



ABSTRACT

A solid-state image sensor according to the invention provides for optimized I-V characteristics of MOS transistors (8, 9) on drive side and load side and for improved sensitivity by maximizing the small-signal AC gain of a source follower amplifier (7). According to one embodiment, a CCD solid-state image sensor has a floating diffusion type charge detecting amplifier composed of at least one drive side MOS transistor (8) and at least one load side MOS transistor (9). In a substrate (11) of one conductivity type, there are formed two independent wells (19, 20) of the opposite conductivity type. The drive side MOS transistor (8) is formed in the first well (19) which is deeper from the top surface of the semiconductor substrate. The load side MOS transistor (9) is formed in the shallower second well (20). It is possible to further improve the AC gain by depleting or neutralizing the first well (19) for the drive MOS transistor (8), and at the same time neutralizing the second well (20) for the load MOS transistor (9).

(Fig. 4)