(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
25 October 2001 (25.10.2001)

PCT

(10) International Publication Number
WO 01/80298 A1

(51) International Patent Classification[7]: H01L 21/314, 21/28

(21) International Application Number: PCT/US01/12286

(22) International Filing Date: 17 April 2001 (17.04.2001)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/197,575 17 April 2000 (17.04.2000) US

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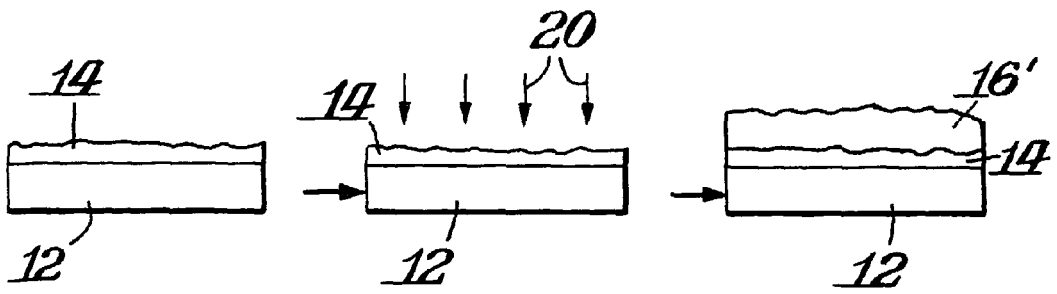
(81) Designated States *(national)*: CA, CN, DE, IL, JP, KR, SG, US.

(84) Designated States *(regional)*: European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR).

Published:
— *with international search report*

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: UV PRETREATMENT PROCESS FOR ULTRA-THIN OXYNITRIDE FOR FORMATION OF SILICON NITRIDE FILMS



(57) Abstract: The oxynitride or oxide layer formed on a semiconductor substrate is pre-treated with UV-excited gas (such as chlorine or nitrogen) to improve the layer surface condition and increase the density of nucleation sites for subsequent silicon nitride deposition. The pre-treatment is shown to reduce the root mean square surface roughness of thinner silicon nitride films (with physical thicknesses below 36 Å, or even below 20 Å) that are deposited on the oxynitride layer by chemical vapor deposition (CVD).

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