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(71) Applicant *(for all designated States except US)*: **ADVANCED MICRO DEVICES INC.** [US/US]; One Amd Place, Mail Stop 68, P.O.box 3453, Sunnyvale, CA 94088-3453 (US).

(72) Inventors; and

(75) Inventors/Applicants *(for US only)*: **BEYER, Sven** [DE/DE]; Julius Otto Str 15, 01219 Dresden (DE). **HORSTMANN, Manfred** [DE/DE]; Aeussere Parkstr 25, 01833 Duerroehrsdorf-dittersbach (DE). **PRESS, Patrick** [DE/DE]; Jullus Otto Str 15, 01219 Dresden (DE). **BUCHHOLTZ, Wolfgang** [DE/DE]; Am Bornberge 8, 01445 Radebeul (DE).

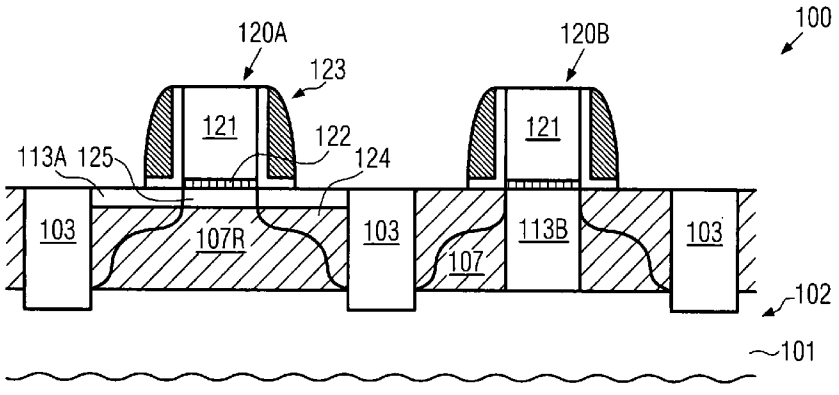
(74) Agent: **DRAKE, Paul, S.**; Advanced Micro Devices, Inc., 5204 East Ben White Boulevard, Mail Stop 562, Austin, TX 78741 (US).

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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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