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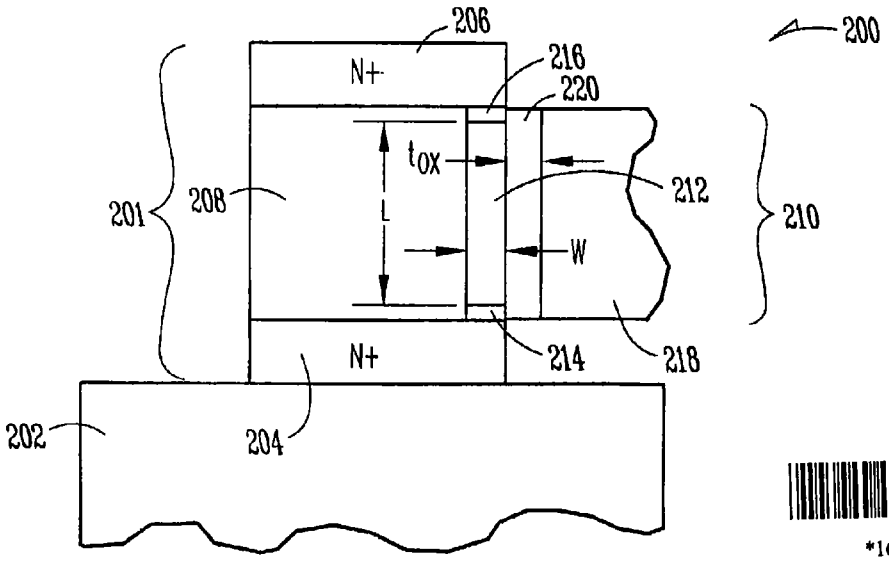
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(54) Title: FLASH MEMORY WITH ULTRA THIN VERTICAL BODY TRANSISTORS



162162

(57) Abstract: Structures and method for Flash memory with ultra thin vertical body transistors (200) are provided. The Flash memory includes an array of memory cells including floating gate transistors (200). Each floating gate transistor (200) includes a pillar (201) extending outwardly from a semiconductor substrate (202). The pillar (201) includes a single crystalline first contact layer (204) and a second contact layer (206) vertically separated by an oxide layer (208). A single crystalline vertical transistor (210) is formed along side of the pillar. The single crystalline vertical transistor (210) includes an ultra thin single crystalline vertical body region (212) which separates an ultra thin single crystalline vertical first source/drain region (214) and an ultra thin single crystalline vertical second source/drain region (216). A floating gate (212) opposes the ultra thin single crystalline vertical body region (212), and a control gate (218) separated from the floating gate (212) by an insulator layer (220).

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