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(54) Title: N-CHANNEL MOSFETS COMPRISING DUAL STRESSORS, AND METHODS FOR FORMING THE SAME

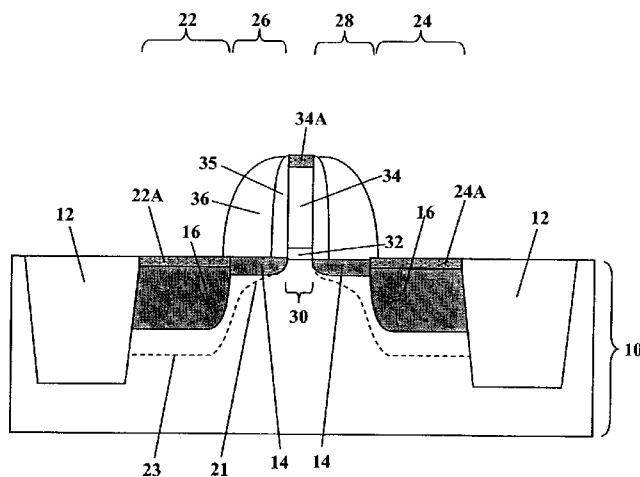


FIG. 1

(57) Abstract: The present invention relates to a semiconductor device comprising at least one n-channel field effect transistor (n-FET). Specifically, the n-FET comprises first and second patterned stressor layers that both contain a carbon-substituted and tensilely stressed single crystal semiconductor. The first patterned stressor layer has a first carbon concentration and is located in source and drain (S/D) extension regions of the n-FET at a first depth. The second patterned stressor layer has a second, higher carbon concentration and is located in S/D regions of the n-FET at a second, deeper depth. Such an n-FET with the first and second patterned stressor layers of different carbon concentration and different depths provide improved stress profile for enhancing electron mobility in the channel region of the n-FET.

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C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2005/0035409 A1 (KO et al) 17 February 2005 (17.02.2005) entire document	1, 6, 7
Y		2-5
Y	ANG et al. Enhanced performance in 50 nm N-MOSFETs with silicon-carbon source/drain regions. Electron Devices Meeting, 2004. IEDM Technical Digest. IEEE International December 13-15 2004. Pages 1069-1071. entire document	2, 3
Y	US 2005/0285187 A1 (BRYANT et al) 29 December 2005 (29.12.2005) entire document	4, 5
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