

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(2) is not binding precedent of the Board.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. 14

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

\_\_\_\_\_  
Ex parte YEHUDA SMOOHA

\_\_\_\_\_  
Appeal No. 95-2859  
Application 08/118,109<sup>1</sup>

\_\_\_\_\_  
ON BRIEF  
\_\_\_\_\_

Before JERRY SMITH, FLEMING and LEE, Administrative Patent Judges.

LEE, Administrative Patent Judge.

**DECISION ON APPEAL**

This is a decision under 35 U.S.C. § 134 from the final rejection of claims 1-6. Claims 7-11 have been withdrawn from consideration. No claim has been allowed.

**References relied on by the Examiner**

Morris et al. (Morris)	4,830,976	May 16, 1989
Appellant's admitted prior art of Figures 1-3		

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<sup>1</sup> Application for patent filed September 8, 1993.

**The Rejections on Appeal**

Claims 1-6 stand finally rejected under 35 U.S.C. § 103 as being unpatentable over the appellant's own admitted prior art of Figures 1-3 in view of Morris.

**The Invention**

The invention is directed to an integrated circuit including a field effect transistor and a resistor. The gate of the transistor is formed from a conductor layer and the resistor is formed in a tub region of the same conductivity type as the source and drain of the transistor. The resistor underlies a "resistor masking conductor" formed from the conductor layer also forming the gate of the transistor. Claim 1 is the only independent claim and is reproduced below.

1. An integrated circuit including a field effect transistor having a gate conductor formed from a conductor layer overlying a semiconductor body, and having a source/drain region of a given conductivity type that is coupled to a circuit conductor through a resistor,

characterized in that said resistor is formed in a tub region of said given conductivity type, with said tub region being connected to said circuit conductor by means of a heavily doped contact region of said given conductivity type that is formed in said tub region;

and wherein said resistor underlies a resistor masking conductor formed from said conductor layer, whereby the size of said resistor is defined by said resistor masking conductor.

Opinion

We do not sustain the rejection of claims 1-6 under 35 U.S.C. § 103 as being unpatentable over the appellant's own admitted prior art of Figures 1-3 in view of Morris.

The determinative issue is whether Morris discloses a resistor which underlies a "resistor masking conductor" formed from a conductor layer also forming the gate of a transistor. In the appellant's own admitted prior art of Figures 1 and 2, the resistor underlies either field oxide 107 (Figure 1) or deposited oxide region 212 and grown oxide region 211 (Figure 2). That does not satisfy the claimed feature of having a resistor which underlies a resistor masking conductor made from the same conductor layer forming the gate of the transistor. The examiner is relying on Morris to fill this deficiency in the appellant's own admitted prior art. (Answer at page 3).

Morris does disclose use of a polysilicon layer for forming the gate of the transistor as well as a mask for forming the resistor. However, in Morris the formed resistor does not "underlie" the polysilicon mask. Indeed, with reference to

Appeal No. 95-2859  
Application 08/118,109

Figure 11 of Morris, the width of the formed resistor is defined as that corresponding to the open area exposed or not covered by the polysilicon mask. See column 7, lines 45-47. Thus, we agree with the appellant that in Morris the resistor does not underlie a "resistor masking conductor" as is called for by appellant's claim 1.

Alternatively, even if one were to regard the edges of the p+ doped area in Morris which are underneath the polysilicon as a part of the resistor, contrary to the express indication in Morris, that is not sufficient to support a characterization of the resistor element, in its role as an operative part, as "underlying" the polysilicon mask. In Morris it is clear that the resistor primarily occupies that open area exposed or uncovered by the polysilicon mask. The p+ doped portions outside of the exposed area do not meaningfully contribute to the resistance of the resistor. To the extent that the examiner is of the view that if any area making a contribution, however small, to the overall resistance is under the mask, then the resistor can be deemed as underlying the mask, we disagree. That view is unreasonable and cannot be upheld.

Appeal No. 95-2859  
Application 08/118,109

Applying the masking procedure of Morris to the prior art acknowledged by the appellant would not result in the claimed invention, because of the different manner in which the mask is employed in Morris and in the admitted prior art. Moreover, because of the difference in application, one with ordinary skill in the art would have no reasonable motivation to simply replace the oxide mask of the admitted prior art with the polysilicon mask disclosed in Morris.

For the foregoing reasons, we do not sustain the rejection of claims 1-6 under 35 U.S.C. § 103 as being unpatentable over the appellant's own admitted prior art in view of Morris.

**Conclusion**

The rejection of claims 1-6 under 35 U.S.C. § 103 as being unpatentable over the appellant's own admitted prior art of Figures 1-3 in view of Morris is reversed.

**REVERSED**

JERRY SMITH )  
Administrative Patent Judge )



Appeal No. 95-2859  
Application 08/118,109

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