ABSTRACT

An interline transfer or frame interline transfer CCD solid image sensor is adapted to read out signal charges from light receiving sections of a matrix array by means of vertical charge transfer sections and horizontal charge transfer sections. A plurality of horizontal charge transfer sections are formed for lowering the horizontal transfer frequency. The voltage transition in the transfer gate across the horizontal charge transfer sections is caused to occur stepwise or temporally slowly to improve the transfer efficiency across the horizontal charge transfer sections. A smear drain region for sweeping out unnecessary charges is formed along the horizontal charge transfer sections. The transfer electrode of the horizontal charge transfer sections connected to the busline wiring is patterned to clear contact holes provided in the smear drain region to provide for positive overflow without increasing the chip area.

This Sheet Has Been Replaced

