

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.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. 33

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte RUICHEN LIU, HELEN L. MAYNARD,
and CHEIN-SHING PAI

Appeal No. 2004-0721
Application No. 09/401,409

ON BRIEF

Before GARRIS, KRATZ, and PAWLIKOWSKI, Administrative Patent Judges.

GARRIS, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on an appeal from the final rejection of claims 1-6 and 13-25 which are all of the claims remaining in the application.

The subject matter on appeal relates to a process for making a multi-layer interconnect which comprises depositing a low-k

Appeal No. 2004-0721
Application No. 09/401,409

dielectric material directly on a pad and lines of a topographical substrate, depositing an oxide on the low-k dielectric material and planarizing the oxide using a CMP process. Further details of this appealed subject matter are set forth in representative independent claim 1 which reads as follows:

1. A process for making a multi-layer interconnect, comprising:

depositing directly on a pad and lines of a topographical substrate a low-k dielectric material having a height greater on said pad than on said lines, wherein said low-k dielectric material has a dielectric constant of less than 2.8;

depositing an oxide on said low-k dielectric material;

planarizing said oxide using a CMP process;

making via holes through said oxide and said low-k dielectric material, wherein prior to making via holes, all of said deposited low-k dielectric material remains as deposited on said pad and lines to form said multi-layer interconnect.

The reference set forth below is relied upon by the examiner in the section 102 rejection before us:

Xu et al. (Xu)	6,207,554	Mar. 27, 2001 (filed Jul. 12, 1999)
----------------	-----------	--

All of the appealed claims stand rejected under 35 U.S.C. § 102(e) as being anticipated by Xu.¹

¹ As indicated on page 4 of the brief, the claims on appeal will stand or fall together. Accordingly, in assessing the

(continued...)

We refer to the brief and reply brief and to the answer for a complete discussion of the contrary viewpoints expressed by the appellants and by the examiner regarding the above noted rejection.

OPINION

We will sustain this rejection for the reasons which follow.

It is undisputed that Xu's first embodiment, which is shown in Figures 2a-2d, includes an adhesion layer 7 between the low dielectric constant layer 6 and cap silicon oxide layer 8 (e.g., see lines 16-58 in column 6). However, the examiner and the appellants disagree as to whether appealed independent claim 1 excludes the adhesion layer in Xu's first embodiment via the here claimed step of "depositing an oxide on said low-k dielectric material." According to the examiner, this step does not require that the oxide 8 be deposited directly on the low-k dielectric material and therefore encompasses the adhesion layer between patentee's oxide and low-k dielectric material.²

¹(...continued)
merits of the rejection advanced by the examiner, we will focus on representative independent claim 1 with which all other claims will stand or fall. See 37 CFR § 1.192(c)(7)(2002).

² The last paragraph on page 5 of the answer indicates that the examiner may consider Figure 1a of Xu as supporting his above discussed anticipation finding. This is incorrect. As properly
(continued...)

The appellants seem to implicitly concede that the definition of the word "on" in the here claimed depositing step is broad enough to encompass Xu's adhesive layer but argue that, when interpreted in light of the subject specification, it is clear that the appealed claims require the oxide to be in contact with the low-k dielectric material thereby excluding patentee's intermediate adhesive layer. The appellants more fully describe their position on page 7 of the brief in the following manner:

The specification of the Present Application clearly states in *describing the elements of FIG.3*: "a thick oxide layer of conventional dielectric material 18 (which in this embodiment is SiO₂) is deposited on low-k material 16. Oxide layer 18 deposits conformally and roughly assumes the topography of the low-k material 16 beneath the oxide layer[18]." [Emphasis Added] (Application Page 4, Lines 9-11). It is clear when FIG. 3 and the associated text are taken together in context, that the use of the word "on" is in the sense of "in contact with an outer surface" as shown in FIG. 3.

²(...continued)

explained by the appellants in the reply brief, the Figure 1 disclosure concerns prior art and problems relating thereto whereas the Figure 2 disclosure concerns Xu's invention which overcomes the problems of this prior art. Plainly, these disclosures are not related to each other, and it is well settled that a section 102 rejection must not involve combining various disclosures not directly related to each other by the teachings of the reference. See In re Arkley, 455 F.2d 586, 587, 172 USPQ 524, 526 (CCPA 1972). Nevertheless, in any further prosecution that may occur, the examiner and the appellants should consider whether these disclosures might be properly combinable in the context of a rejection under 35 U.S.C. § 103(a).

Appeal No. 2004-0721
Application No. 09/401,409

It is a long standing legal principle that, during examination proceedings, claims are to be given their broadest reasonable interpretation consistent with the specification. In re Hyatt, 211 F.3d 1367, 1372, 54 USPQ2d 1664, 1667 (Fed. Cir. 2000). However, it is important to recognize that, while claims are to be interpreted in light of the specification and with a view to ascertaining the invention, it does not follow that limitations from the specification may be read into the claims. Sjolund v. Musland, 847 F.2d 1573, 1581, 6 USPQ2d 2020, 2027 (Fed. Cir. 1988). This is because it has been repeatedly held that limitations from the specification are not to be read into the claims. Amgen Inc. v. Hoechst Marion Roussel Inc., 314 F.3d 1313, 1325, 65 USPQ2d 1385, 1393 (Fed. Cir. 2003); E.I. Dupont de Nemours & Co. v. Phillips Petroleum Co., 849 F.2d 1430, 1433, 7 USPQ2d 1129, 1131 (Fed. Cir.), cert. denied, 488 U.S. 986 (1988).

Concededly, there is sometimes a fine line between reading a claim in light of the specification and reading a limitation into the claim from the specification. Notwithstanding the potential fineness of this line, it is reasonably clear in this case that the appellants would have us cross it from the former to the latter. This is because, while the appellants' arguments speak of reading the appealed claims in light of the specification, the

Appeal No. 2004-0721
Application No. 09/401,409

consequence of yielding to these arguments would be to read a limitation of the specification into these claims.

We reach this determination for a number of reasons.

First, there is a heavy presumption that a claim term carries its ordinary and customary meaning. Amgen Inc. v. Hoechst Marion Roussel Inc., 314 F.3d at 1327, 65 USPQ2d at 1394. As previously indicated, the appellants at least implicitly have conceded that the ordinary and customary meaning of the claim term "on" encompasses the interpretation urged by the examiner whereby the here claimed depositing step may be regarded as encompassing Xu's step of depositing an oxide indirectly on a low-k dielectric material. Though such a claim interpretation is broad, it is not unreasonable or inconsistent with the appellants' specification since the specification contains no restricted definition of the term "on" which would require the more narrow claim construction asserted by the appellants. See In re Hyatt, 211 F.3d at 1372-73, 54 USPQ2d at 1668.

In addition, it is significant that the subject specification disclosure does not in any way exclude an embodiment in accordance with the examiner's claim interpretation wherein the appellants' oxide is deposited indirectly on the low-k dielectric material. For example, the etch-back and other

Appeal No. 2004-0721
Application No. 09/401,409

problems solved by the present invention (e.g., see the last two paragraphs on page 1 in comparison with the first paragraph on page 2 of the specification) are unrelated to the interface between the appellants' oxide and his low-k dielectric material. Indeed, the disclosure of the subject specification and drawing does not in any way characterize this interface as being critical or even relevant to the appellants' invention or the objectives thereof. Thus, while this disclosure would convey to an artisan that the appellants' invention includes an embodiment wherein the oxide is deposited directly on a low-k dielectric material, it certainly does not convey that the appellants' invention excludes an embodiment wherein the oxide is deposited indirectly on a low-k dielectric material. When viewed from this perspective, it is particularly apparent that the appellants' claim interpretation is more narrow than not only the claim language but also the specification disclosure and therefore involves the impermissible practice of reading a limitation of the specification into the claims.

Under these circumstances, it is appropriate that we hereby sustain the examiner's section 102 rejection of all appealed claims as being anticipated by Xu.

Appeal No. 2004-0721
Application No. 09/401,409

The decision of the examiner is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a).

AFFIRMED

Bradley R. Garris)	
Administrative Patent Judge)	
)	
)	
)	
Peter F. Kratz)	BOARD OF PATENT
Administrative Patent Judge)	APPEALS AND
)	INTERFERENCES
)	
)	
Beverly A. Pawlikowski)	
Administrative Patent Judge)	

BRG:tdl

Appeal No. 2004-0721
Application No. 09/401,409

Hitt Gaines P.C.
P.O. Box 832570
Richardson, TX 75083