

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

SAMSUNG ELECTRONICS CO., LTD., and
SAMSUNG ELECTRONICS AMERICA, INC.,
Petitioner,

v.

HARBOR ISLAND DYNAMIC, LLC,
Patent Owner.

Case IPR2024-01405
U.S. Patent No. 9,245,826

AUTHORIZED RESPONSE TO DIRECTOR REVIEW REQUEST

I. INTRODUCTION

Patent Owner's Second Request for Director Review (Paper 53, "Request") mischaracterizes the trial record and the Final Written Decision (Paper 42, "Decision"). Patent Owner's mere dissatisfaction with the Board's Decision does not constitute proper grounds for Director review, and Patent Owner has failed to identify a basis for granting Director Review. Therefore, the Director should deny Patent Owner's Request.¹

II. LEGAL STANDARD

There are four recognized grounds for granting Director Review, including when a final decision implicates (a) an abuse of discretion, (b) important issues of law or policy, (c) erroneous findings of material fact, or (d) erroneous conclusions of law. USPTO Website, *Director Review Process*, Section 5.A, <https://www.uspto.gov/patents/ptab/decisions/director-review-process> (last visited April 9, 2026). None of these are applicable here.

¹ Patent Owner's discussion of the *Revvo* decisions is unrelated to any of the grounds challenged in the Request. Request at 1.

III. ARGUMENT

A. Grounds 4 & 5: The Board Correctly Construed a “Backside Metal Layer on a Bottom Surface of Said Semiconductor Substrate” to not Require Direct Contact

The Board correctly construed “backside metal layer on a bottom surface of said semiconductor substrate” as not requiring the backside metal layer to be in direct contact with the substrate. Patent Owner argues that “the Panel’s decision is based on an improper claim construction that ignored the intrinsic evidence in favor of extrinsic sources.” Request at 1. But this is not reflected by the record because the Board’s analysis began and ended with an examination of the intrinsic evidence.

Indeed, as the Board explained, the Board “start[ed] by analyzing the claim language,” then “turn[ed] to the Specification,” and then noted that “review of the prosecution history does not reveal any portions relevant to this issue.” Decision at 17-19. The Board concluded that, “[a]fter considering all of the relevant intrinsic evidence, . . . the scope of claim 1 includes direct contact between the backside metal layer and the bottom of the semiconductor substrate but does not require the backside metal layer be in direct contact with the bottom surface of the substrate.” *Id.* at 19. Contrary to Patent Owner’s argument, the Board did not “ignore[] the intrinsic evidence in favor of extrinsic sources.” Request at 1.

Patent Owner argues the Board improperly considered the claim language “in a vacuum” and incorrectly considered the specification only after having “chosen a

meaning” for the claim term. Request at 7-8. But there is no indication that the Board considered the meaning of the claim in a vacuum or settled on a construction before considering the entirety of the intrinsic record. Instead, the Board first analyzed the claim language—a practice endorsed by the Federal Circuit in a multitude of decisions—before turning to the specification. *E.g.*, *IQRIS Techs. LLC v. Point Blank Enters., Inc.*, 130 F.4th 998, 1003 (Fed. Cir. 2025) (“We start with the claim language.”); *Actelion Pharms. LTD v. Mylan Pharms. Inc.*, 85 F.4th 1167, 1171 (Fed. Cir. 2023) (“We start with the claim language.”). And as the remainder of the Board’s analysis illustrates, the Board considered the meaning of the claim term in view of the specification, concluding that the specification’s teaching that “direct contact is optional . . . aligns with the open-ended language of claim 1 that . . . does not necessarily require direct contact.” Decision at 18.

Patent Owner argues that the Board erred by ignoring that the “on a bottom surface” limitation dictates direct contact.² Request at 9. But the Board squarely

² Patent Owner argues that adding an intervening layer would result in no layer meeting the limitation of a “backside metal layer on a bottom surface of said semiconductor substrate.” Request at 9. But this reasoning is circular. It assumes

addressed this question by concluding that, “after considering all of the relevant intrinsic evidence, . . . the scope of claim 1 does not require the backside metal layer be in direct contact with the bottom surface of the substrate.” Decision at 19. Patent Owner’s disagreement with this determination does not constitute proper grounds for Director review.

Patent Owner’s remaining arguments are nothing more than a repeat of the arguments that the Board considered—and rejected—during the trial (e.g., in the Patent Owner Response). Patent Owner contends that alleged differences between claim 1 (reciting “on”) and claim 9 (reciting “overlying”) require direct contact. Request at 8. According to Patent Owner, “[t]he Board ignored this difference entirely.” *Id.* But the Board directly addressed the alleged difference, finding “the use of overlying with respect to this additional layer in claim 9 has little relevance to the construction of ‘on’ in claim 1.” Decision at 18. Patent Owner’s disagreement with this finding does not provide a basis for Director Review.³

that indirect contact is insufficient, but as the Board correctly found, that is not how the alleged invention was claimed. Decision at 17-19.

³ Indeed, as Petitioner already explained, the ’826 patent specification uses “underlying” and “on” interchangeably. ’826 patent, 3:12-17 (“the

Patent Owner again repeats its argument from the Patent Owner Response that “the purpose of the ’826 Patent’s invention is to improve the adhesion of a metal layer to a substrate” (and therefore undermines the Board’s construction). Request at 10 (citing ’826 patent, 1:16-39, 1:40-46). But as Petitioner established in prior briefing, the cited disclosures do not say (or require) that the backside metal layer is in direct contact with the substrate. Paper 20 at 13-14. The Board considered the description of the alleged invention in the specification and found it “does not necessarily require direct contact.” Decision at 18.

Patent Owner also repeats its argument from the Patent Owner Response that “[t]he ’826 Patent’s example embodiment shows that direct contact is required.” Request at 10. But as the Board correctly found, Patent Owner’s arguments are “an improper attempt to import a limitation from that embodiment into claim 1.” Decision at 18-19. Patent Owner ignores that the specification also recites that “backside metal layer stack 150 . . . *may be formed on* bottom side 112 of

underlying backside metal stack 150, which may be formed on bottom side 112 of semiconductor substrate 110 as shown in more detail in FIG. 1B”); Ex. 1034, ¶ 13. It follows that “overlying” and “on” a front side are also interchangeable and claim 9 does not support Patent Owner’s argument.

semiconductor substrate 110” ’826 patent, 3:12-17 (emphasis added). As the Board correctly found, “[t]his [language] aligns with the open-ended language of claim 1 that, as discussed above, does not necessarily require direct contact.”

Decision at 18.

And finally, Patent Owner contends, as it did the Patent Owner Response, that the term “surface” in “on a bottom surface” “indicates direct contact is necessary.” Request at 10. But as Petitioner established, a POSITA would have understood that forming a metal layer on a surface of a substrate means that the metal layer can indirectly contact the substrate through an intervening layer. Paper 20 at 12 (citing Ex. 1034 ¶¶ 10-11). Petitioner’s expert, Dr. Thompson, explained that this is similar to a tea cup resting “on” a table surface via a tea coaster. Ex. 1034 ¶¶ 10-11.

B. Ground 3: The Board Correctly Found that the Challenged Claims Would Have Been Obvious Over Gambino and Conn

The Board also correctly found that Petitioner established by a preponderance of the evidence that claim 1 would have been obvious over *Gambino* and *Conn*. In particular, the Board found “[found] that the combination of Gambino and Conn teaches limitation 1[d] because it ‘does not provide a ground connection to one or more active devices in said semiconductor substrate.’” Decision at 42. As the Board noted, “Patent Owner does not dispute any other claim limitations or the motivation to combine Gambino and Conn.” *Id.*

Patent Owner's argument, to the extent it can be understood, appears to be that using *Gambino's* method to create *Conn's* anchor vias would result in vias that "connect from the wiring level to the ground plane and therefore provide a ground connection" to active devices. Request at 13. This is the same argument put forth during trial. But the Board correctly credited Petitioner's evidence "that no wiring layers normally would be placed at the corners and peripheries of the substrate." Decision at 41 (citing Ex. 2004 ¶¶ 124-125). And as the Board noted, this was not disputed by Patent Owner's expert. Thus, Patent Owner cannot now dispute that using *Gambino's* method to create *Conn's* anchor vias would result in vias that do *not* connect wiring layers to the ground plane and therefore do *not* provide a ground connection.

Indeed, the Board weighed the evidence and correctly found that "Dr. Thompson's testimony appears consistent with the layout of the TSV's and dummy metal pads in *Gambino's* Figure 3 in that there is no connection on the backside of the dummy metal pads 16a to the TSV's or backside metal layer 16." Decision at 41 (citation omitted). The Board explained that, "[f]or these reasons, we find that Dr. Thompson's testimony that wiring is not normally placed in the corners is reasonable and entitled to weight." Decision at 41.

Patent Owner's arguments, which focus on how the combination would be combined, are also factually and legally incorrect. Patent Owner contends that the

Petition “explicitly and exclusively relied on Gambino’s process—with no modifications—for creating vias.” Request at 11 (citing Petition at 64). As an initial matter, this contention is irrelevant because the process does not impact whether vias exist that do *not* provide a ground connection; such vias would exist in the combination regardless of the process because there would be no wiring layers at the corners and peripheries of the substrate to which the vias could connect.

Patent Owner’s contention is also wrong. The Petition explained that the *Gambino-Conn* combination would have yielded a predictable result for a number of reasons, including for the reason that “the same process used for manufacturing Gambino’s electrical TSVs can be used to manufacture the anchor vias.” Petition at 64 (citation omitted). The combination was not so rigidly limited as Patent Owner contends. And Patent Owner’s arguments are counter to the Supreme Court’s “expansive and flexible approach” to obviousness in which “a court can take account of the inferences and creative steps that a person of ordinary skill in the art would employ.” *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 415, 418 (2007). That is exactly what the Board did here.

Patent Owner contends that the theory relied on by the Board was not presented in the Petition. Request at 13-14. But Patent Owner overlooks that the Board’s Final Written Decision was based on the same combination of references, the same motivation to combine, and the same prior art mapping put forth in the

Petition. *See* Petition at 59-70. Patent Owner never moved to strike and the Board expressly found that Petitioner’s theory was tied to the arguments and evidence presented with the Petition. Decision at 41 (“Dr. Thompson reiterates the position from his first declaration reproduced above and further explains that ‘no wiring layers would be placed at the corners and peripheries, because the wiring layers are local to the active devices.’” (citation omitted)). This was a proper response to the arguments made by Patent Owner in its Patent Owner Response and is consistent with how the Federal Circuit has considered arguments introduced in reply. *See, e.g., Anacor Pharms., Inc. v. Iancu*, 889 F.3d 1372, 1380-81 (Fed. Cir. 2018).

IV. CONCLUSION

Patent Owner’s Request establishes no justification for review. The Director should deny the Request.

Respectfully submitted,

Dated: April 14, 2026

By: /Joshua L. Goldberg/
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CERTIFICATE OF SERVICE

The undersigned certifies that a copy of the foregoing **Authorized Response to Director Review Request** was served electronically via email on April 14, 2026, in its entirety on the following:

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Patent Owner has consented to service by email.

Dated: April 14, 2026

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