Structure and Method of Forming Integrated Circuits Utilizing Strained Channel Transistors

ABSTRACT OF THE DISCLOSURE

A semiconductor device or circuit is formed on a semiconductor substrate with first and second semiconductor materials having different lattice-constants. A first transistor includes a channel region formed oppositely adjacent a source and drain region. At least a portion of the source and drain regions are formed in the second semiconductor material thereby forming lattice-mismatched zones in the first transistor. A second component is coupled to the transistor to form a circuit, e.g., an inverter. The second component can be a second transistor having a conductivity type differing from the first transistor or a resistor.

(FIG. 2a)