Abstract

Semiconductor structure for photon detection

What is proposed is a semiconductor structure (1, 101, 201) for photon detection, comprising: a substrate (2, 102, 202) composed of a semiconductor material having a first doping, a contact region (3, 103, 203) fitted at the frontside of the substrate, a bias layer (4, 104, 204) composed of a semiconductor material having a second doping, which is arranged on the backside of the substrate at a distance from the contact region, wherein the contact region at least partly lies opposite the bias layer, such that an overlap region is present in a lateral direction, a guard ring (5, 105, 205), which is arranged at the frontside of the substrate and surrounds the contact region, wherein a reverse voltage can be applied between the contact region and the guard ring. In order to enable more cost-effective production, the overlap region has a lateral extent amounting to at least one quarter of the distance between contact region and bias layer.

Figure 1