

X-ray diffractometry of Si epilayers grown on porous silicon

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2002

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Keywords: Porous silicon; Epilayer; X-ray diffractometry; Lattice deformation.

Abstract. X-ray double-crystal diffractometry was used to measure lattice deformation of porous silicon (PS) and Si epitaxial layers grown on PS. PS layers 1–10 μm in thickness and 15–65% in porosity were formed by anodization of n+-type Sb doped Si wafers in a 12% HF aqueous solution. Lattice deformations of both PS and epitaxial layers are shown to strongly depend on PS porosity. Grown on uniform PS 40–60% in porosity, the epilayers, single-crystal as they are, display high lattice deformation and defect density. Epilayers grown on two-layer PS are comparable with the films grown on the n+-type single-crystal Si substrate.

Publication source: X-ray diffractometry of Si epilayers grown on porous silicon / G. Lamedica, M. Balucani, A. Ferrari [et al.] // Materials Science and Engineering: B. – 2002. – Volumes 91–92. – P. 445–448. – DOI: [http://dx.doi.org/10.1016/S0921-5107\(01\)00997-7](http://dx.doi.org/10.1016/S0921-5107(01)00997-7).