

**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(2) is not binding precedent of the Board.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. 35

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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***Ex parte*** IMRE KERI

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Appeal No. 94-3022  
Application 07/855,490<sup>1</sup>

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ON BRIEF

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Before HAIRSTON, JERRY SMITH and FLEMING, ***Administrative Patent Judges.***

FLEMING, ***Administrative Patent Judge.***

***DECISION ON APPEAL***

This is a decision on appeal from the final rejection of claims 1, 2, 4, 11, and 13 through 15. Claim 3 is objected to for being dependent upon a rejected base claim. Claims 5 through 10 and 12 have been canceled.

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<sup>1</sup>Application for patent filed March 23, 1992. According to appellant, this application is a continuation of application no. 07/619,006, filed November 28, 1990, now abandoned.

The invention relates to the construction of an integrated circuit device which prevents a charge build-up on the surface of the passivating layer and the formation of a parasitic MOS-transistor by providing a conductor on the passivating layer and biasing the conductor at a potential different from that of the substrate.

Independent claim 1 is reproduced as follows:

1. A high voltage integrated circuit comprising:
  - a substrate biased at a first potential; and
  - interconnecting metal conductors biased at a second potential different from said first potential disposed on said substrate and partially covered by a passivating layer so as to prevent activation of parasitic MOS-transistors.

Independent claim 11 is reproduced as follows:

11. A high voltage integrated circuit comprising:
  - a semiconductor substrate biased at a first potential;
  - a metallization pattern formed on said semiconductor substrate and including a plurality of narrow, elongated metal lines;
  - a terminal provided external to said high voltage integrated circuit held at a second potential different from said first potential and electrically connected to at least one of said elongated metal lines; and
  - a passivation layer provided over said metallization layer and at least partially broken up along a length of said at least one of said

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elongated metal lines in such a manner that said at least one of said elongated metal lines traps charge carriers.

The references relied on by the Examiner are as follows:

Agusta	3,611,071	Oct. 05, 1971
Hillenius et al.	4,825,278	Apr. 25, 1989

Claims 1, 2, 4, and 13 through 15 stand rejected under 35 U.S.C. § 102 as being anticipated by Hillenius et al (hereafter, "Hillenius"). Claim 11 stands rejected under 35 U.S.C. § 102 as being anticipated by Agusta.

Rather than repeat the arguments of Appellant or the Examiner, we make reference to the brief<sup>2</sup> and the answer for the details thereof.

#### **OPINION**

After a careful review of the evidence before us, we do not agree with the Examiner that claims 1, 2, 4, 11, and 13 through 15 are anticipated by the applied references.

It is axiomatic that anticipation of a claim under § 102 can

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<sup>2</sup>Appellant filed an appeal brief on Feb. 3, 1994 (Paper No. 27). On Mar. 9, 1994 the examiner mailed out an examiner's answer (Paper No. 28). On Sept. 21, 1995 the examiner withdrew the final office action and entered a new rejection (Paper No. 29). That rejection was made final (Paper No. 31) and it is from that rejection which Appellant takes his appeal. We will refer to the appeal brief filed Aug. 30, 1996 (Paper No. 33) as simply the brief and the responsive examiner's answer (Paper No. 34) as the answer.

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be found only if the prior art reference discloses every element of the claim. **See *In re King***, 801 F.2d 1324, 1326, 231 USPQ 136,

138 (Fed. Cir. 1986) and ***Lindemann Maschinenfabrik GMBH v.***

***American Hoist & Derrick Co.***, 730 F.2d 1452, 1458, 221 USPQ 481, 485 (Fed. Cir. 1984).

Appellant's claim 1 recites, in part, "a substrate biased at a first potential; and interconnecting metal conductors biased at **a second potential different from said first potential.**"

[Emphasis added.] Independent claim 13 recites "a substrate biased at a first potential; and . . . a plurality of elongated interconnecting conductors disposed on said substrate and held at **a second potential.**" [Emphasis added.]

In support for his position that the reference anticipates the claimed biasing of the conductor at a potential different from that of the substrate, the Examiner relies on Hillenius' statement (column 3, lines 43 through 46) that "[t]he use of a bias on the conductive layer 30 that is identical to the potential of the underlying tub is not essential but the use of identical potentials will not result in any yield loss due to occasional shorts through the thin oxide layer 31." [Answer, page

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4.] The Examiner argues that the statement illustrates that Hillenius "realizes the expediency of using different potentials." [Answer, page 4.]

Appellant argues on pages 4 and 5 of the brief that Hillenius does not teach the Appellant's claimed limitations as required under 35 U.S.C. § 102. In particular, Appellant argues that Hillenius does not disclose biasing the conductors at a potential different from that of the substrate. Appellant argues that the Examiner's interpretation of Hillenius' statement, that the bias of the conductive layer 30 need not be identical to the potential of the underlying tub, is incorrect. Appellant asserts that the reference is simply suggesting that the conductive layer need not be tied, or electrically connected, to the same potential as the substrate. [Brief, page 5.] In support for his position, Appellant points to the summary of Hillenius (column 1, lines 42 through 51) which emphasizes "electrically" coupling the conductive layer and the substrate and maintaining the two at the same potential. [Brief, page 4.]

Upon a careful review of Hillenius, we agree with Appellant's position that the reference fails to disclose a

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substrate biased at a first potential and metal conductors biased at a second potential, as recited in Appellant's claims 1 and 13. Hillenius discloses (column 1, lines 42 through 51) that "[t]he conductive layer is electrically coupled to the underlying semiconductor substrate," therefore, both are biased at the same

potential. Additionally, Hillenius discloses (column 3, lines 37 through 40), connecting the conductive layer 30 to the same potential as the [respective] underlying tub region to prevent a build-up of charges. The reference goes on to describe (column 3, lines 51 through 56) that the conductive layer and the substrate are electrically connected using contacts 27 and 28. When read in light of the entire disclosure, Hillenius' statement that the bias on the conductive layer 30 need not be "identical" to the potential of the underlying tub (column 3, lines 44 through 48) merely suggests that the two components need not be electrically connected to one another when biased at the same potential. Instead, they may be independently connected to the same source, rather than different potentials. To find that this statement suggests biasing the conductor at a potential different from that of the substrate would be speculative at best.

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Furthermore, we note that claims 2 and 4, are dependent on claim 1 and claims 14 and 15 are dependent on claim 13, and thereby recite the above limitation. Therefore, we find that Hillenius fails to teach all of the limitations of claims 1, 2, 4, and 13 through 15, and thereby the claims are not anticipated by Hillenius.

Appellant's claim 11 recites, *inter alia*, "a metallization pattern **formed on** said semiconductor substrate and including a plurality of narrow, elongated metal lines" and "a passivation layer provided over said metallization layer and at least **partially broken up along a length** of said at least one of said elongated metal lines in such a manner that said at least one of said elongated metal lines traps charge carriers." [Emphasis added.]

The Examiner relies on the conductors 5, 6, and 7 of Augusta to teach the claimed metallization layer formed on the semiconductor, and layer 8 is relied upon as disclosing the claimed passivation layer. (Paper No. 29, page 3). Appellant argues that electrode 12 disposed on top of layer 8 acts as the conductor for trapping charges, rather than conductors 5, 6, or

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7. [Brief, page 7.] We agree with the Examiner's finding that land 5 (in addition to the electrode 12) acts as a conductor for trapping charges.

Agusta discloses that electrode 12 acts as a trapping electrode (column 3, lines 5 through 71). Elements 5, 6, and 7 are disclosed as lands or conductive means of the type conventionally used in the manufacture of integrated circuits

(column 2, lines 49 through 54). Agusta states (column 2, lines 55 through 71) that lands 5, 6, and 7 are adapted to receive operating potentials through terminal means 9, 10, and 11 and that the trapping plate is not restricted to a single level. Figure 1 shows electrode 12 electrically connected to land 5 via terminal 9. Accordingly, both electrode 12 and land 5 function as trapping electrodes.

With respect to the limitation that the passivation layer is "partially broken up along a length", Appellant argues that contact pad 9 cannot reasonably be interpreted as breaking up the passivation layer 8 along a length. [Brief, page 7.] The Examiner argues that "Applicant did not specify any critical length nor did applicant further define partially broken up above

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the passivation layer to be a [sic] slots as appellant did in claim 2 or as elongated slots in claim 15." [Answer, page 5.]

We find that the language, given its broadest reasonable interpretation, provides for a break in the passivation layer predominately in the length-wise direction of the metal line(s). Any "break" in the passivation layer necessarily will break up the layer in both the width-wise and length-wise direction. The additional language of "along a length" suggests more than a

break of equal dimensions. Terminals 9, 10 and 11, however, are disclosed (column 3, lines 29 through 31) as formed "via holes through the encapsulation layer 8" and are shown in Figure 1 as formed in cylindrical openings in layer 8. Because the cylindrical openings break up layer 8 equally in the length and width direction, we find that the passivation layer of Agusta is not broken up along a length as claimed. Therefore, we find that Agusta fails to teach all of the limitations of claim 11, and thereby the claims are not anticipated by Agusta.

In view of the foregoing, the decision of the Examiner rejecting claims 1, 2, 4, 11, and 13 through 15 is reversed.

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***REVERSED***

KENNETH W. HAIRSTON	)	
Administrative Patent Judge	)	
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	)	
	)	BOARD OF PATENT
JERRY SMITH	)	APPEALS AND
Administrative Patent Judge	)	INTERFERENCES
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MICHAEL R. FLEMING	)	
Administrative Patent Judge	)	

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