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[Continued on next page]

(54) Title: A (110) ORIENTED SILICON SUBSTRATE AND A BONDED PAIR OF SUBSTRATES COMPRISING SAID (110) ORIENTED SILICON SUBSTRATE

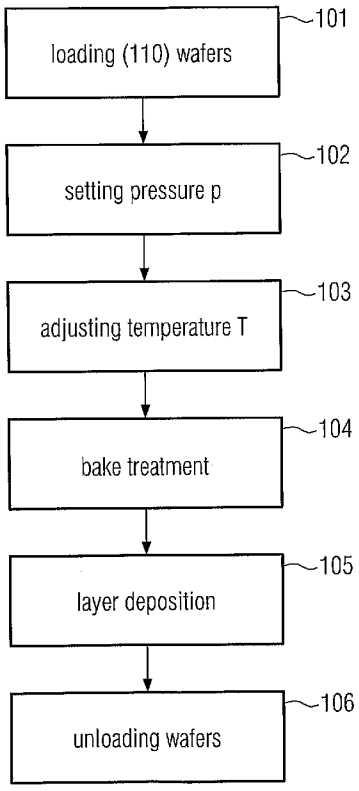


FIG. 3

(57) Abstract: The present invention relates to method of fabricating a (110) oriented silicon substrate and to a method of fabricating a bonded pair of substrates comprising such a (110) oriented silicon substrate. The invention further relates to a silicon substrate with (110) orientation and to a bonded pair of silicon substrates comprising a first silicon substrate with (100) orientation and a second silicon substrate with (110) orientation. It is the object of the present invention to provide methods and substrates of the above mentioned type with a high efficiency wherein the formed (110) substrate has at least near and at its surface virtually no defects. The object is solved by a method of fabricating a silicon substrate with (110) orientation and by a method of fabricating a bonded pair of silicon substrates, comprising the steps of providing a basic silicon substrate with (110) orientation, said basic silicon substrate having a roughness being equal or less than 0.15 nm RMS in a 2x2 μm2 or a 10x10 μm2 scan, and depositing epitaxially a silicon layer with (110) orientation on the basic silicon substrate at a pressure between 40 Torr to 120 Torr, preferably 80 Torr.and at a temperature between about 10000C and about 12000C and using trichlorosilane or dichlorosilane as silicon precursor gas.

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