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SOLID-STATE IMAGING DEVICE AND METHOD OF MANUFACTURING THE SAME

ABSTRACT OF THE DISCLOSURE

A solid-state imaging device provided here comprises a p-type semiconductor substrate 21, a p-type impurity layer 24 formed thereon, a light-intercepting part 22 formed inside the impurity layer 24 for storing signal charges produced through incident light, and a n-type drain part formed in a region of the substrate excluding the light-intercepting part for discharging excess charges of the light-intercepting part. As a result, sensitivity characteristics on the long wavelength side can be improved, and miniaturization can be facilitated. An n-type buried drain part 30 for discharging charges is formed under a transfer part 25 via a p-type impurity layer 24. The readout side between the light-intercepting part 22 and the transfer part 25 is separated by a p-type readout control part 26 which is installed to control threshold voltage (Vt), and the non-readout side is separated by a channel stopper 27. An insulating film 28 is formed on the light-intercepting part 22 and on the transfer part 25, and charges of the light-intercepting part 22 are read out to the transfer part 25 by the conductive-type electrode 29. For preventing dark current from arising, a p-type buried diffusion layer 23 is formed at the interface of the light-intercepting part 22 and the insulating film 28.

Figure 1

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