

**SEMICONDUCTOR DEVICE HAVING PHOTODETECTOR AND
OPTICAL PICKUP SYSTEM USING THE SAME**

ABSTRACT OF THE DISCLOSURE

A semiconductor device includes a photodetector having a junction at which a first conductive type first semiconductor portion and a second conductive type second semiconductor portion are joined to each other. In this photodetector, division regions are formed in part of the first semiconductor portion in such a manner as to cross the first semiconductor portion and partially enter the second semiconductor portion, so that the junction is divided into a plurality of parts by the division regions, to form a plurality of photodetector regions having the divided junction parts. When a reverse bias voltage, which is equal to or less than a specific reverse bias voltage applied to the divided junction parts upon operation of the photodetector, is applied to the divided junction parts, depletion layers originated from two divided junction parts, disposed on both the sides of each of the division regions, of the plurality of divided junction parts extend, in the second semiconductor portion, under the division region to be brought into contact with each other. With this configuration, the frequency characteristic and the light receiving sensitivity of the photodetector are improved.

Fig. 1