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(54) Title: METHOD OF IMPROVING ION BEAM QUALITY IN A NON-MASS-ANALYZED ION IMPLANTATION SYSTEM

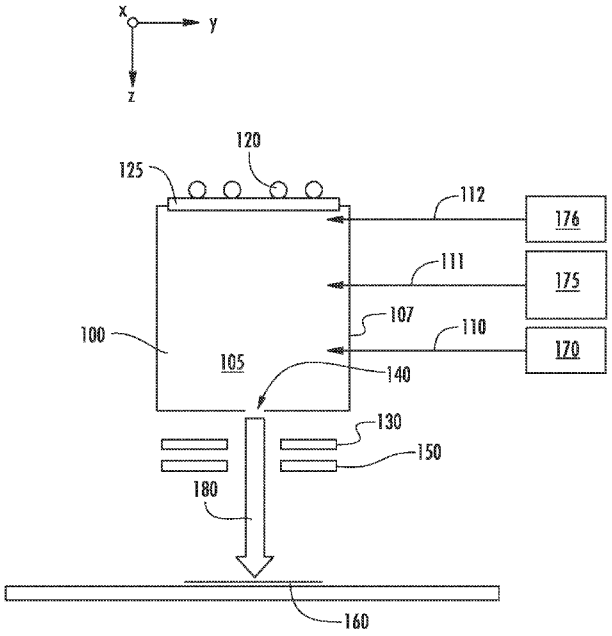

FIG. 1A

(57) Abstract: A method of processing a workpiece is disclosed, where the plasma chamber is first coated using a conditioning gas and optionally, a co-gas. The conditioning gas, which is disposed within a conditioning gas container may comprise a hydride of the desired dopant species and a filler gas, where the filler gas is a hydride of a Group 4 or Group 5 element. The remainder of the conditioning gas container may comprise hydrogen gas. Following this conditioning process, a feedgas, which comprises fluorine and the desired dopant species, is introduced to the plasma chamber and ionized. Ions are then extracted from the plasma chamber and accelerated toward the workpiece, where they are implanted without being first mass analyzed. In some embodiments, the desired dopant species may be boron.

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A. CLASSIFICATION OF SUBJECT MATTER

H01L 21/265(2006.01)i

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
H01L 21/265; H01L 21/26; B01D 59/44; H01J 49/00; G21K 5/10

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
Korean utility models and applications for utility models
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Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
eKOMPASS(KIPO internal) & Keywords: gas, chamber, ion, source, plasma, coat

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 2013-0260543 A1 (VARIAN SEMICONDUCTOR EQUIPMENT ASSOCIATES, INC.) 03 October 2013 See abstract, paragraphs [0049]-[0072], and figures 2-3C.	1-15
A	US 2008-0237496 A1 (ATUL GUPTA) 02 October 2008 See abstract, paragraphs [0034]-[0048], and figures 2-3C.	1-15
A	US 2013-0099113 A1 (AGILENT TECHNOLOGIES, INC.) 25 April 2013 See abstract, paragraphs [0064]-[0100], and figures 1-3C.	1-15
A	US 2009-0280628 A1 (MANOJ VELLAIKAL et al.) 12 November 2009 See abstract, paragraphs [0016]-[0028], and figure 1.	1-15
A	US 2009-0200460 A1 (CRAIG R. CHANEY et al.) 13 August 2009 See abstract, paragraphs [0023]-[0030], and figure 1.	1-15

☐ Further documents are listed in the continuation of Box C.

☒ See patent family annex.

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"&" document member of the same patent family

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Information on patent family members

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