



UNITED STATES DEPARTMENT OF COMMERCE
Patent and Trademark Office

Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231

APPLICATION NUMBER	FILING DATE	FIRST NAMED APPLICANT	ATTORNEY DOCKET NO.
08/561,951	11/22/95	YEN	T 64.663-004

B5M2/1107
BARNES KISSELLE RAISCH CHOATE
WHITTEMORE & HULBERT
3500 PENOBSCOT BUILDING
DETROIT MI 48226

EXAMINER
WALLACE, V

ART UNIT	PAPER NUMBER
2503	5

DATE MAILED: 11/07/96

This is a communication from the examiner in charge of your application.
COMMISSIONER OF PATENTS AND TRADEMARKS

OFFICE ACTION SUMMARY

☒ Responsive to communication(s) filed on 8-19-96

☒ This action is **FINAL**.

☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 1935 D.C. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire 3 month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claims

☒ Claim(s) 2-6, 8-17 is/are pending in the application.

Of the above, claim(s) _____ is/are withdrawn from consideration.

☐ Claim(s) _____ is/are allowed.

☒ Claim(s) 2-6, 8-17 is/are rejected.

☐ Claim(s) _____ is/are objected to.

☐ Claims _____ are subject to restriction or election requirement.

Application Papers

☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☐ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been
☐ received.

☐ received in Application No. (Series Code/Serial Number) _____

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

☒ Notice of Reference Cited, PTO-892

☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). _____

☐ Interview Summary, PTO-413

☐ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

INTEL 1107

08/561,951
PTOL-326 (Rev. 10/95)

- SEE OFFICE ACTION ON THE FOLLOWING PAGES -

Serial Number: 08/561,951

Page 2

Art Unit: 2503

DETAILED ACTION

Field of Search

This office action has been created under the Patent and Trademark Office Semiconductor Technology Quality Assurance Pilot Program. It incorporates the examination quality standards set as a result of customer focus sessions with the semiconductor industry. The listing of the field of search to follow is one of these standards.

Field of Search	Date
U.S. Class and subclass: 257/382, 383, 387, 388; 437/190, 192 257/295, 296, 382, 383, 387, 903; 437/190, 192	4/14/96 11/1/96
Other Documentation: foreign references in 257/382, 383, 387, 388; 437/190, 192 foreign references in 257/295, 296, 382, 383, 387, 903; 437/190, 192	4/14/96 11/1/96
Electronic data base(s): APS data search	11/1/96

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

Serial Number: 08/561,951

Page 3

Art Unit: 2503

A person shall be entitled to a patent unless --

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

Claims 2-6, 8-14 and 16-17 are rejected under 35 U.S.C. 102(e) as being anticipated by Nicholls et al. (U.S. Patent No. 5,541,434).

Nicholls et al. disclose a semiconductor structure comprising:

a silicon substrate (2) having a top surface;

a diffusion region (10) formed within said top surface of said substrate;

a polysilicon gate (6) formed on said top surface and juxtaposed to but not in contact with said diffusion region, wherein said polysilicon gate and said diffusion region are doped to N⁺ or P⁺ polarity (see Nicholls et al. column 2, lines 53-56 and 67 and column 3, lines 1-2);

an insulator layer (14) formed of silicon oxide (see Nicholls et al. column 3, lines 4-5 and 27-30) and substantially covering said gate and said diffusion region;

a contact via (16) etched into said insulating layer, such that said gate and said diffusion region are exposed;

and depositing an electrically conducting plug (20) formed of tungsten into said contact via, such that said plug provides direct electrical communication between said polysilicon gate and said diffusion region (see Nicholls et al. column 32-37). Note Nicholls et al. Figure 1e.

Therefore Nicholls et al. meet and anticipate the claims.

Serial Number: 08/561,951

Page 4

Art Unit: 2503

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nicholls et al. in view of Jones, Jr. (U.S. Patent No. 5,313,089).

The disclosure of Nicholls et al. as discussed above. However, Nicholls et al. fail to disclose forming the conductive plug with a refractory metal layer and a layer of glue.

Therefore, to provide the device of Nicholls et al. with a conductive plug comprised of an outer glue layer and a plug of a refractory metal as taught by Jones, Jr. would have been obvious to one of ordinary skill in this art because Jones, Jr. specifically teach the procedure of forming a conductive plug (32) within a dielectric layer (30) wherein said plug has a layer of glue and a plug of tungsten as well known and commonly used in conductive plug technology (see Jones, Jr. column 3, lines 64-68 and column 4, lines 1-17). Note Jones, Jr. Figure 2.

Response to Amendment

The addition of claims 15-17 and the cancellation of claims 1 and 7 in the amendment received August 19, 1996 are acknowledged.

Serial Number: 08/561,951

Page 5

Art Unit: 2503

Response to Arguments

Applicant's arguments with respect to claims 2-6 and 8-14 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

1. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for response to this final action is set to expire **THREE MONTHS** from the date of this action. In the event a first response is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event will the statutory period for response expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Valencia Martin Wallace whose telephone number is (703) 308-4119. The examiner can normally be reached on Monday - Thursday from 8:00 a.m. to 5:00 p.m.

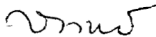
Serial Number: 08/561,951

Page 6

Art Unit: 2503

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mahshid Saadat, can be reached on (703) 308-4915. The fax phone number for this Group is (703) 308-7723.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0956.


Martin Wallace
November 1, 1996


MAHSHID D. SAADAT
SUPERVISORY PATENT EXAMINER
GROUP 2500

TO SEPARATE, HOLD TOP AND BOTTOM EDGES, SNAP-APART AND DISCARD CARBON

FORM PTO-892 (REV. 2-92)		U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE		SERIAL NO. 900,047 08561,954	GROUP/ART UNIT 2503	ATTACHMENT TO PAPER NUMBER	5
NOTICE OF REFERENCES CITED				APPLICANT(S) Yen			

U.S. PATENT DOCUMENTS																	
•	A	B	C	D	E	F	G	H	I	J	K	DOCUMENT NO.	DATE	NAME	CLASS	SUB-CLASS	FILING DATE IF APPROPRIATE
												A 5313089	5-17-94	Jones, Jr.	257	296	
												B 5541434	7-30-96	Nicholls et al.	257	383	9-10-93

FOREIGN PATENT DOCUMENTS														
•	L	M	N	O	P	Q	DOCUMENT NO.	DATE	COUNTRY	NAME	CLASS	SUB-CLASS	PERTINENT SHTS. DWG.	PP. SPEC.

OTHER REFERENCES (Including Author, Title, Date, Pertinent Pages, Etc.)									
•	R	S	T	U	DOCUMENT NO.	DATE	COUNTRY	NAME	TITLE

EXAMINER V. M. Wallace	DATE 11-1-96	
----------------------------------	------------------------	--

• A copy of this reference is not being furnished with this office action.
(See Manual of Patent Examining Procedure, section 707.05 (a).)