

THIS OPINION WAS NOT WRITTEN FOR PUBLICATION

The opinion in support of the decision being entered today
(1) was not written for publication in a law journal and
(2) is not binding precedent of the Board.

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte SHUNPEI YAMAZAKI,
MITSUNORI TSUCHIYA, KAZUO URATA,
ITARU KOYAMA, SHINJI IMATOU,
SHIGENORI HAYASHI, NAOKI HIROSE,
MARI SASAKI, NORIYA ISHIDA
and KOUHEI WADA

Appeal No. 96-1515
Application 08/161,859¹

HEARD: JUNE 8, 1999

Before THOMAS, JERRY SMITH and GROSS, Administrative Patent Judges.

JERRY SMITH, Administrative Patent Judge.

¹ Application for patent filed December 6, 1993. According to appellants, this application is a continuation of Application 07/965,690, filed October 22, 1992, which is a continuation of Application 07/658,634, filed February 22, 1991, which is a continuation-in-part of Application 07/397,866, filed August 24, 1989.

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DECISION ON APPEAL

This is a decision on the appeal under 35 U.S.C. § 134 from the examiner's final rejection of claims 1-32. An amendment after final rejection was filed on January 25, 1995 and was entered by the examiner [Paper No. 27]. This amendment cancelled claim 29. Accordingly, this appeal is directed to the rejection of claims 1-28 and 30-32, which constitute all the claims remaining in this application.

The disclosed invention pertains to an electronic device enclosed within a package made of a resin. In one embodiment of the invention, the outermost surface of the resin package is densified by treating that surface with a plasma of an inactive gas. In a second embodiment of the invention, the electronic device has a protective film formed on the outermost surface of the package.

Representative claims 1 and 5 are reproduced as follows:

1. An electronic device comprising a semiconductor chip and a package made of a resin enclosing said semiconductor chip, wherein an outermost surface of said package is densified by treating said surface with a plasma of an inactive gas, said outermost surface being in contact with outside air.

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5. An electronic device comprising a semiconductor chip and a package made of a resin enclosing said semiconductor chip, wherein said device is characterized in that a protective film is formed on the outermost surface of said electronic device, said protective film being in contact with outside air.

The examiner relies on the following references:

Omori et al. (Omori) 1990 1987)	4,972,250	Nov. 20, (filed Mar. 02,
Iga (Japanese Kokai) 1987	62-155542	July 10,
Kihira (Japanese Kokai) 1988	63-15448	Jan. 22,

Claims 1, 5, 15 and 28 stand rejected under 35 U.S.C. § 112, first paragraph, as being based on an inadequate disclosure. Claims 1-4, 7, 15-28 and 30-32 stand rejected under 35 U.S.C. § 103 as being unpatentable over the teachings of Iga. Claims 5, 6 and 14 stand rejected under 35 U.S.C. § 102(b) as anticipated by or, in the alternative, under 35 U.S.C. § 103 as obvious over Iga. Claims 8-13 stand rejected under 35 U.S.C. § 103 as being unpatentable over the teachings of Iga in view of Kihira and Omori.

Rather than repeat the arguments of appellants or the

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examiner, we make reference to the brief and the answer for the respective details thereof.

OPINION

We have carefully considered the subject matter on appeal, the rejections advanced by the examiner, the arguments in support of the rejections and the evidence of anticipation and obviousness relied upon by the examiner as support for the prior art rejections. We have, likewise, reviewed and taken into consideration, in reaching our decision, the appellants' arguments set forth in the brief along with the examiner's rationale in support of the rejections and arguments in rebuttal set forth in the examiner's answer.

It is our view, after consideration of the record before us, that the disclosure in this application describes the claimed invention in a manner which complies with the requirements of 35 U.S.C. § 112. We are also of the view that the evidence relied upon would not have suggested to one of ordinary skill in the art the obviousness of the invention as set forth in

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claims 1-4, 15-24, 26-28 and 30-32. We reach the opposite conclusion with respect to claims 5-14 and 25. Accordingly, we affirm-in-part.

We consider first the rejection of claims 1, 5, 15 and 28 under the first paragraph of 35 U.S.C. § 112. This rejection is made on the ground that the specification as originally filed provides no support for the invention now being claimed. More particularly, the examiner argues that the specification does not support the densified region being in contact with outside air. According to the examiner, the densified region has a protective coating around it [answer, page 3]. The examiner also argues that the specification provides no support for the densified region or densified layer having the same composition as the package resin. According to the examiner, the protective film of the invention has a different composition than the conventional epoxy resin enclosure [id.].

With respect to the first argument, appellants assert that the embodiment of Figure 2(A) clearly establishes that the densified layer is in contact with the atmosphere or

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"outside air" [brief, page 6]. Although we agree with the examiner that the description of the invention on pages 7-8 of the disclosure does not clearly describe that the densified region 43 exists in the absence of protective layer 43' in a first embodiment, we agree with appellants that the description of "Embodiment No. 1" on pages 13-15 of the disclosure clearly demonstrates that the densified layer 43 in one embodiment is intended to be exposed to whatever environment is present. Thus, densified layer 43 is exposed to whatever current conditions exist. We interpret "outside air" to mean exposed to the environment which is clearly suggested on page 14 of the disclosure. Therefore, we find

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support in the original specification for the claim recitation that the densified outermost surface is in contact with outside air.

With respect to the examiner's second argument in support of this rejection, appellants argue that the densified region of their invention has the same composition as the resin enclosure because the resin enclosure is treated with a "non-product" or "inert" gas. We agree with appellants that the examiner has failed to appreciate that there are two different embodiments of the invention disclosed. A first embodiment is shown in Figure 2(A) in which a densified region of the resin enclosure is exposed to outside air. This densified region is of the same composition as the resin enclosure because it is formed by treating the enclosure surface with a plasma of an inert gas. The examiner has improperly looked to the second embodiment of the invention for support of the "same composition" limitation. The second embodiment shown in Figure 2(B) has a protective film formed on the densified region. The composition of this protective film is not relevant to the densified region as set forth in

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the appealed claims.

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In conclusion, we agree with appellants that the original disclosure provides clear support for the invention now being claimed. Accordingly, we do not sustain the examiner's rejection of claims 1, 5, 15 and 28 based on the first paragraph of 35 U.S.C. § 112.

We now consider the rejection of the claims based on the prior art. In rejecting claims under 35 U.S.C. § 103, it is incumbent upon the examiner to establish a factual basis to support the legal conclusion of obviousness. See In re Fine, 837 F.2d 1071, 1073, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988). In so doing, the examiner is expected to make the factual determinations set forth in Graham v. John Deere Co., 383 U.S. 1, 17, 148 USPQ 459, 467 (1966), and to provide a reason why one having ordinary skill in the pertinent art would have been led to modify the prior art or to combine prior art references to arrive at the claimed invention. Such reason must stem from some teaching, suggestion or implication in the prior art as a whole or knowledge generally available to one having ordinary skill in the art. Uniroyal, Inc. v. Rudkin-Wiley Corp., 837

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F.2d 1044, 1051, 5 USPQ2d 1434, 1438 (Fed. Cir.), cert. denied, 488 U.S. 825 (1988); Ashland Oil, Inc. v. Delta Resins & Refractories, Inc., 776 F.2d 281, 293, 227 USPQ 657, 664 (Fed. Cir. 1985), cert. denied, 475 U.S. 1017 (1986); ACS Hosp. Sys., Inc. v. Montefiore Hosp., 732 F.2d 1572, 1577, 221 USPQ 929, 933 (Fed. Cir. 1984). These showings by the examiner are an essential part of complying with the burden of presenting a prima facie case of obviousness. Note In re Oetiker, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992).

As indicated by the cases just cited, the examiner has at least two responsibilities in setting forth a rejection under 35 U.S.C. § 103. First, the examiner must identify all the differences between the claimed invention and the teachings of the prior art. Second, the examiner must explain why the identified differences would have been the result of an obvious modification of the prior art. In our view, the examiner has not properly addressed his first responsibility with respect to some of the claims so that it is impossible

that he has successfully fulfilled his second responsibility with respect to these claims.

With respect to independent claims 1 and 15, each of these claims recites a densified region of the outermost surface of a resin package being in contact with outside air. The examiner points to resin 5 of Iga² as meeting the resin package and region 6 as meeting the densified region. A cursory glance at Iga's Figure 1 shows that densified region 6 is not in contact with outside air, but rather, is completely enclosed by a resin outer layer 7 which is not a densified layer. The examiner never addresses this clear difference between the teachings of Iga and the recitations of claims 1 and 15. It appears that the examiner has ignored this limitation of the claims because he had previously determined that there was no support in the disclosure for this claim limitation. It is improper to ignore limitations in a claim for prior art purposes. Since the examiner has not addressed the obviousness of the densified region being in contact with

² Our understanding of Iga is based on a translation provided by the U. S. Patent and Trademark Office. A copy of this translation is attached to this decision.

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outside air, the examiner has failed to establish a prima facie case for the obviousness of independent claims 1 and 15.

With respect to independent claims 28 and 30, each of these claims recites a densified outermost surface of the resin package having the same composition as the resin package. The examiner's rejection on pages 4-8 of the answer never addresses this limitation of claims 28 and 30, and in fact, claims 28 and 30 are never mentioned in the discussion of the prior art rejections. Although the examiner had previously determined that the "same composition" limitation was not supported by the original disclosure, it is improper to ignore claim limitations for prior art purposes as we noted above. Therefore, the examiner has also failed to establish a prima facie case of obviousness for independent claims 28 and 30.

With respect to independent claims 31 and 32, each of these claims recites that the densified region of the resin package is formed by treating the surface with a plasma of an inactive gas rather than by deposition. The examiner has considered this recitation to be a method of making limitation

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and has given the limitation no patentable weight for these product claims [answer, pages 8-9]. The examiner's rejection fails because it assumes that the product of claims 31 and 32 is the same as the product disclosed by Iga. As we noted above, the "densified region" of Iga is not the outermost surface of the package but is completely enclosed by an outer resin layer. Therefore, the structure recited in independent claims 31 and 32 is not taught or suggested by Iga regardless of how it is made.

Since we have determined that the invention of independent claims 1, 15, 28 and 30-32 is not rendered obvious by the teachings of Iga taken alone, it follows that none of the claims which depend from any of these claims is properly rejected based on Iga taken alone. Therefore, we also do not sustain the rejection of any of dependent claims 2-4, 16-24, 26 and 27 based on Iga taken alone.

The only independent claim which we have not considered is claim 5. Claim 5 recites a protective film on the outermost surface of the package which is in contact with outside air. The rejection of claim 5 is made alternatively

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under 35 U.S.C. § 102 or § 103 based on Iga taken alone. The rejection refers to protective film 6 of Iga as being the protective film of claim 5 [answer, page 6]. As we noted above with respect to claims 1 and 15, the layer 6 of Iga is not exposed to outside air as it is completely enclosed by a resin layer 7. Therefore, this interpretation of Iga clearly does not fully meet the invention of claim 5. The examiner has also failed to address the obviousness of protective film 6 of Iga being formed on the outermost surface and being in contact with outside air.

Notwithstanding the examiner's improper interpretation of the scope of claim 5 and the teachings of Iga, we find the invention of claim 5 to be fully met by the disclosure of Iga. As we noted above, claim 5 simply recites that a protective film is formed on the outermost surface of the device and the protective film is in contact with outside air. Instead of looking at layer 6 of Iga which is clearly not in contact with outside air, we consider the outer resin layer 7 which is in contact with outside air. The only question is whether the resin layer 7 of Iga can be considered to be a "protective

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film" as recited in claim 5.

The specification provides no unusual definition for the phrase "protective film." The specification merely identifies diamond-like carbon (DLC), silicon nitride or the like as examples of protective films [page 4]. Although appellants desire certain properties for their protective film, a specific definition including these properties does not exist in the specification. Claims are to be given their broadest reasonable interpretation during prosecution. In re Zletz, 893 F.2d 319, 321, 13 USPQ2d 1320, 1322 (Fed. Cir. 1989); In re Prater, 415 F.2d 1393, 1404, 162 USPQ 541, 550 (CCPA 1969). It is improper to narrow the scope of the claim by implicitly reading in disclosed limitations from the specification which have no express basis in the claims. See id. Where an inventor chooses to be his own lexicographer and to give terms uncommon meanings, he must set out his uncommon definition in some manner within the patent disclosure so as to give one of ordinary skill in the art notice of the change. Intellicall, Inc. v. Phonometrics, Inc., 952 F.2d 1384, 1388, 21 USPQ2d

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1383, 1386 (Fed. Cir. 1992). We find that appellants' specification fails to provide an uncommon definition for the phrase "protective film" so that we give that phrase its broadest reasonable interpretation.

In our view, the broadest reasonable interpretation of "protective film" includes any covering which protects a device against something. With this interpretation in mind, we find that the outer resin layer 7 of Iga is a protective film which is in contact with outside air as recited in claim 5. Although the resin layer 7 of Iga may not provide the type of protection appellants had in mind, the resin layer 7 clearly protects the semiconductor chip against some environmental conditions. We also note in passing that the broadest reasonable interpretation of "protective film" would render the invention of claim 5 anticipated by appellants' own prior art disclosure of Figure 1 in which the molding 41 meets the definition of a "protective film."

For the reasons just discussed, we sustain the examiner's rejection of claim 5 as being anticipated by the disclosure of Iga. It naturally follows that the invention of

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claim 5 is also obvious over the teachings of Iga. With respect to dependent claims 6-14 and 25, appellants have indicated that these claims should stand or fall with independent claim 5 [brief, page 5]. Since appellants have not argued the separate patentability of these claims, we sustain the rejection of claims 6-14 and 25 under 35 U.S.C. § 103.

In summary, we have not sustained the examiner's rejection of the claims under 35 U.S.C. § 112. The prior art rejections of the claims have been sustained with respect to claims 5-14 and 25, but have not been sustained with respect to claims 1-4, 15-24, 26-28 and 30-32. Therefore, the decision of the examiner rejecting claims 1-28 and 30-32 is affirmed-in-part.

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

AFFIRMED-IN-PART

	JAMES D. THOMAS)	
	Administrative Patent Judge)	
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	JERRY SMITH)	BOARD OF
PATENT	Administrative Patent Judge)	APPEALS AND
)	INTERFERENCES
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