

The opinion in support of the decision being entered today was not written for publication in a law journal and is not binding precedent of the Board.

Paper No. 22

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte TING-WAH WONG

Appeal No. 2000-0751
Application No. 08/903,549

ON BRIEF

Before HAIRSTON, KRASS, and JERRY SMITH, Administrative Patent Judges.

KRASS, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal from the final rejection of claims 1-27, 29 and 30, all of the pending claims.

The invention is directed to a high performance integrated circuit device. More particularly, an integrated circuit device is formed on a semiconductor die adapted to operate with positive

Appeal No. 2000-0751
Application No. 08/903,549

and negative supply voltages. The device includes a first group of integrated MOS transistors formed on the die. The first group of transistors has gate oxides. A second group of integrated MOS transistors is formed on the die and the second group also has gate oxides. The gate oxides of the second group of transistors are thicker than the gate oxides of the first group of transistors. A path is provided to communicate boosted positive and negative supply voltages, greater than the positive and negative supply voltages, to at least some of the second group of transistors.

Representative independent claim 11 is reproduced as follows:

11. An integrated circuit device comprising:

a first transistor having a gate electrode and a gate oxide;
and

a second transistor having gate electrode and a gate oxide, said gate oxide of said second transistor being thicker than said gate oxide of said first transistor, said second transistor gate electrode adapted to be selectively connected to a positive or a negative bias voltage.

The examiner relies on the following references:

Crouse	4,628,307	Dec. 9, 1986
Yoh	4,954,730	Sep. 4, 1990
Yee	5,818,087	Oct. 6, 1998

Appeal No. 2000-0751
Application No. 08/903,549

(filed Nov. 13, 1996)

Claim 11 stands rejected under 35 U.S.C. 102(e) as anticipated by Yee.

Claims 27 and 30 stand rejected under 35 U.S.C. 102(b) as anticipated by either one of Yoh or Crouse.

Claims 1-10 and 12-26 stand rejected under 35 U.S.C. 103 as unpatentable over Yee.

Claim 29 stands rejected under 35 U.S.C. 103 as unpatentable over either one of Yoh or Crouse.

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

OPINION

Turning, first to the rejection of claim 11, the examiner points to the abstract of Yee and contends that the claimed subject matter is met by Yee because transistors which are formed inside of Yee's 350 micron radius have thicker gate oxides than the transistors formed outside of this radius. The examiner interprets the last two lines of the claim as requiring only the "ability" to be connected to a bias voltage and, contending that

Appeal No. 2000-0751
Application No. 08/903,549

the claim language offers an alternative expression, "a positive or a negative bias voltage" and Yee offers at least one bias voltage, concludes that Yee meets the instant claim language.

Yee discloses a power supply voltage Vcc and a ground voltage Vss. Appellant contends that Yee has absolutely no teaching of selectively applying a positive or a negative bias voltage because nowhere does Yee suggest the use of a negative supply voltage of any type or for any purpose.

We agree with appellant that the instant claim language requires more than a mere disclosure of one of alternative voltages. The claim does not call for either a positive or a negative voltage, in which case a disclosure of either voltage by Yee would meet the instant claim limitations. Rather, the claim specifically requires the second transistor gate electrode "adapted to be selectively connected to a positive or a negative bias voltage." Thus, Yee must have the ability to select between a positive or a negative voltage and not merely disclose only one of these voltages. Accordingly, we do not agree with the examiner's logic that only one or the other of the bias voltages need be disclosed. If Yee did not have the ability to selectively connect between either one of a positive or negative bias voltage, then Yee would not meet the instant claim language.

Appeal No. 2000-0751
Application No. 08/903,549

Having said that, we do find that Yee meets the instant claim language because the second group of transistors is connected to a supply voltage V_{cc} and appellant does not dispute this. Yee does not specify V_{cc} to be a positive voltage and so V_{cc} may be either a positive or a negative bias voltage, depending on the choice of the artisan building the circuit. Since V_{cc} may be positive or negative, Yee clearly does permit the second transistor gate electrode to be "adapted to be selectively connected to a positive or a negative bias voltage," as claimed.

We will sustain the rejection of claim 11 under 35 U.S.C. 102(e) over Yee.

Next, we treat the rejection of claims 27 and 30 under 35 U.S.C. 102(b) over either one of Yoh or Crouse.

With regard to these claims, the examiner contends that the zero threshold transistor reads on an n-channel depletion FET formed in parallel with a PMOSFET, as disclosed in column 1, last three lines of Yoh and in column 4, lines 25-30 of Crouse.

For his part, appellant argues only that the examiner has not given due credence to the claim language "adapted to," that this language must be read as related to corresponding structure and that there is "absolutely no structure disclosed in any of

Appeal No. 2000-0751
Application No. 08/903,549

these references for making a connection to a boosted power supply" [brief-page 7]. Appellant's argument, in a nutshell, is that "[w]hile the Examiner repeatedly insists that the language covers the "ability to" be so connected, the Federal Circuit has made it absolutely clear that the "adapted to" language covers the structure that enables this arrangement to be achieved" [brief-page 7]. Appellant cites Pac-Tec Inc. v. Amerace Corp., 903 F.2d 796, 801, 14 USPQ2d 1871, 1876 (Fed. Cir. 1990) as support for this proposition.

We agree with the examiner that the language, "adapted to..." only requires that the device be capable of doing what the claim language recites, in this case, the gate electrode being selectively connected to a negative potential and the transfer gate being selectively connected to a positive voltage boosted above the supply voltage. Appellant's reading of Pac-Tec is misplaced in that there is no requirement that specific structure be read into the claim from the specification; only that meaning be given to the term, "adapted to" so that the prior art being applied against the claim is capable of the claimed function. That is, structure recited in the claim must be capable of performing the claimed function following the "adapted to" language.

Appeal No. 2000-0751
Application No. 08/903,549

However, in the instant case, the examiner has made no showing that the cited references disclose a transfer gate, as claimed, wherein a gate electrode may be "adapted to be selectively connected to a negative potential" and wherein a transfer gate may be "adapted to be selectively connected to a positive voltage boosted above said supply voltage," as claimed. The portions of Yoh and Crouse cited by the examiner provide no indication of these claimed capabilities and the examiner has not explained how these portions may be interpreted as disclosing the claimed limitations. Accordingly, we will not sustain the rejection of claims 27 and 30 under 35 U.S.C. 102(b).

With regard to the rejection of claims 1-10 and 12-26 under 35 U.S.C. 103, the examiner states, with regard to independent claim 1, that Yee discloses all of the claimed subject matter but for a path system for communicating the recited boosted voltages to the second transistors but contends that this would have been obvious "since it is old and well-known in the art that when gate oxide layers are made thicker, a higher bias voltage applied to the gate of the transistor will be needed due to the higher V_t of the transistor caused by the thicker gate oxide layer, of which fact official notice is taken" [answer-page 5].

Appeal No. 2000-0751
Application No. 08/903,549

With regard to independent claim 21, the examiner states that "it is well-known in the art to use a FET as a transfer gate for transmitting signals between a pair of logic gates (as is the use of a PMOS transistor in parallel with an NMOS transistor), of which fact official notice is taken" [answer-page 8].

Not only does independent claim 21 contain the "selectively connected to..." language of claims 11 and 27 and not only does independent claim 1 contain the "boosted" supply voltages of claim 27, but the examiner has failed to provide evidence of the things alleged to be "well-known" even though official notice taken by the examiner of these things has been challenged by appellant.

Accordingly, the rejection of claims 1-10 and 12-26 under 35 U.S.C. 103 is not sustained.

The rejection of claim 29 under 35 U.S.C. 103 over Yoh or Crouse is also not sustained because claim 29 depends from claim 27, the rejection of which under 35 U.S.C. 102(b) over these same references was not sustained and the examiner's rationale under 35 U.S.C. 103 adds nothing that would supply the deficiencies noted supra with regard to the 102 rejection.

Appeal No. 2000-0751
Application No. 08/903,549

Thus, since we have not sustained the rejections of claims 27 and 30 under 35 U.S.C. 102 and we have not sustained the rejections of claims 1-10, 12-26 and 29 under 35 U.S.C. 103, but we have sustained the rejection of claim 11 under 35 U.S.C. 102(e), the examiner's decision is affirmed-in-part.

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

KENNETH W. HAIRSTON)	
Administrative Patent Judge)	
)	
)	
)	
ERROL A. KRASS)	BOARD OF PATENT
Administrative Patent Judge)	APPEALS AND
)	INTERFERENCES
)	
)	
JERRY SMITH)	
Administrative Patent Judge)	
)	

Appeal No. 2000-0751
Application No. 08/903,549

EK/RWK
TIMOTHY N. TROP
TROP, PRUNER, HU & MILES, P.C.
8554 KATY FREEWAY, SUITE 100
HOUSTON, TX 77024