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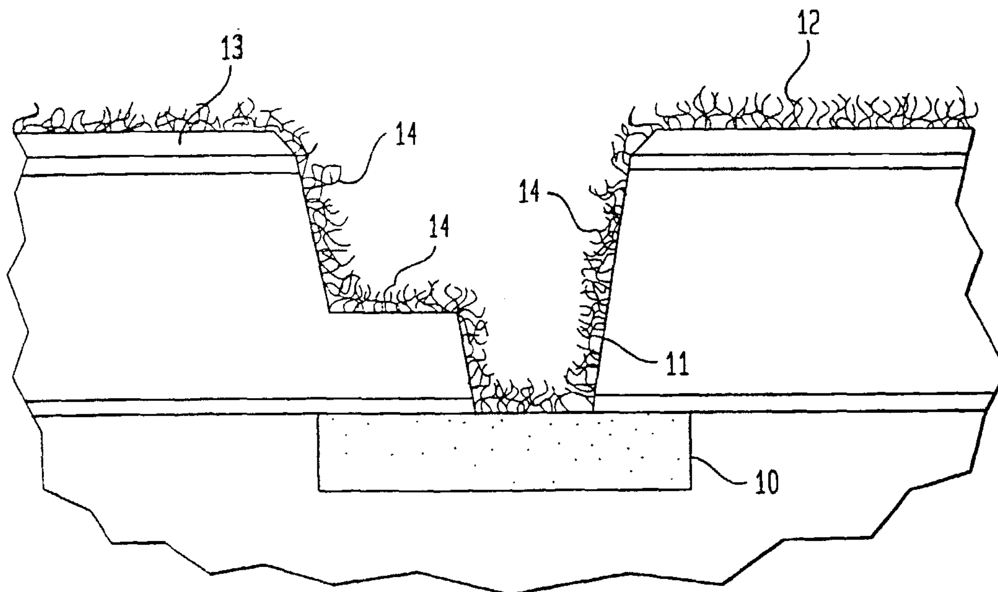
(54) Title: PLASMA RIE POLYMER REMOVAL



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(57) Abstract: A method for removal of post reactive ion etch by-product from a semiconductor wafer surface or microelectronic composite structure comprising:supplying a reducing gas plasma incorporating a forming gas mixture selected from the group consisting of a mixture of N2/H2 or a mixture of NH3/H2 into a vacuum chamber in which a semiconductor wafer surface or a microelectronic composite structure is supported to form a post-RIE polymer material by-product on the composite structure without significant removal of an organic, low K material which has also been exposed to the reducing gas plasma; and removing the post-RIE polymer material by-product with a wet clean.

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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.

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A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 H01L21/311 H01L21/3213

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)
IPC 7 H01L

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

INSPEC, EPO-Internal, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	CHENG Y Y ET AL: "Ultra-low dielectric constant low density material (k=2.2) for Cu damascene" PROCEEDINGS OF THE IEEE 2000 INTERNATIONAL INTERCONNECT TECHNOLOGY CONFERENCE (CAT. NO.00EX407), PROCEEDINGS OF THE IEEE 2000 INTERNATIONAL INTERCONNECT TECHNOLOGY CONFERENCE, BURLINGAME, CA, USA, 5-7 JUNE 2000, pages 161-163, XP001066386 2000, Piscataway, NJ, USA, IEEE, USA ISBN: 0-7803-6327-2 the whole document ---	1,2,4,6, 9
X	US 6 030 901 A (HOPPER DAWN ET AL) 29 February 2000 (2000-02-29) the whole document ---	1,2,4-6, 8

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[X] Further documents are listed in the continuation of box C.

[X] Patent family members are listed in annex.

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Date of the actual completion of the international search	Date of mailing of the international search report
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Name and mailing address of the ISA	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL – 2280 HV Rijswijk Tel. (+31–70) 340–2040, Tx. 31 651 epo nl, Fax: (+31–70) 340–3016	Königstein, C

1

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INTERNATIONAL SEARCH REPORT

International Application No
PCT/US 01/20184

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
P,X	PATENT ABSTRACTS OF JAPAN vol. 2000, no. 15, 6 April 2001 (2001-04-06) & JP 2000 352827 A (NEC CORP), 19 December 2000 (2000-12-19) abstract ---	1,2
A	SOMASHEKHAR A ET AL: "HYDROGEN PLASMA REMOVAL OF POST-RIE RESIDUE FOR BACKEND PROCESSING" JOURNAL OF THE ELECTROCHEMICAL SOCIETY, ELECTROCHEMICAL SOCIETY. MANCHESTER, NEW HAMPSHIRE, US, vol. 146, no. 6, June 1999 (1999-06), pages 2318-2321, XP000877000 ISSN: 0013-4651 the whole document -----	

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INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No
PCT/US 01/20184

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 6030901	A	29-02-2000	NONE	
JP 2000352827	A	19-12-2000	NONE	