

No. 2010-1270

IN THE
UNITED STATES COURT OF APPEALS
FOR THE FEDERAL CIRCUIT

FILED
U.S. COURT OF APPEALS FOR
THE FEDERAL CIRCUIT

OCT 12 2010

JAN HOBBALEY
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QIMONDA AG,

Appellant,

v.

INTERNATIONAL TRADE COMMISSION,

Appellee,

and

LSI CORPORATION,

Intervenor,

and

SEAGATE TECHNOLOGY, SEAGATE TECHNOLOGY (US) HOLDINGS
INC., SEAGATE TECHNOLOGY LLC, and SEAGATE (US) LLC,

Intervenors.

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U.S. COURT OF APPEALS
FEDERAL CIRCUIT

On appeal from the United States International Trade Commission
in Investigation No. 337-TA-665

REPLY BRIEF OF APPELLANT QIMONDA AG

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CERTIFICATE OF INTEREST

Pursuant to Federal Circuit Rule 47.4(a)(1) and Federal Rule of Appellate Procedure 26.1, counsel for Qimonda AG certifies the following:

1. The full name of every party represented by me is:

Qimonda AG

2. The name of the real party in interest (if the party named in the caption is not the real party in interest) represented by me is:

The parties named in the caption are the real parties in interest.

3. All parent corporations and any publicly held companies that own 10 percent or more of the stock of the party represented by me are:

Infineon Technologies AG holds 28.44% of QAG's share capital and Infineon Technologies Investment BV, a wholly-owned subsidiary of Infineon Technologies AG, holds 49.03% of QAG's share capital. To the best of my knowledge, no other corporation owns 10% or more of QAG's equity interests.

4. The names of all law firms and partners or associates that appeared in the agency for the party represented by me or are expected to appear in this court are:

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ARGUMENT

Appellee International Trade Commission (“the Commission”) and intervenors LSI Corporation and Seagate Technology, Seagate Technology (US) Holdings, Inc., Seagate Technology LLC, Seagate Memory Products (US) Corporation, and Seagate (US) (collectively “intervenors”) read claim 1 as if it said “removing *all* the exposed portion of the insulating material over the active regions, leaving *only* unexposed portions of the insulating materials.” But the words critical to that reading—“all” and “only”—simply are not in the claim. By contrast, Qimonda’s construction of that phrase relies on the ordinary meaning of the words that are there. Qimonda’s construction is supported by the surrounding claim language and the specification’s repeated descriptions of the purpose of the invention. The Commission and intervenors’ reliance on one embodiment discussed in the specification and the prosecution history gives no support to their proposed construction and cannot be reconciled with this Court’s precedent.

In order to forestall the Court actually ruling the merits of Qimonda’s construction, intervenors request that the Court improperly take judicial notice of alleged changes to Qimonda since the Commission issued its final determination. The alleged changes, even if true, do not affect the issue of liability currently before the Court. Once the Court reverses the ALJ’s claim construction, the Commission will be able to decide in the first instance on remand what remedial

orders are appropriate. The new facts alleged by intervenors are not of record, nor is the issue of the appropriate remedy the Commission may impose in the event of reversal before the Court.

A. The Efforts Of The Commission And Intervenors To Defend The ALJ's Claim Construction Simply Confirm The ALJ's Errors

1. *The contrast between "removing" the insulating material and "exposing" the active regions confirms that "removing" does not require complete elimination of insulating material from any portion of the active regions*

As both the Commission and intervenors agree, claim 1 teaches at least two distinct steps after the insulating material is deposited: (1) "removing the exposed portion of the insulating material over the active regions;" and later (2) "planarizing the surface * * * to expose the active regions." (A683 at col. 9:18-19, 9:9-10.)

The distinctive language used in the two components of the claim demonstrates that it is not the removal of the insulating material that exposes the active regions, but the subsequent planarizing step. Yet the Commission and intervenors both contend (ITC Br. 24-25; Int. Br. 12-14) that in order to meet the requirement of "removing the exposed portion of the insulating material," all of the portion of the active region not covered by the mask region must be fully exposed, *i.e.*, no residual insulating material remaining. The plain language of claim 1, however, points in exactly the opposite direction because it uses a different verb

(expose) to convey that distinct meaning. Conspicuously, even though this issue was raised in Qimonda's initial brief, appellee and intervenors did not attempt to square their construction with the claim's description of the "planarizing" step.

Contrary to the Commission's assertion (ITC Br. 20-21), this construction of the claim is consistent with common usage of the phrase "removing the." For example, if a person was told "remove the seats" from a bar, he could comply by removing the top portion of the barstools (the seat where the person sits) and leaving the legs. Similarly, if a person were told to "remove the crowd" from a plaza, he could do so by removing some people but not everyone from the plaza. In both situations, such a removal would make the subsequent process to "expose" the bar or plaza easier because some of the item had already been removed. In both circumstances, removal of sufficient quantities of the item is consistent with the objective of the instruction. That is precisely how claim 1 is structured. It teaches the removal of insulating material so that the subsequent planarization to expose the active regions can be done more quickly and efficiently. (Opening Br. 29-30.)

Thus, the controlling question is whether sufficient material has been etched away to accomplish the ultimate objective. Whether the instruction is to disperse a crowd, or as the ITC invites (ITC Br. 9), removing a road of snow, removing some people or amount of snow may be sufficient to achieve the objective. If removing

the crowd is designed to relieve congestion in the plaza, some but not all people may need to be removed. On the other hand, if the plaza is going to be repaved, removing the crowd might require the removal of everyone on the plaza. Likewise, if the objective of removing the snow is to make the road passable by cars, one would expect most of the snow to be removed. But, as is common in many cold-weather regions, removing the snow from the roadways often leaves some snow on the road so long as it does not inhibit driving, the shoulders of the road, and between the lanes of traffic. Again, the circumstances and objective of the command inform the construction given to the term “remove the.”

In this case, the claim anticipates that the planarizing step will take away “*at least a portion of insulating material from the active regions.*” (A683 at col. 9:10-11 (emphasis added).) By using the modifier “at least,” the language is clear that the planarizing step may do more depending on how much (or little) the etching stage accomplished. This again confirms that the etching stage was not expected to completely eliminate the insulating material from any portion of the active regions.

2. *Reading “removing” to consist of taking away some, but not necessarily all, of the insulating material over the active regions is consistent with the modifying term “exposed portion”*

Reading “removing the exposed portion of the insulating material” to mean taking away some, but not necessarily all, of the insulating material is further

bolstered by the claim language describing the portion to be removed as the “exposed” portion. (A683 col. 9:18.) That is another term that shows that not all the insulating material must be completely eliminated from any portion of the active region not covered by the mask region.

As analogized by appellee the deposition of insulating material is similar to a snowfall. (ITC Br. 9.) In a snowfall, the first snowflakes dust and cover the ground before themselves being covered by subsequently falling snowflakes, which are in turn covered by snowflakes that fall still later. After the snow has fallen only the snowflakes at the very surface of the accumulated snow are exposed to outside elements, such as the sun and wind.

Here, the only insulating material that is “exposed” is the insulating material on the very surface of the insulating layer which is not overlain by any other material, whether photoresist material or other insulating material. *See Tate Access Floors, Inc. v. Maxcess Techs., Inc.*, 222 F.3d 958 (Fed. Cir. 2000) (finding that the construction of the term “to expose” to mean “to uncover or to reveal” was consistent with the term’s ordinary meaning). Although comprised of molecules instead of snowflakes, the insulating material is similarly deposited. During fabrication of a semiconductor chip a blanket of insulating material is deposited on the chip’s substrate. This blanket of insulating material is formed by placing molecules of insulating material on top of one another. When the deposition step

is completed, only the molecules on the top are exposed, because later deposited molecules cover earlier deposited ones. And prior to the etching step, portions of the exposed layer of molecules of insulating material are covered by photoresist. Therefore, at the inception of the etching step, the only exposed portions of insulating material are those molecules at the surface of insulating material not overlain by photoresist. All other insulating material is shielded from the etchant used in the etching step because it is overlain by either photoresist, later deposited insulating material, or both. Therefore, at the start of the “removing” step, only the molecules at the very surface of the insulating layer on those sections of the insulating layer not overlain by photoresist will be exposed to etchant and etched away. Thus, the claimed element is satisfied once the exposed molecules of insulating material are removed.

3. *The Commission and intervenors improperly read in limitations from the preferred embodiment*

Both the Commission and intervenors repeatedly rely on the patent’s description of the preferred embodiment to support their proposed construction. But it is not permissible to read limitations from an embodiment into a claim where nothing in the patent or its prosecution history justifies such an interpretation, even when only one preferred embodiment is disclosed in the specification. *See Liebel-Flarsheim Co. v. Medrad, Inc.*, 358 F.3d 898, 906 (Fed. Cir.) (“Even when the specification describes only a single embodiment, the claims of the patent will not

be read restrictively unless the patentee has demonstrated a clear intention to limit the claim scope using ‘words or expressions of manifest exclusion or restriction.’” (citation omitted)), *cert. denied*, 543 U.S. 925 (2004).

a. In doing so, the Commission and intervenors ignore the specification’s clear description of the invention as requiring only an etching step which removes enough insulating material so that the duration of the subsequent planarizing step is sufficiently shortened so that a planar surface can be obtained, thereby “removing” it as an obstacle to subsequent processing of the wafer:

In accordance with the invention, the CMP step is shortened to avoid excessive erosion of the STIs and narrow active regions. *In one embodiment*, shortening of the CMP step is achieved by selectively removing portions of the oxide from the triangular-shaped oxide regions above the active areas.

(A681 at col. 6:48-59 (emphases added); *see also* A680 at col. 3:54-62.) The specification’s description of the invention, as opposed to descriptions of individual embodiments, is an important aid in understanding the claim language. *PSN Illinois, LLC v. Ivoclar Vivadent, Inc.*, 525 F.3d 1159, 1166 (Fed. Cir.) (“When read in context of the claim language and the specification, we find that the district court was incorrect in holding that the description of a preferred embodiment had more bite than the description in the summary of the invention.”), *cert. denied*, 129 S. Ct. 647 (2008).

It is the specification's description of the invention, and not its description of the embodiment relied upon by the Commission and intervenors, that tracks the claim language. In describing the invention, the specification teaches the planarizing step and not the etching step as the step that exposes the active regions: "Portions of the insulation layer [are] selectively removed, enabling the subsequent planarization step, which exposes the active regions, to be shortened." (A680 at col. 3:56-59; *see also* A681 at col. 6:19-20, 6:22-25, 6:35-36, 6:40-45, 6:53-59.)

This mirrors the claim's description of the planarizing step: "planarizing the surface of said substrate to expose the active regions." As discussed above, if the "removing" step performed prior to the planarizing step was required to remove *all* of the insulating material not overlain by photoresist, portions over the active regions would already be completely exposed prior to the planarizing step.

b. The contrary arguments pressed by the Commission and intervenors fall into the trap of working only with certain embodiments and not the broad scope of the claims. For example, both argue that the "unexposed portions of the insulating materials" that are left after "removing the exposed portion" are the "wedge-shaped portions" shown in Figure 4B. (ITC Br. 11-12, 26-28; Int. Br. 8, 20-23.)

But those "wedge-shaped portions" are the result of the mask layer covering at least a portion of the sloping edges of the insulating layer in the active regions.

But that is a specific requirement of dependent claim 2. (A683 at col. 9:25-28.). The specification confirms that not every embodiment of claim 1 will cover the sloping edges, which is necessary to yield the wedge-shaped portions. “In *one embodiment*, the amount of bias is sufficient to shift the edges of the photoresist onto the sloping edges 55 and 56 to about an amount which covers the sloping edges of the oxide layer.” (A682 at col. 7:23-25 (emphasis added).)

Claim 1, by contrast, requires only that the mask “cover[] the non-active regions and at least a portion of the active regions.” (A683 at col. 9:23-24.) That requirement could be met without creating any “sloping edges” by, for example, covering the middle of the wide active area in the center of Figure 4A. Indeed, the specification makes clear that “[i]f a portion of center [of] the oxide region 52 is removed, then each of the remaining side portions should not exceed about the amount of oxide in triangle 54.” (A681 at col. 6:65-66.)

The Commission and intervenors also point to one type of etching mentioned in the specification, reactive ion etching, that they claim takes away all the insulating material not under the photoresist mask. (ITC Br. 26-27; Int. Br. 16.) But the specification and claims are not limited to a single type of etching. The specification simply discloses the use of a “suitable etching technique (such as RIE).” (A682 at col. 7:47.) It does not limit the invention to RIE, nor does it

prescribe that an etching technique must take away *all* the insulating material in order to be suitable.

4. *The prosecution history affords no support for the ALJ's construction*

The Commission argues that the inventor added the “removing” limitation in order “to capture the preferred embodiment disclosed in column 7 of the patent.” (ITC Br. 31.) The Commission, however, fails to offer any evidence as to the applicant’s motivation other than its bald assertion to that effect. The Commission further fails to recognize that Qimonda’s construction also captures the preferred embodiment because requiring the removal of the exposed insulating material is necessarily satisfied by the removal of all of the insulating material—exposed and unexposed alike—not overlain by photoresist. Therefore, the Commission’s assertion that the inventor was trying to “capture the preferred embodiment” does not resolve which construction is correct.

Intervenors’ argument that the prosecution history supports its construction is similarly unavailing, because it is completely based on a circular logic:

These limitations added two innovations over the prior art—use of an inverse active area mask and removal of *the exposed* portion of insulating material. As explained, removing “*the exposed* portion of insulating material” requires removing the entire exposed portion, and the inverse area mask was necessary to ensure the remaining unexposed insulating material was small enough to shorten the polishing step.

(Int. Br. 25-26.) Boiled down, intervenors' argument consists of the following chain of reasoning: (1) The "removing" limitation requires the removal of all of the insulating material not overlain by photoresist, (2) the "removing" limitation was added during the prosecution to gain allowance, and (3) therefore, the removing limitation requires the removal of all of the insulating material not overlain by photoresist.

Instead of supporting the Commission and intervenors' construction of "removing the exposed portion of insulating material," the prosecution clearly supports Qimonda's interpretation. In particular, the Response of November 20, 1997, set forth application claims 1-6, which would be redrafted into claim 1. Application claim 1 claimed a method in which some of the insulating material over the active regions is removed prior to the planarizing step. (A800-A801.) It is clear from the applicant's comments that application claim 1 only required the removal of enough insulating material so that the planar surface could be obtained through the subsequent planarizing step:

In contrast, claim 1 recites "removing at least a portion of the insulating material covering the active regions" before planarization. As discussed, the removal of at least a portion of the insulating material shortens the amount of time required for planarization, which results in reduced erosion or dishing of the insulating material in the isolation regions. The removal of at least a portion of insulating material covering the active regions before planarization is nowhere taught or suggested in [the prior

art]. As such, the Applicant respectfully requests withdrawal of the rejection based on [the prior art].

(A811 (emphasis added)); *see also* A810 (“In one embodiment of the invention, at least a portion of the material above the active regions is removed. By removing at least a portion of the material above the active regions, the polish time is reduced, thereby avoiding excessive erosion or dishing of the isolation material in the isolation regions. As a result, a more planar surface is produced.”).

Application claim 1, however, did not require that insulating material be removed in a particular way. These limitations were added through dependent claims 5 and 6. Application claim 5, which depended from claim 1 through intervening application claims, added the requirement that application claim 1’s “removing” step be performed by forming a mask pattern on the insulating layer so that the “exposed portion of insulating material” could be removed. (A801.) Finally, application claim 6, which depended from claim 5, added the requirement that the mask layer be formed “using an inverse active area mask.” (A802.) As noted by the Commission, application claims 1-6 were submitted as application claim 39 and ultimately issued as claim 1. Accordingly, as indicated by the prosecution, claim 1 requires that an inverse active area mask be used during the etching step and that the etching step remove enough of excess insulating material to ensure that a planar surface can be obtained from the subsequent planarizing step.

B. Intervenor Improperly Request Affirmance Based On Facts Not Before The Commission

In an attempt to forestall a ruling on the claim construction at issue in this appeal, intervenors request (Int. Br. 4-5) that the Court find that Qimonda no longer satisfies the “industry in the United States” requirement of Section 337, 19 U.S.C. § 1337(a)(2), based on events that occurred *after* the ITC issued its final determination on January 29, 2010. To support their assertion, they ask this Court to take judicial notice of documents filed in March through May 2010 in another court that they have included in the Joint Appendix, despite such documents not being part of the record below. (Int. Br. 3 n.1.).

The Commission correctly notes (ITC Br. 17 n.9) that the facts relied on by the intervenors were not in the record when the Commission made its decision and that this Court’s review is limited to the record before the Commission. Further, intervenors request for judicial notice is improper because they ask this Court to take notice of documents for the truth of their contents, when judicial notice only extends to the *existence* of the documents. *See* 21B Charles Alan Wright & Kenneth W. Graham, Jr., *Federal Practice and Procedure* § 5106.4 (2d ed. 2005). Thus, this Court cannot rely on those documents to determine what the Commission might have found had those documents been presented to them in adversarial fact-finding proceedings. *See Allied Corp. v. ITC*, 850 F.2d 1573, 1581 (Fed. Cir. 1988) (“What ITC might decide cannot, however, serve as a basis for

reversal in this case.”), *cert. denied*, 488 U.S. 1008 (1989); *Beloit Corp. v. Valmet Oy, TVW*, 742 F.2d 1421, 1423 (Fed. Cir. 1984) (“[T]his court does not sit to review what the Commission has not decided.”), *cert. denied*, 472 U.S. 1009 (1985).

In any event, intervenors also misconceive the substantive scope of Section 337. Section 337 directs its liability determination to the state of affairs when the complaint was filed. *See Bally/Midway Mfg. Co. v. ITC*, 714 F.2d 1117, 1121 (Fed. Cir. 1983) (“the proper date for determining whether [appellant’s] game constituted an ‘industry’ entitled to protection under section 337 was the date on which the complaint was filed rather than the date on which the Commission rendered its decision”). The question of a party’s current status is relevant in determining the appropriate remedy. *See id.* at 1125. Once the Court reverses the ALJ’s claim construction, the Commission will be able to decide in the first instance on remand what remedial orders are appropriate.

CONCLUSION

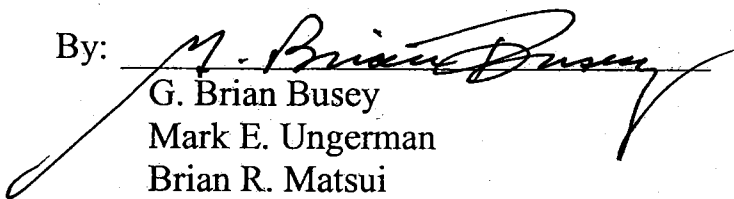
For the reasons set forth above and in Qimonda's opening brief, the Court should reverse the Commission's determination that Seagate and LSI did not violate Section 337 of the Tariff Act and remand for further proceedings.

Dated: October 12, 2010

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