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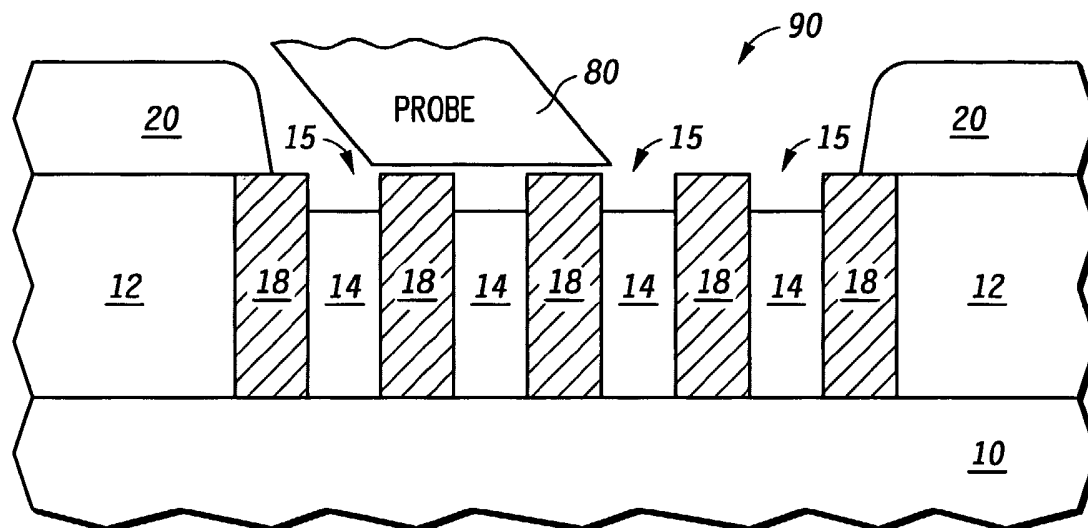
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(54) Title: METHOD OF FORMING A BOND PAD AND STRUCTURE THEREOF



(57) Abstract: A bond pad (100) is formed by first providing a planarized combination of copper (18) and silicon oxide features (14) in a bond pad region. The silicon oxide features (14) are etched back to provide a plurality of recesses (15) in the copper in the bond pad region. A corrosion barrier (22) is formed over the copper and the silicon oxide features in the recesses. Probing of the wafer (10) is done by directly applying the probe to the copper. A wire bond (24) is directly attached to the copper (18). The probe (80) is prevented from penetrating all the way through the copper (18) because the recessed features (15) are present. With the recesses (15) in the copper, the wire bond (24) more readily breaks down and penetrates the corrosion barrier and is also less likely to slip on the bond pad (100).



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INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER IPC 7 H01L21/60 H01L23/485				
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, IBM-TDB, INSPEC				
C. DOCUMENTS CONSIDERED TO BE RELEVANT				
Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.		
X	PATENT ABSTRACTS OF JAPAN vol. 1995, no. 02, 31 March 1995 (1995-03-31) & JP 06 318590 A (NEC CORP), 15 November 1994 (1994-11-15)	4-6,8		
Y	abstract; figures 1-3 ---	1,2,7		
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A	abstract; figure 4B ---	1-7		
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	-/--			
<input checked="" type="checkbox"/> Further documents are listed in the continuation of box C. <input checked="" type="checkbox"/> Patent family members are listed in annex.				
° Special categories of cited documents :				
<table style="width:100%; border:none;"> <tr> <td style="width:50%; vertical-align: top;"> <ul style="list-style-type: none"> *A* document defining the general state of the art which is not considered to be of particular relevance *E* earlier document but published on or after the international filing date *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) *O* document referring to an oral disclosure, use, exhibition or other means *P* document published prior to the international filing date but later than the priority date claimed </td> <td style="width:50%; vertical-align: top;"> <ul style="list-style-type: none"> *T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention *X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone *Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art. *&* document member of the same patent family </td> </tr> </table>			<ul style="list-style-type: none"> *A* document defining the general state of the art which is not considered to be of particular relevance *E* earlier document but published on or after the international filing date *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) *O* document referring to an oral disclosure, use, exhibition or other means *P* document published prior to the international filing date but later than the priority date claimed 	<ul style="list-style-type: none"> *T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention *X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone *Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art. *&* document member of the same patent family
<ul style="list-style-type: none"> *A* document defining the general state of the art which is not considered to be of particular relevance *E* earlier document but published on or after the international filing date *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) *O* document referring to an oral disclosure, use, exhibition or other means *P* document published prior to the international filing date but later than the priority date claimed 	<ul style="list-style-type: none"> *T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention *X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone *Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art. *&* document member of the same patent family 			
Date of the actual completion of the international search <p align="center">12 March 2003</p>		Date of mailing of the international search report <p align="center">19/03/2003</p>		
Name and mailing address of the ISA 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		Authorized officer <p align="center">Ploner, G</p>		

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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.
Y	<p>TU ANH TRAN ET AL: "FINE PITCH PROBING AND WIREBONDING AND RELIABILITY OF ALUMINUM CAPPED COPPER BOND PADS" INTERNATIONAL JOURNAL OF MICROCIRCUITS AND ELECTRONIC PACKAGING, INTERNATIONAL MICROELECTRONICS & PACKAGING SOCIETY, US, vol. 23, no. 3, 1 July 2000 (2000-07-01), pages 332-338, XP000975967 ISSN: 1063-1674 page 332, column 2 -page 333, column 1; figure 1</p>	1,2,7
A	<p>EP 0 825 646 A (TOKYO SHIBAURA ELECTRIC CO) 25 February 1998 (1998-02-25) column 7, line 7 -column 8, line 49; figures 7,16-24,39-45 column 15, line 4 -column 16, line 57</p>	1-8
A	<p>EP 1 126 519 A (TEXAS INSTRUMENTS INC) 22 August 2001 (2001-08-22) paragraphs '0004!', '0005!', '0008!', '0009!</p>	1-3,7

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Information on patent family members

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