

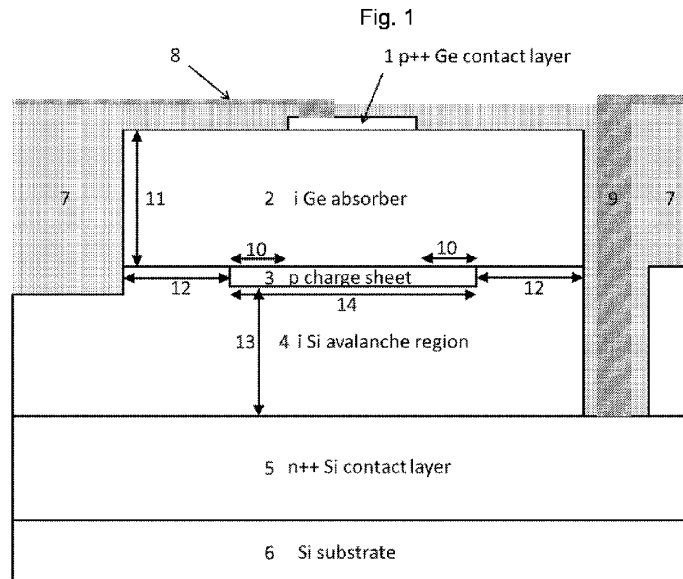


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(54) Title: SINGLE PHOTON AVALANCHE DETECTOR, METHOD FOR USE THEREFORE AND METHOD FOR ITS MANUFACTURE



(57) Abstract: A single photon avalanche diode (SPAD) device is presented. The SPAD device comprising: a Si-based avalanche layer formed over an n-type semiconductor contact layer; a p-type charge sheet layer formed in or on the avalanche layer, the p-type charge sheet layer having an in-plane width; a Ge-based absorber layer, formed over the charge sheet layer and/or the avalanche layer, and overlapping the charge sheet layer, the Ge-based absorber layer having an in-plane width; wherein, at least in one in-plane direction, the in-plane width of the Ge-based absorber layer is greater than the in-plane width of the p-type charge sheet layer.

[Continued on next page]

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