

SEMICONDUCTOR DEVICE HAVING A LIGHT-RECEIVING ELEMENT, OPTICAL PICKUP DEVICE AND METHOD OF MANUFACTURING A SEMICONDUCTOR DEVICE HAVING A LIGHT-RECEIVING ELEMENT

ABSTRACT OF THE DISCLOSURE

When a light is irradiated on and near separated portions of a light-receiving element, a frequency characteristic grows worse. According to the present invention, a light-receiving element is formed on a semiconductor substrate by a junction portion of a first conductivity-type first semiconductor portion and a second conductivity-type second semiconductor portion, i.e. p-n junction. Then, a second conductivity-type separating region is formed on a part of the first semiconductor portion. With application of a reverse-bias voltage lower than a reverse-bias voltage applied to the junction portion when the light-receiving element is driven, the first semiconductor portion is separated into a plurality of portions by a spread of a depletion layer from the junction portion comprising the light-receiving element and the junction portion comprised of the separating region, whereby the frequency characteristic is improved.

FIGURE 3