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METHOD OF FORMING A TRANSISTOR WITH A STRAINED CHANNEL

ABSTRACT

A method of forming a tensile or compressive strained channel region for a semiconductor device, such as a MOSFET device, allowing improved carrier transport properties and increased device performance to be realized, has been developed. The method features the epitaxial growth of a semiconductor layer such as silicon, or silicon - germanium, with the incorporation of atoms such as carbon. The silicon - germanium - carbon channel layer, under biaxial tensile or compressive strain, is then overlaid with an optional silicon capping layer, used to accommodate the overlying, thermally grown silicon dioxide gate insulator layer, of the MOSFET device.

Figure 5

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