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INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification 4 :		(11) International Publication Number: WO 87/ 06029
H01L 21/31, 21/312; G03F 7/09	A3	(43) International Publication Date: 8 October 1987 (08.10.87)

(21) International Application Number: PCT/US87/00512

(22) International Filing Date: 4 March 1987 (04.03.87)

(31) Priority Application Number: 843,242

(32) Priority Date: 24 March 1986 (24.03.86)

(33) Priority Country: US

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(81) Designated States: AT (European patent), BE (European patent), CH (European patent), DE (European patent), FR (European patent), GB (European patent), IT (European patent), JP, KR, LU (European patent), NL (European patent), SE (European patent).

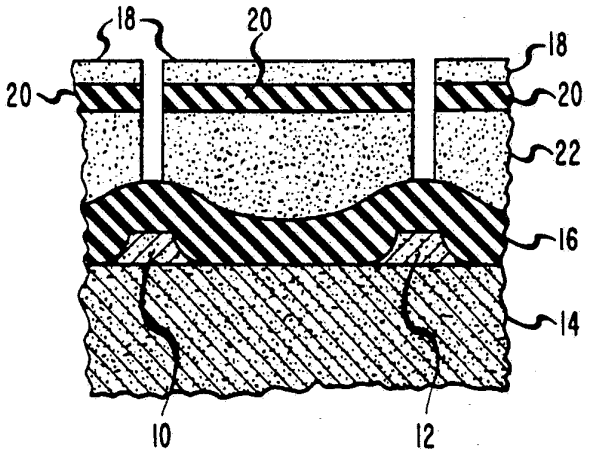
Published
With international search report
With amended claims.

Date of publication of the amended claims:
14 January 1988 (14.01.88)

(88) Date of publication of the international search report:
24 March 1988 (24.03.88)

(54) Title: PATTERN TRANSFER PROCESS FOR FABRICATING INTEGRATED-CIRCUIT DEVICES

(PRIOR ART)



(57) Abstract

Available high resolution electron-beam-sensitive resists such as PBS are characterized by poor resistance to dry etching. Such resists are therefore not suitable for use in standard trilevel-resist processes that are essential for submicron lithography. As disclosed herein, a very thin layer (24) of a wet-etchable metal is substituted for silicon dioxide in the conventional trilevel structure. Since PBS exhibits good robustness to wet etching, patterns in PBS can be transferred into the very thin metal layer without significantly degrading line-edge quality. The metal layer then serves as a robust mask to dry etch the pattern into the underlying planarizing layer (22).

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INTERNATIONAL SEARCH REPORT

International Application No PCT/US 87/00512

I. CLASSIFICATION OF SUBJECT MATTER (if several classification symbols apply, indicate all) [6]

According to International Patent Classification (IPC) or to both National Classification and IPC

IPC[4]: H 01 L 21/31; H 01 L 21/312; G 03 F 7/09

II. FIELDS SEARCHED

Minimum Documentation Searched [7]

Classification System	Classification Symbols
IPC[4]	H 01 L G 03 F 7/09

Documentation Searched other than Minimum Documentation to the Extent that such Documents are Included in the Fields Searched [8]

III. DOCUMENTS CONSIDERED TO BE RELEVANT [9]

Category [10]	Citation of Document, [11] with indication, where appropriate, of the relevant passages [12]	Relevant to Claim No. [13]
X	US, A, 4362598 (B.F. GRIFFING) 7 December 1982 see figures 3a-3e; abstract; column 2, line 37 - column 3, line 56	1
A		3,8
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X	Patent Abstracts of Japan, volume 9, no. 262 (P-398)(1985), 19 October 1985, see the whole document, & JP, A, 60111243 (NIPPON DENSHIN DENWA KOSHA) 17 June 1985	1
A		2
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A	VLSI Electronics: Microstructure Science, volume 8, 1984, Academic Press, Inc., J.B. Kruger et al.: "Trilayer resist", pages 91-136, chapter 5, see page 108, section IV.A.2. "E-beam lithography"; page 112, section IV.B.3. "Etching of the transfer layer"; page 117, section IV.C.4. "Etching of the base layer"	1-4,8
	-- ./.	

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IV. CERTIFICATION

Date of the Actual Completion of the International Search	Date of Mailing of this International Search Report
18th September 1987	14 OCT 1987
International Searching Authority	**Signature of Authorized Officer**
EUROPEAN PATENT OFFICE	M. VAN MOL

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III. DOCUMENTS CONSIDERED TO BE RELEVANT (CONTINUED FROM THE SECOND SHEET)

Category *	Citation of Document, with indication, where appropriate, of the relevant passages	Relevant to Claim No
A	International Electron Devices Meeting, (Washington, D.C., US), 8-10 December 1980, R.K. Watts et al.: "Electron beam lithography for small MOSFETs", pages 772-775 see figure 2; page 772, left-hand column, line 9 from bottom - page 772, right-hand column, line 1 --	1,4,8
A	EP, A, 0100736 (FAIRCHILD) 15 February 1984 see figures 1-4; page 6, line 6 - page 8, line 9 --	1,2,6,8
A	Patent Abstracts of Japan, volume 7, no. 83 (C-160)(1223), 7 April 1983, see the whole document, & JP, A, 5811786 (MATSUSHITA DENKI SANGYO K.K.) 22 January 1983 --	7
A	US, A, 4244799 (BELL) 13 January 1981 see figures 2-5; abstract cited in the application	1

ANNEX TO THE INTERNATIONAL SEARCH REPORT ON

INTERNATIONAL APPLICATION NO. PCT/US 87/00512 (SA 16598)

This Annex lists the patent family members relating to the patent documents cited in the above-mentioned international search report. The members are as contained in the European Patent Office EDP file on 29/09/87

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Patent document cited in search report	Publication date	Patent family member(s)		Publication date
US-A- 4362598	07/12/82	None		
EP-A- 0100736	15/02/84	JP-A-	59043029	09/03/84
		US-A-	4451971	05/06/84
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