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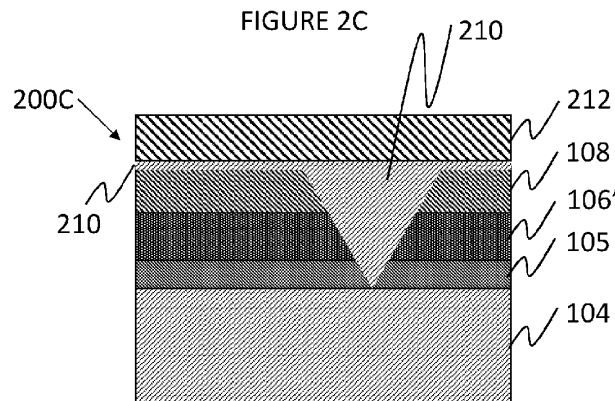
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(54) **Title:** STRAIN RELAXATION LAYER



(57) **Abstract:** A method of forming a strain relaxation layer in an epitaxial crystalline structure, the method comprising: providing a crystalline template layer comprising a material with a first natural relaxed in-plane lattice parameter; forming a first epitaxial crystalline layer on the crystalline template layer, wherein the first epitaxial crystalline layer has an initial electrical conductivity that is higher than the electrical conductivity of the crystalline template layer; forming a second epitaxial crystalline layer on the first epitaxial crystalline layer, wherein the second epitaxial crystalline layer has an electrical conductivity lower than the initial electrical conductivity of the first epitaxial crystalline layer and comprises a material with a second natural relaxed in-plane lattice parameter that is different to the first natural relaxed in-plane lattice parameter of the crystalline template layer; forming pores in the first epitaxial crystalline layer by electrochemical etching of the first epitaxial crystalline layer to enable strain relaxation in the second epitaxial crystalline layer by plastic deformation of bonds in the first epitaxial crystalline layer and/or at the interface between the first epitaxial crystalline layer and the second epitaxial crystalline layer; and forming one or more channels comprising a conductive material through at least the first epitaxial crystalline layer and the second epitaxial crystalline layer thereby to enable electrical connection to the crystalline template layer through the first epitaxial crystalline layer and the second epitaxial crystalline layer.

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