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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): **WEI, Andy** [US/DE]; Alaunstr 23, 01099 Dresden (DE). **PEIDOUS, Igor** [RU/US]; 732 Huntington Drive, Fishkill, NY 12524 (US). **KAMMLER, Thorsten** [DE/DE]; Buchenstr 12c, 01458 Ottendorf-Okrilla (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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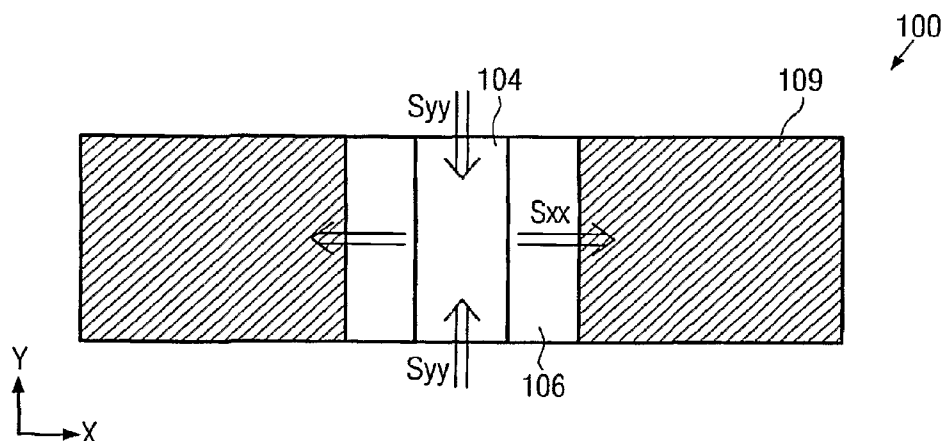
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(54) Title: A TRANSISTOR HAVING A CHANNEL WITH TENSILE STRAIN AND ORIENTED ALONG A CRYSTALLOGRAPHIC ORIENTATION WITH INCREASED CHARGE CARRIER MOBILITY



(57) Abstract: By appropriately orienting the channel length direction with respect to the crystallographic characteristics of a silicon layer (102), the stress-inducing effects of strained silicon/carbon material (109) may be significantly enhanced compared to conventional techniques. In one illustrative embodiment, the channel (103) may be oriented along the <100> direction for a (100) surface orientation, thereby providing an electron mobility increase of approximately a factor of four.

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