

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.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

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Appeal No. 2006-2833  
Application No. 10/334,807

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ON BRIEF

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Before HAIRSTON, JERRY SMITH, and LUCAS, Administrative Patent Judges.  
LUCAS, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal from the final rejection of claims 10 to 14.

Claims 1 to 9 and 15 to 20 have been withdrawn.

Invention

Appellant's invention relates to a power shunt for an integrated circuit described by the Appellant as follows:

The claims in the patent are directed to an apparatus adaptable to provide a secondary power source path (called a "power shunt" and "conductive bridge" in the claims) between motherboard and IC package. Power has in the past

been provided through pins connecting the motherboard to the IC package. As power demands of processors continue to rise, however, pin number-limited connections cause increased heat dissipation within the device. The present invention claims a capacitor, placed within a spaced portion between a motherboard and IC package, in such a way so as to provide a conductive bridge between the two. The additional conductive bridge is intended to decrease power dissipation and subsequent heating within the device. The capacitor DC shunts so arranged can therefore fulfill the dual function of providing decoupling capacitors with the capability of supplying an additional path of power supply to the die load.

Claim 10 is representative of the claimed invention and is reproduced as follows:

10. A power shunt for use within a semiconductor device of a type having a motherboard and an integrated circuit package electrically coupled to the motherboard, said device further of a type having a spaced portion located between the motherboard and the package, the power shunt comprising:

a capacitor adapted to be positioned within the spaced portion between the motherboard and the package of the semiconductor device, said capacitor having a conductive layer of a first type, a conductive layer of a second type, and a dielectric layer that electrically isolates the first type conductive layer from the second type conductive layer,

wherein said first type conductive layer and second type conductive layer are adapted to form a conductive bridge between the motherboard and the package.

References

The references relied on by the Examiner are as follows:

McKee et al. (McKee) 6,418,029 July 9, 2002

In addition, the Examiner relies upon Appellant's admitted prior art, as will be described below.

Rejections At Issue

Claims 10, 11 and 12 stand rejected under 35 U.S.C. § 102(e) as being anticipated by McKee.

Claims 13 and 14 stand rejected under 35 U.S.C. § 103 as being obvious over McKee in view of admitted prior art (Figures 2A and 2B of the instant application).

Throughout our opinion, we make references to the Appellant's briefs, and to the Examiner's Answer for the respective details thereof.<sup>1</sup>

OPINION

With full consideration being given to the subject matter on appeal, the Examiner's rejections and the arguments of the Appellant and the Examiner, for the reasons stated infra, we reverse the Examiner's rejection of claims 10, 11 and 12 under 35 U.S.C. § 102 and claims 13 and 14 under 35 U.S.C. § 103(a).

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<sup>1</sup> Appellant filed an appeal brief on 11/21/2005. Appellant filed a reply brief on 4/10/2006. The Examiner mailed an Examiner's Answer on 2/8/2006.

**I. Whether the Rejection of Claims 10, 11 and 12 Under 35 U.S.C. § 102 is proper?**

It is our view, after consideration of the record before us, that the disclosure of McKee et al does not fully meet the invention as recited in claims 10, 11 and 12. Accordingly, we reverse.

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

To determine whether claim 10 is anticipated by the references, we will analyze the claim in view of the reference McKee, as indicated in the Examiner's Answer. McKee discloses a power shunt for use within a semiconductor device, with the motherboard (in Figure 2, Column 4, lines 3-4) and an integrated circuit package 10 (in Figure 3, with IC die 25) electrically coupled to the motherboard. The package has a spaced portion, between package 10 and the motherboard.

A capacitor (item 50 in McKee) is taught to be placed in the spaced portion for one of the same reasons as mentioned in the reference, namely to save space on the motherboard or package.

The capacitor<sup>2</sup> (50) in McKee has a conductive layer of a first type (56, as noted by the Examiner), a conductive layer of a second type (55) and a dielectric layer. A capacitor inherently has a dielectric layer, and the Appellant's admitted prior art, in his Figure 2B, clearly shows the dielectric layer (item 58 and as described in the specification, page 4, line 23).

Although we have so far agreed with the Examiner's establishing that the elements recited in the claim up to this point are part of the prior art, we now must part from his analysis. The Examiner's Answer presents a number of ways of interpreting the following limitation of claim 10 to be demonstrated by the McKee reference: "wherein said first type conductive layer and second type conductive layer are adapted to form a conductive bridge between the motherboard and the package."

Examiner argues that the conductive elements 55 and 56, each respectively attached to the package or the motherboard, create a circuit for providing power when a current is applied. This interpretation omits the function of the dielectric, which is inherently an insulator to a power circuit. The capacitor 50 does mechanically bridge the distance between the motherboard and the package, but the individual conductive layers (55, 56) do not span that distance. The claim calls for the conductive layers forming a conductive bridge, and each of the layers of McKee, 55 and 56, makes no such bridge. Indeed, in Figure 2 of

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<sup>2</sup> Item 50 in McKee is actually indicated to be a chip component, a capacitor, resistor, inductor or equivalent. The examiner is using the capacitor variant as the reference for establishing the prior art relevant to the claimed subject matter.

McKee the indicated solder balls 40 bridging solder pads between the package and the motherboard are the true conductive bridges between the elements.

The examiner, in broadly reading claim 10, further argues that the conductive layers of McKee (55 and 56) form a bridge between the package and the motherboard, as the claim does not specifically state that each conductive layer must span the gap. The claim does, however, specify that the layers are “adapted to form a conductive bridge”, and the dielectric in the capacitor of McKee blocks both the conduction of electricity and that interpretation of the claim language. We are guided by In re Venezia that recited structure elements are clearly limitations of a claim, even with the “adapted to” language (see In re Venezia, 530 F.2d 956, 959, 189 USPQ 149, 152, (CCPA 1976). In this case the teaching of the conductive bridge is not shown.

For the reasons stated above, we do not sustain the rejection of claims 10, and dependent claims 11 and 12.

**II. Whether the Rejection of Claims 13 and 14 Under 35 U.S.C. § 103(a) is proper?**

Claims 13 and 14 stand rejected under 35 U.S.C. § 103 as being obvious over McKee in view of Prior Art (Figures 2A and 2B of the instant application).

The examiner relies on Figures 2A and 2B of the instant application to demonstrate the dielectric in the inner construction of the capacitor and states that said teaching, with McKee, would be adaptable to render claims 13 and 14

obvious. However, in the context of the reversal of the rejection of parent claim 10, we find the teachings insufficient. In view of the use by McKee of solder balls 40 to establish conductive bridges from the package to the motherboard instead of the capacitor 50, the McKee reference does not render the claim elements obvious over the prior art.

We do not sustain the rejection of claims 13 and 14.

### **Conclusion**

In view of the foregoing discussion, we reverse the Examiner's rejection of claims 10, 11 and 12 under 35 U.S.C. § 102 and claims 13 and 14 under 35 U.S.C. § 103(a).

**REVERSED**

KENNETH W. HAIRSTON	)	
Administrative Patent Judge	)	
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	)	
JERRY SMITH	)	BOARD OF PATENT
Administrative Patent Judge	)	APPEALS AND
	)	INTERFERENCES
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JAY P. LUCAS	)	
Administrative Patent Judge	)	

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