

The opinion in support of the decision being entered today was not written for publication in a law journal and is not binding precedent of the Board.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. 12

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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Ex parte GREGORY D. SABIN, WILLIAM J. GROSS  
and JUNG-YUEH CHANG

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Appeal No. 2003-0241  
Application No. 09/271,615

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ON BRIEF

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Before KIMLIN, WALTZ and MOORE, Administrative Patent Judges.

KIMLIN, Administrative Patent Judge.

DECISION ON APPEAL

This is an appeal from the final rejection of claims 1-31.

Claim 1 is illustrative:

1. A method for forming a bonding pad structure over an active circuit of an integrated circuit device, the method comprising the steps of:

depositing a metal layer over said active circuit;

patterning and etching said metal layer to form an array of openings in said metal layer;

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depositing a dielectric layer over said metal layer and over said array of openings in said metal layer;

forming one or more vias in said dielectric layer;  
and

forming a bonding pad that is electrically connected to said metal layer.

The examiner relies upon the following references as evidence of obviousness:

Chittipeddi et al. (Chittipeddi)	5,986,343	Nov. 16, 1999 (filed May 4, 1998)
Lin	6,025,631	Feb. 15, 2000 (filed Nov. 24, 1998)

Appellants' claimed invention is directed to a method for forming a bonding pad structure over an active circuit of an integrated circuit device. The method entails electrically connecting the bonding pad to an underlying, cushioning metal layer through vias in a dielectric layer that is disposed between the bonding pad and the metal layer. According to appellants, "[t]he use of the support structure 20 and 30 can allow active circuits 10 to be placed directly under the bonding pads 50 where the support structure 20 and 30 can protect the underlying active circuits 10 from shear and compressive stresses occurring during bonding processes (Figure 2)" (page 2 of Brief, penultimate paragraph).

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Appealed claims 1, 2, 4-13, 15-23 and 25-31 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Chittipeddi. Claims 3, 14 and 24 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Chittipeddi further in view of Lin.

We have thoroughly reviewed the respective positions advanced by appellants and the examiner. In so doing, we concur with appellants that the examiner has not established a prima facie case of obviousness for the claimed subject matter. Accordingly, we will not sustain the examiner's rejections.

The examiner appreciates that Chittipeddi fails to teach the claimed step of forming a bonding pad that is electrically connected to the cushioning, metal layer. Although the examiner concludes that such would have been obvious to one of ordinary skill in the art, the examiner incorrectly states that "[t]he issue is whether or not it would be obvious to one of ordinary skill in the art, with the teachings of Chittipeddi and the prior art, to form a [sic] simple uninsulated vias through the electrically neutral metal cushion layer, or employ extra expensive and difficult processing steps to deliberately insulate the vias" (sentence bridging pages 7 and 8 of Answer). However, the issue is not whether it would have been obvious to form vias through the metal cushion layer, as stated by the examiner, but,

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rather, to form vias through the dielectric layer underlying the bonding pad and electrically connecting the bonding pad to the metal layer through the vias in the dielectric layer.

Also, while the examiner provides various explanations why it would have been obvious for one of ordinary skill in the art to electrically connect the bonding pad to the metal layer, these explanations strike us more as what one of ordinary skill in the art could do, rather than what is taught or suggested by the applied Chittipeddi reference. The examiner's reasoning in support of the conclusion of obviousness lacks factual support, and the examiner has not addressed appellants' argument that "[a]s one skilled in the art would further know, it is possible to connect the bond pad to metal layers below the support structure metal layer without forming an electrical connections [sic, connection] to the support structure metal layer" (page 5 of Brief, third paragraph). It seems to us that not only could the vias "be electrically isolated when passing through the support structure metal layer to connect to lower metal layers" (id.), as stated by appellants, but the connection could be made in vias that penetrate both the dielectric layer and the etched-out slots 25 in the support structure metal layer.

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The examiner's further reliance on Lin in the rejection of claims 3, 14 and 24 does not remedy the basic deficiency of Chittipeddi outlined above.

In conclusion, based on the foregoing, the examiner's decision rejecting the appealed claims is reversed.

REVERSED

EDWARD C. KIMLIN	)	
Administrative Patent Judge	)	
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	)	
	)	
	)	
THOMAS A. WALTZ	)	BOARD OF PATENT
Administrative Patent Judge	)	APPEALS AND
	)	INTERFERENCES
	)	
	)	
JAMES T. MOORE	)	
Administrative Patent Judge	)	

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