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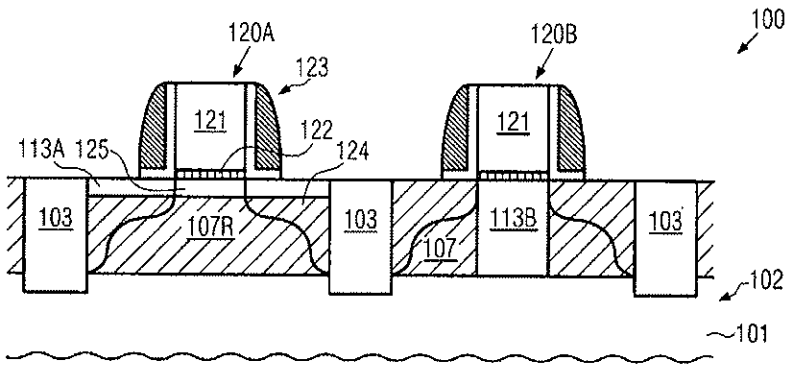
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(54) Title: A SEMICONDUCTOR DEVICE COMPRISING NMOS AND PMOS TRANSISTORS WITH EMBEDDED SI/GE MATERIAL FOR CREATING TENSILE AND COMPRESSIVE STRAIN



(57) Abstract: By forming a substantially continuous and uniform semiconductor alloy (107, 207, 307, 407) in one active region (105 A, 205 A, 305 A, 405 A) while patterning the semiconductor alloy (107, 207, 307, 407) in a second active region (105B, 205B, 3O5B, 405B) so as to provide a base semiconductor material (113B, 213B, 313B, 401) in a central portion thereof, different types of strain may be induced, while, after providing a corresponding cover layer of the base semiconductor material (113A, 213A, 313A, 413A), well-established process techniques for forming the gate dielectric (122, 322, 422) may be used. In some illustrative embodiments, a substantially self-aligned process is provided in which the gate electrode (121, 221, 321, 421) may be formed on the basis of the layer (208, 308), which has also been used for defining the central portion (213B, 313B) of the base semiconductor material of one of the active regions (205B, 305B). Hence, by using a single semiconductor alloy (107, 207, 307, 407), the performance of transistors (120A, 120B) of different conductivity types may be individually enhanced.

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