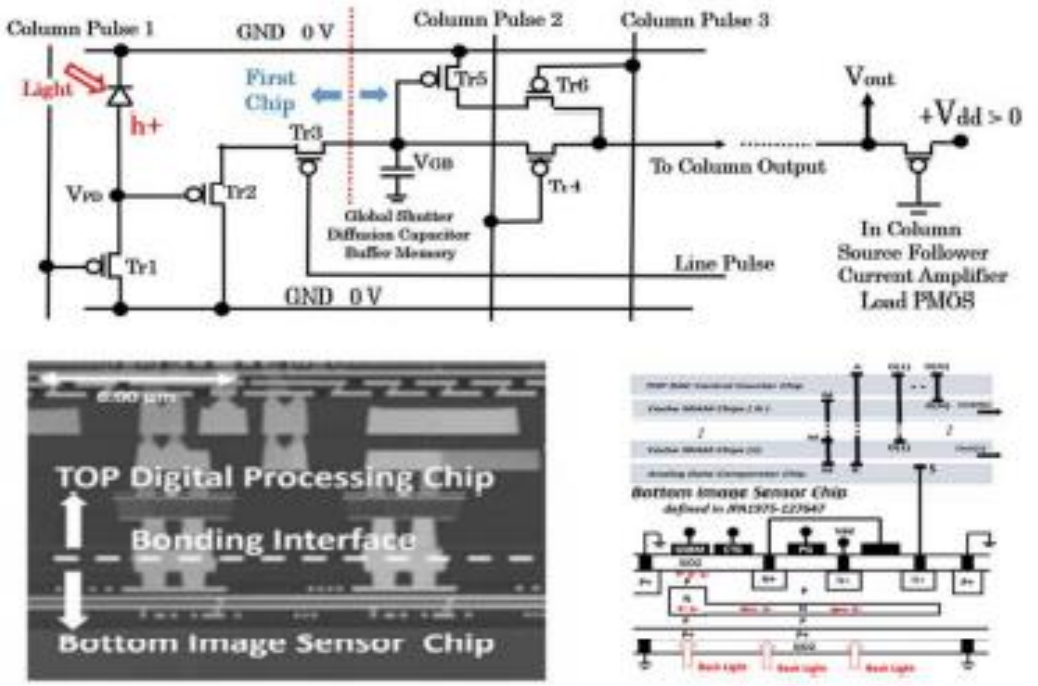


Fig. 13 Active In-Pixel Current AMP 1C6T Circuit (Hagiwara 2020) and Two-chip Stacked Back-Light CMOS Imager (Courtesy of Sony Corporation)

[15] <https://www.sony.com/en/SonyInfo/News/notice/20200626/>

[16] Taku Umebayashi, Hiroshi Takahashi, Japanese Patent No. 5773379 on the invention of the Cu-to-Cu direct contact technique.