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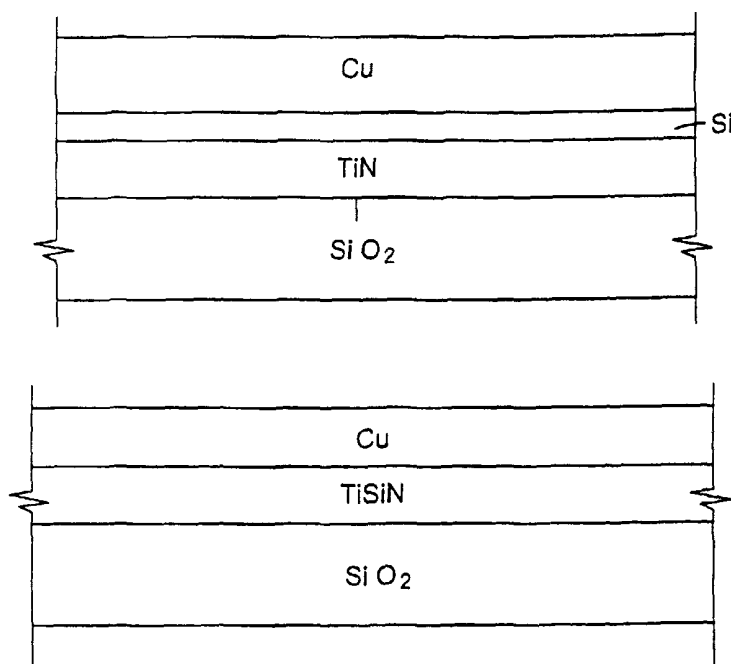
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For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: METHOD OF IMPROVING THE ADHESION OF COPPER



(57) Abstract: The present invention provides a method of improving the adhesion of a copper layer to a barrier layer on a substrate. After deposition of a barrier layer, such as TiN, an amorphous silicon layer is deposited by striking a plasma over the substrate using a silicon source gas, such as silane, and an inert gas, such as argon (Ar). A Cu layer is deposited on the amorphous silicon. In another aspect of the invention, a TiSiN layer is deposited using a silicon source gas, such as silane, and a titanium source gas, such as TDMAT, during the deposition of the TiN barrier layer.



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INTERNATIONAL SEARCH REPORT

International Application No
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IPC 7 H01L21/768

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)

EPO-Internal, WPI Data, PAJ, INSPEC

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5 821 168 A (JAIN AJAY) 13 October 1998 (1998-10-13) the whole document	1-3, 18-20
A	---	4-17
X	US 5 770 520 A (WANG ZHIHAI ET AL) 23 June 1998 (1998-06-23) the whole document	12-15
A	---	12-17
	US 5 607 722 A (VAARTSTRA BRIAN A ET AL) 4 March 1997 (1997-03-04) the whole document	

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 Further documents are listed in the continuation of box C. Patent family members are listed in annex.

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* & * document member of the same patent family

Date of the actual completion of the international search

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INTERNATIONAL SEARCH REPORT

 International Application No
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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	<p>IIJIMA T ET AL: "INLAID CU INTERCONNECTS EMPLOYING TI-SI-N BARRIER METAL FOR ULSI APPLICATIONS" IEICE TRANSACTIONS ON ELECTRONICS, INSTITUTE OF ELECTRONICS INFORMATION AND COMM. ENG. TOKYO, JP, vol. E79-C, no. 4, 1 April 1996 (1996-04-01), pages 568-572, XP000597430 ISSN: 0916-8524 the whole document</p> <p style="text-align: center;">---</p>	12-17
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A	<p>BAI G ET AL: "Effectiveness and Reliability of Metal Diffusion Barriers for Copper Interconnects" POLYCRYSTALLINE THIN FILMS: STRUCTURE, TEXTURE, PROPERTIES, AND APPLICATIONS II. SYMPOSIUM, BOSTON, MA, USA, 27 NOV.-1 DEC. 1995. MAT.RES.SOC.SYMP.PROC., vol. 403, 1996, pages 501-506, XP008005642 the whole document</p> <p style="text-align: center;">-----</p>	12-17

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

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