

**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(2) is not binding precedent of the Board.

Paper No. 36

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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Ex parte TADAHARU MINATO

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Appeal No. 1997-1757  
Application 08/450,145<sup>1</sup>

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HEARD: Jan. 13, 2000

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Before KRASS, BARRETT, and BARRY, Administrative Patent Judges.

KRASS, Administrative Patent Judge.

DECISION ON APPEAL

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<sup>1</sup>Application for patent filed May 26, 1995. According to appellant, this application is a continuation of Application 08/095,523, filed July 26, 1993, now abandoned; which is a continuation-in-part of Application 07/912,173, filed July 13, 1992, now abandoned; which is a continuation-in-part of Application 07/233,823, filed August 10, 1988, now U.S. Patent No. 5,144,402.

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This is a decision on appeal from the final rejection of claims 5, 7 and 8. Claims 1 through 4 and 6 have been withdrawn as being directed to a nonelected invention.

The invention is directed to a method of controlling a carrier lifetime in a semiconductor switching device.

Representative independent claim 5 is reproduced as follows:

5. A transistor having a semiconductor layer with a current path portion extending substantially from a first electrode to a second electrode of said transistor through which a main current flows such that said semiconductor layer is structured so that the carrier lifetime in said semiconductor layer is different between substantially all of said current path portion of said semiconductor layer serving as a path for most of said main current and a remaining portion of said semiconductor layer.

The examiner relies on the following reference:

Baliga et al.                      4,620,211                      Oct. 28, 1986

Claims 5, 7 and 8 stand rejected under 35 U.S.C. § 112, first and second paragraphs, as being based on an inadequate written description and being indefinite, respectively.

Further, claims 5, 7 and 8 stand rejected under 35 U.S.C. § 103 as unpatentable over Baliga.

Reference is made to the briefs and answer for the respective positions of appellant and the examiner.

OPINION

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Turning first to the rejection under 35 U.S.C. § 112, first paragraph, the examiner contends that there is no support for the "carrier lifetime in said semiconductor layer is different between substantially all of said current path portion...and a remaining portion of said semiconductor layer" recited in claims 5, 7 and 8. The examiner's rationale is based on appellant's election of the insulated gate bipolar transistor in Paper No. 9, such transistor being depicted in Figures 15A, 15B and 15C, rather than the thyristor depicted in Figures 3 and 7. Whereas Figures 3 and 7 depict, and recitations in the specification regarding these figures describe, the claimed "different" carrier lifetime, Figures 15A, 15B and 15C do not clearly depict the current path portion, the path for most of the main current and the remaining portion of the semiconductor and there is no discussion regarding these elements with regard to Figures 15A, 15B and 15C.

We will not sustain this rejection since we agree with appellant that Figures 3 and 7, and their attendant description in the specification, which do, indeed, have support for the allegedly objectionable claim language,

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provide teachings which also are applicable to the embodiments of Figures 15A, 15B and 15C. Moreover, it appears that the claim language to which the examiner raises the objection was in the claims as originally filed and an originally filed claim is its own support. Accordingly, it is difficult to comprehend how the examiner can contend that there is no adequate support for the claim language in question.

Turning to the rejection of the claims based on 35 U.S.C. § 112, second paragraph, the examiner contends that the claim language, "substantially all of said current path portion...serving as a path for most of said main current," is vague and indefinite. More particularly, the examiner asks, at the top of page 4 of the answer, "how can all of the current path portion have the different carrier lifetime that [sic, than] the remaining portion of the semiconductor layer"? The claim language is consistent with the disclosure which makes it very clear, e.g., see Figure 3, how the current path portion has a "different carrier lifetime" than the remaining portion of the semiconductor layer. The current path portion 5 does not have the radiation defects 7 depicted in the remaining portion of the semiconductor layer. Accordingly, we

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will not sustain the rejection of claims 5, 7 and 8 under 35 U.S.C. § 112, second paragraph.

Finally, we turn to the rejection of the claims under 35 U.S.C. § 103. The examiner applies Baliga against the instant claimed subject matter by identifying a semiconductor layer 12 and a first portion 42 of the semiconductor layer which has defects. This is no different than what appellant has admitted was known. Then, the examiner concludes that it would have been obvious "that the carrier lifetime in the first portion is different from the remaining portion of the semiconductor layer" [answer, page 5]. The examiner points to Exhibit A, attached to the answer in order to illustrate the path for most of the main current and the remaining portion. However, we find nothing in Baliga suggesting any non-uniform defects throughout the semiconductor layer and our review of the examiner's Exhibit A discloses nothing which would indicate any such non-uniformity of defects which leads to different carrier lifetimes between a first portion and a remaining portion of the semiconductor layer.

With no teaching by Baliga that defects in the semiconductor layer are applied in any manner but uniformly,

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it is hindsight reconstruction of the instant claimed subject matter for the examiner to conclude that Baliga suggests or makes obvious different carrier lifetimes in two different portions of the semiconductor layer. The examiner has failed to establish a prima facie case of obviousness. Accordingly, we will not sustain the rejection of claims 5, 7 and 8 under 35 U.S.C. § 103.

We have not sustained the rejection of claims 5, 7 and 8 under either 35 U.S.C. § 112, first or second paragraphs, or under 35 U.S.C. § 103. Accordingly, the examiner's decision is reversed.

REVERSED

Errol A. Krass )  
Administrative Patent Judge )  
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Lee E. Barrett ) BOARD OF  
PATENT Administrative Patent Judge ) APPEALS AND  
) INTERFERENCES

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Lance Leonard Barry  
Administrative Patent Judge

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