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(54) Title: SELECTIVE SILICON ETCH PROCESS

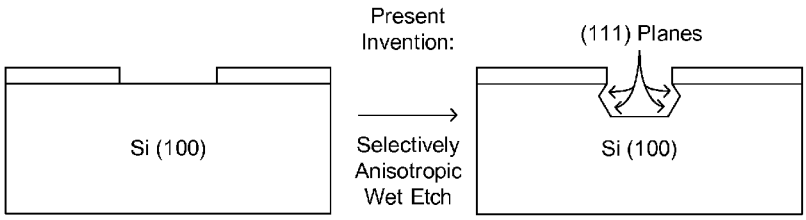


FIG. 2

(57) Abstract: A process for etching a silicon layer disposed on a substrate, including anisotropically etching a first trench in the silicon layer; selectively anisotropic wet etching silicon surfaces in the first trench, the wet etching comprising exposing the silicon surfaces to an aqueous composition including an aromatic tri(lower)alkyl quaternary onium hydroxide, and an unsymmetrical tetraalkyl quaternary phosphonium salt; in which the wet etching etches (110) and (100) planes of the silicon layer at about equal rates and preferentially to the (111) plane to form an enlarged trench having a sidewall in the (111) plane. A silicon alloy may be epitaxially deposited in the thus-produced trench as part of a process of introducing stress into at least a portion of the silicon layer.

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