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ICP etched position sensitive silicon sensors on silicon and SOI substrates

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Position sensitive detectors have many applications in measurement technology. In this paper we investigate the influence of a trench in the vicinity of the p-n junction of the silicon detector. The trenches were fabricated by inductive coupled plasma (ICP) etching technology. Both, the detectors with and without trenches were processed at the same wafer for comparable results. Further, we discuss the influence of the trench in view of electrical parameters and cross-talk behaviour in a 4-quadrants silicon photodiode.

For high temperature applications a position dependent line array based on SOI (silicon on insulator) material was fabricated. The electrical and optical properties of the SOI detector are presented and discussed.

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