

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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Ex parte PHILIP L. HOWER and TAYLOR R. EFLAND

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Appeal No. 2005-0814  
Application No. 10/036,323

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ON BRIEF

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Before CAROFF, PAK, and RUGGIERO, Administrative Patent Judges.  
CAROFF, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal from the examiner's final rejection of claims 14, 16 and 18. Claims 27-32 stand withdrawn from further consideration by the examiner as being drawn to a non-elected invention. Claim 17, the only other claim now pending in appellants' application, stands subject to an objection but, according to the examiner, would be allowable if written in independent form.

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The appealed claims are directed to an n-channel DMOS ("double diffused" metal oxide semiconductor) transistor structure.

Claim 14, the sole independent claim, is illustrative of the subject matter embraced by the appealed claims:

14. An n-channel DMOS transistor source structure, comprising:

an n-type source diffusion, ohmically connected to a source metallization;

a p-type surface body diffusion which laterally surrounds at least part of said source diffusion;

a conductive gate structure which is capacitively coupled to part of said p-type surface body diffusion to define a channel region therein;

a p-type buried body diffusion which underlies said channel and at least part of said surface body diffusion; and

an ohmic connection between said buried body diffusion and said source metallization;

whereby said buried body diffusion diverts hole current to bypass said source diffusion, and thereby reduces emission of secondary electrons, and thereby increases the safe operating area of the device.

The prior art references relied upon by the examiner are:

Mena et al. (Mena)	4,922,327	May 1, 1990
Huang	6,437,399 B1	Aug. 20, 2002
	(effective filing date: Jun. 30, 1997)	

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The following prior art reference is cited in appellants' brief:

Sze, "Basic Device Characteristics," Physics of Semiconductor Devices, pp. 433-45, 453-55 (Bell Labs, Inc., 2<sup>nd</sup> ed., John Wiley and Sons, New York, 1981).

The following rejections are before us for review:

1. Claim 14 stands rejected under 35 U.S.C. § 102(e) as being anticipated by Huang.

2. Claims 16 and 18 stand rejected under 35 U.S.C. § 103(a) for obviousness in view of Huang taken in combination with Mena.

We have carefully considered the entire record in light of the opposing positions taken by the appellants and by the examiner. Having done so, we shall affirm both of the rejections at issue. The basis for our decision is as follows:

The determinative issue in this appeal relates to the scope to be ascribed to the term "channel region" in claim 14. The general principle of claim interpretation is that claims in an application are to be given their broadest reasonable interpretation consistent with the specification. In re Sneed, 710 F.2d 1544, 1548, 218 USPQ 385, 388 (Fed. Cir. 1983).

The examiner's view is that "channel region" can be reasonably construed to include all, or almost all, of the P type

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base region 14 of Huang (Fig. 12). Indeed, Huang (col. 2, ll. 3-6) alternatively refers to base region 14 as "the channel region."

Appellants, on the other hand, argue that the examiner's definition is overly broad, and that only the part of P type base region 14 of Huang that is directly beneath gate structure 26 can be considered a channel region. Under this scenario, Huang does not satisfy the requirement of claim 14 that a p-type buried body diffusion, i.e., the P<sup>+</sup> buried layer 35 of Huang, "underlies said channel."

To support their position, appellants rely on Sze. However, as instructive as Sze may be, we find nothing in Sze which specifically indicates that when a surface inversion layer (or channel) forms, it is limited only to the area or region directly beneath the gate structure. Nor have appellants explained how this concept necessarily follows from the Sze text.

Neither do we find anything in appellants' specification which so specifically defines or limits the boundaries of the channel region. Nor do appellants offer any explanation as to how their construction of the claim terminology in question necessarily follows from the specification.

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Since neither Sze nor appellants' specification explicitly defines the physical dimensions or extent of a "channel region," we concur with the examiner's expansive definition which appears to logically and reasonably follow from Huang's characterization of a channel as practically synonymous with exemplified P type base (channel) region 14.

There is no other dispute with regard to the examiner's application of the cited references against claims 14, 16 and 18. Accordingly, for all of the foregoing reasons, the decision of the examiner is affirmed.

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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)(1)(iv).

AFFIRMED

MARC L. CAROFF	)	
Administrative Patent Judge	)	
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	)	
	)	BOARD OF PATENT
CHUNG K. PAK	)	APPEALS AND
Administrative Patent Judge	)	INTERFERENCES
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	)	
JOSEPH F. RUGGIERO	)	
Administrative Patent Judge	)	

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