

The opinion in support of the decision being entered today was **not** written for publication and is **not** binding precedent of the Board.

Paper No. 39

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte FUMITOSHI YAMAMOTO and TOMOHIDE TERASHIMA

Appeal No. 1998-2046
Application No. 08/787,332

ON BRIEF

Before RUGGIERO, HECKER and DIXON, ***Administrative Patent Judges.***

HECKER, ***Administrative Patent Judge.***

DECISION ON APPEAL

This is a decision on appeal from the final rejection of claims 1 through 6, 12 and 13. Claims 7 through 11 have been withdrawn from consideration as being directed to a non-elected invention. This constitutes all claims pending in the application.

The invention relates to a semiconductor device having a high breakdown voltage. In particular, referring to Figures 1A and 1B, inorganic insulating film 15 covers first and

second electrode layers 11 and 13 respectively. Organic insulation film 17 is formed above first electrode 11, on the surface of film 15. An interconnection layer 19 (third electrode) is formed over film 17 (and first electrode 11), and also makes contact with second electrode 13 via through hole 15a. The thickness of the insulating material at T_{10} ensures a high breakdown voltage between electrodes 11 and 19, while the narrower thickness of insulating material at T_{20} allows a low aspect ratio at hole 15a, allowing adequate fill by sputtering.

Independent claim 1 is reproduced as follows:

1. A semiconductor device, comprising:

a semiconductor substrate having a main surface;

a first conductive layer extending entirely above the main surface of the semiconductor substrate;

a second conductive layer extending entirely above the main surface of the semiconductor substrate, which second conductive layer is different from said first conductive layer, said first and second conductive layers being structurally situated at the same level with respect to the main surface of the semiconductor substrate, wherein said second conductive layer comprises a

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sidewall and said first conductive layer continuously surrounds the sidewall of the second conductive layer;

an insulating layer formed on said first and second conductive layers, said insulating layer having an upper surface and a hole therethrough from the upper surface to a surface of said second conductive layer; and

a third conductive layer formed on said insulating layer in direct contact with said second conductive layer through said hole and spaced apart from said first conductive layer with said insulating layer therebetween; wherein,

a thickness of said insulating layer at a region surrounding said hole from the upper surface of the insulating layer to the surface of the second conductive layer is less than a thickness of insulating material separating said first and third conductive layers from each other.

The Examiner relies on the following references:

Rathbun et al. (Rathbun)	4,628,006	Dec. 9, 1986
Kwansnick et al. (Kwansnick)	5,233,181	Aug. 3, 1993

Appellants' Admitted Prior Art (APA) Figures 18-29

Claims 1 through 6, 12 and 13 stand rejected under 35 U.S.C.

§ 112, first paragraph, as containing subject matter not supported by the specification.

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Claims 1, 4, 6 and 12 stand rejected under 35 U.S.C. § 103 as being unpatentable over APA.

Claims 2, 5 and 13 stand rejected under 35 U.S.C. § 103 as being unpatentable over APA in view of Kwansnick.

Claim 3 stands rejected under 35 U.S.C. § 103 as being unpatentable over APA and Kwansnick, further in view of Rathbun.

Rather than reiterate the arguments of Appellants and the Examiner, reference is made to the brief, reply brief and answer for the respective details thereof.

OPINION

After a careful review of the evidence and record before us, we will not sustain the rejection of claims 1 through 6, 12 and 13 under 35 U.S.C. § 112, first paragraph or under 35 U.S.C. § 103.

35 U.S.C. § 112, paragraph 1

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The Examiner maintains the subject matter of claim 1 was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors, at the time the application was filed, had possession of the claimed invention. In particular, the Examiner states, "[T]he thickness criteria is not supported in the specification." (Brief-pages 3 and 4.)

It is our view, after consideration of the record before us, that the disclosure in this application does comply with the written description requirement of 35 U.S.C. § 112.

Initially we note that the Examiner's reasoning for lack of "support" for the claimed invention herein, implicitly refers to the written description portion of this statutory provision. *In re Higbee*, 527 F.2d 1405, 1406, 188 USPQ 488, 489 (CCPA 1976). The purpose of the written description requirement is to ensure that the applicants convey with reasonable clarity, to those skilled in the art, that they were in possession of the invention as of the filing date of the application. For the purposes of the written description requirement, the invention is "whatever is now claimed." **Vas-**

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cath, Inc. v. Mahurkar, 935 F.2d 1555, 1564, 19 USPQ2d 1111, 1117 (Fed. Cir. 1991).

The manner in which the specification as filed meets the written description requirement is not material. The requirement may be met by either an express or an implicit disclosure. **In re Wertheim**, 541 F.2d 257, 262, 191 USPQ 90, 96 (CCPA 1976). An invention claimed need not be described in **ipsis verbis** in order to satisfy the written description requirement of 35 U.S.C.

§ 112, first paragraph. **In re Lukach**, 442 F.2d 967, 969, 169 USPQ 795, 796 (CCPA 1971). The question is not whether an added word was the word used in the specification as filed, but whether there is support in the specification for the employment of the word in the claims, that is, whether the concept is present in the original disclosure. **See In re Anderson**, 471 F.2d 1237, 1244, 176 USPQ 331, 336 (CCPA 1973).

In the instant case the Examiner finds no support in the specification for the claim language:

a thickness of said insulating **layer** at a region surrounding said hole from the upper surface of the insulating **layer** to the surface of the second

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conductive layer is less than a thickness of insulating **material** separating said first and third conductive layers from each other. [Emphasis added.]

Looking at Figure 1A we clearly see said insulating **layer** 15, surrounding said hole 15a, having a thickness less than the thickness of insulating **material** (layers 15 and 17) separating said first (11) and third (19) conductive layers from each other. As argued by Appellants (brief-page 5), a narrative description of this can be found in their specification at page 19, line 13 through page 20, line 22. Furthermore, language similar to that recited in claim 1 can be found in the specification at page 12, lines 4-9.

The Examiner responds (answer-page 6) that layer 17 is an additional layer (claim 2, second layer) and contradicts Appellants' interpretation of claim 1. We see no contradiction in additional layer 17 being part of the insulating **material** recited in claim 1. Thus, we find the specification met the written description requirement of 35 U.S.C. § 112, first paragraph. Accordingly, we will not sustain the Examiner's

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35 U.S.C. § 112 rejection of claim 1 and accordingly, its dependent claims.

35 U.S.C. § 103 Rejections

The Examiner has failed to set forth a *prima facie* case. It is the burden of the Examiner to establish why one having ordinary skill in the art would have been led to the claimed invention by the reasonable teachings or suggestions found in the prior art, or by a reasonable inference to the artisan contained in such teachings or suggestions. *In re Sernaker*, 702 F.2d 989, 995, 217 USPQ 1, 6 (Fed. Cir. 1983).

"Additionally, when determining obviousness, the claimed invention should be considered as a whole; there is no legally recognizable 'heart' of the invention." *Para-Ordnance Mfg. v. SGS Importers Int'l, Inc.*, 73 F.3d 1085, 1087, 37 USPQ2d 1237, 1239 (Fed. Cir. 1995) (*citing W. L. Gore & Assocs., Inc. v. Garlock, Inc.*, 721 F.2d 1540, 1548, 220 USPQ 303, 309 (Fed. Cir. 1983), *cert. denied*, 469 U.S. 851 (1984)).

With regard to claims 1, 4, 6 and 12, the Examiner indicates that APA Figures 18-29 teach the claimed structure and notes that insulator 401 covers both conductive layers 11

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and 13 (answer-page 4). It appears that the Examiner is ignoring the fact that insulator 401 has no difference in thickness as required by claim 1. However, in response to Appellants' brief, the Examiner further notes APA Figure 28 (answer-page 6) and Kwansnick (answer-page 7). The Examiner provides no explanation as to how these citations would be combined to meet the requirements of claim 1. Moreover, Kwansnick was never directly applied against claim 1. Additionally, as argued by Appellants (brief-pages 8 and 9), the Examiner has not indicated how APA would be modified, or how Figures 18-29 would be combined, to arrive at Appellants' claimed invention.

The Federal Circuit states that "[t]he mere fact that the prior art may be modified in the manner suggested by the Examiner does not make the modification obvious unless the prior art suggested the desirability of the modification." ***In re Fritch***, 972 F.2d 1260, 1266 n.14, 23 USPQ2d 1780, 1783-84 n.14 (Fed. Cir. 1992), ***citing In re Gordon***, 733 F.2d 900, 902, 221 USPQ 1125, 1127 (Fed. Cir. 1984). "Obviousness may not be established using hindsight or in view of the teachings

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or suggestions of the inventor." *Para-Ordnance Mfg. v. SGS Importers Int'l*, 73 F.3d at 1087, 37 USPQ2d at 1239, *citing W. L. Gore & Assocs., Inc. v. Garlock, Inc.*, 721 F.2d at 1551, 1553, 220 USPQ at 311, 312-13.

As pointed out above, there is no evidence in the record that the prior art suggested the structure recited in claim 1. Kwansnick was relied upon for the use of an organic insulator, and Rathbun for the organic insulator being polyphenylsilsesquioxane. These references fail to cure the deficiencies of APA in meeting the requirements of the claimed invention. Thus, we will not sustain the Examiner's 35 U.S.C. § 103 rejection of claim 1.

The remaining claims on appeal also contain the above limitations discussed in regard to claim 1 and thereby, we will not sustain the rejection as to these claims.

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We have not sustained the rejection of claims 1 through 6, 12 and 13 under 35 U.S.C. § 112 or under 35 U.S.C. § 103. Accordingly, the Examiner's decision is reversed.

REVERSED

JOSEPH F. RUGGIERO)	
Administrative Patent Judge)	
)	
)	
)	
)	BOARD OF PATENT
STUART N. HECKER)	APPEALS
Administrative Patent Judge)	AND
)	INTERFERENCES
)	
)	
)	
JOSEPH L. DIXON)	
Administrative Patent Judge)	

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DECISION: **REVERSED**

Panel Change: Yes No

Prepared: December 20, 2001

3 MEM. CONF. Y N

OB/HD

GAU: 2800

PALM: ____

ACTS 2 ____

BOOK ____

DISK (FOIA) ____

MONTHLY REPORT ____