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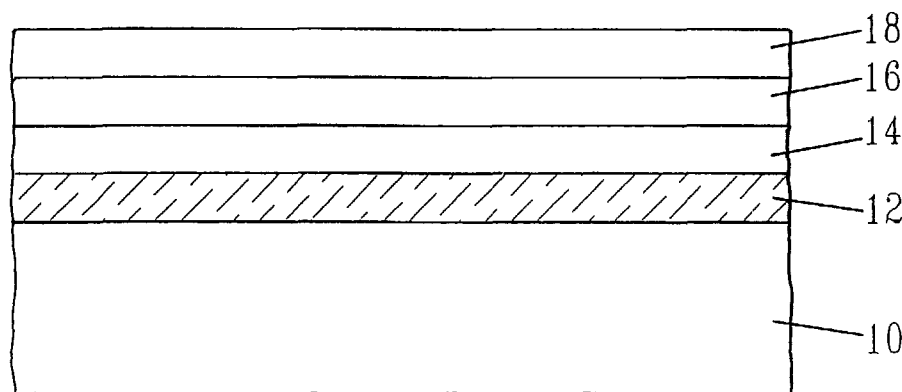
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(54) Title: METHOD OF CREATING HIGH-QUALITY RELAXED SiGe-ON-INSULATOR FOR STRAINED Si CMOS APPLICATIONS



(57) Abstract: A method of forming a thin, high-quality relaxed SiGe-on-insulator substrate (10) material is provided which first includes forming a SiGe or pure Ge layer on a surface of a first single crystal Si layer (14) which is present atop a barrier layer (12) that is resistant to the diffusion of Ge. Optionally forming a Si cap layer (18) over the SiGe or pure Ge layer (16), and thereafter heating the various layers at a temperature which permits interdiffusion of Ge throughout the first single crystal Si layer (14), the optional Si cap (18) and the SiGe or pure Ge layer (16) thereby forming a substantially relaxed, single crystal SiGe layer atop the barrier layer (12). Additional SiGe regrowth and/or formation of a strained epi-Si layer may follow the above steps. SiGe-on-insulator substrate materials as well as structures including at least the SiGe-on-insulator substrate material are also disclosed herein.



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