

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

TAIWAN SEMICONDUCTOR
MANUFACTURING COMPANY LTD. and APPLE INC.
Petitioners

v.

MYW SEMITECH, LLC,
Patent Owner

U.S. Patent No. 11,107,768
Issue Date: August 31, 2021

Title: CHIP PACKAGE

Inter Partes Review No. IPR2026-00065

PATENT OWNER'S PRELIMINARY RESPONSE

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PATENT OWNER'S EXHIBIT LIST

Exhibit No.	Description
2001	U.S. Patent No. 9,615,453
2002	Information Disclosure Statement for U.S. Application No. 17/929,180 dated December 21, 2023
2003	[SEALED] Email chain between Richard Juang, counsel for MYW Semitech, and Daniel Richards, counsel for Apple Inc., regarding production of materials
2004	[SEALED] Defendant Apple Inc.'s First Supplemental Responses to Plaintiff MYW Semitech, LLC's First Set of Interrogatories (Nos. 1-12)
2005	[SEALED] Email chain between Richard Juang, counsel for MYW Semitech, and Daniel Richards, counsel for Apple Inc., regarding availability of source code
2006	[SEALED] Email chain between Richard Juang and Peter Yang, counsel for TSMC, regarding inventorship.
2007	Oral Order for Motion to Stay Pending <i>Inter Partes</i> Review, <i>MYW Semitech, LLC v. Apple Inc.</i> , 1-25-cv-00504 (DDE) Dkt. 68 (January 21, 2026)
2008	Stipulation and [Proposed] Order to Amend Scheduling Order, <i>MYW Semitech, LLC v. Apple Inc.</i> , 1-25-cv-00504 (DDE) Dkt. 58 (December 3, 2025)
2009	Apple Inc.'s Infringement Contentions, <i>MYW Semitech, LLC v. Apple Inc.</i> , 1-25-cv-00504 (DDE) (January 9, 2026)
2010	Agreed Stipulation Regarding the Discovery of Electronically Stored Information, <i>MYW Semitech, LLC v. Apple Inc.</i> , 1-25-cv-00504 (DDE) Dkt. 39 (October 14, 2025)
2011	Revision to Rules of Practice Before the Patent Trial and Appeal

	Board, 90 Fed. Reg. 48,335 (proposed Oct. 17, 2025) (to be codified at 37 C.F.R. pt. 42).
2012	Declaration of Richard Juang
2013	Default Protective Order
2014	Apple Inc's Proposed Constructions in <i>MYW Semitech, LLC v. Apple Inc.</i> , C.A. No. 25-504-RGA-EGT (Feb. 12, 2026)
2015	Joint Claim Construction Chart in <i>MYW Semitech, LLC v. Apple Inc.</i> , C.A. No. 25-504-RGA-EGT (Feb. 26, 2026)

Pursuant to 35 U.S.C. § 314(a) and 37 C.F.R. § 42.107, Patent Owner MYW Semitech, LLC, (“MYW” or “Patent Owner”) files this preliminary response setting forth merits and non-discretionary reasons why institution of the Petition for *inter partes* review (“IPR”) of claims 1-28 (the “challenged claims”) of U.S. Patent No. 11,107,768 (“the ’768 patent”), as requested by Taiwan Semiconductor Manufacturing Company Ltd. (“TSMC”) and Apple Inc. (“Apple”) (collectively, “Petitioners”), should be denied.

I. INTRODUCTION

Institution should be denied for multiple reasons. First, the Petition fails to demonstrate a reasonable likelihood that any challenged claim is unpatentable. Sundaram, the primary reference in grounds 1A and 1B, fails for multiple reasons. Sundaram does not provide an enabling disclosure of the claimed polymer layer and does not teach or suggest the claimed “first polymer layer” having “a thickness between 100 and 300 micrometers.” Indeed, Sundaram is directed to glass and silicon interposer layers and teaches away from using polymer in the interposer. Petitioners have alleged is a first polymer layer.

Grounds 2A and 2B also fail to demonstrate a reasonable likelihood that the challenged claims are unpatentable. Neither the primary reference Haba nor the secondary reference Lin-191 teach or suggest the claimed “first polymer layer has a thickness between 100 and 300 micrometers.” Petitioners also combine

embodiments in Haba in manners that are not taught or suggested by Haba, are not needed, and are in fact counter-productive to the goals of Haba.

For grounds 3A, 3B and 3C, the primary reference Yu and secondary reference Lin-191 also fail to teach or suggest the limitation “first polymer layer has a thickness between 100 and 300 micrometers.” Moreover, the Petition fails to identify a “second metal interconnect” as required by claim 16, instead relying on disclosure of a single metal interconnect as both the “first metal interconnect” and “second metal interconnect.”

Second, the Petition fails to comply with the regulations. 37 C.F.R. §42.104(b)(3) (and the Director’s guidance in *Revvo Techs., Inc. v. Cerebrum Sensor Techs., Inc.*, IPR2025-00632, Paper 20, 5 (PTAB Nov. 3, 2025) (precedential)) requiring Petitioners to “explain sufficiently why [different claim construction positions are] warranted.” In the district court litigation, Petitioner Apple proposed a narrowing construction for “semiconductor chip” as “[p]lain and ordinary meaning, which is ‘a semiconductor device comprising an IC (integrated circuit).’” Here, Petitioners argue that “claim construction is unnecessary” for any term. Accordingly, under *Revvo* and similar Director Review decisions, institution should be denied because Petitioners are advancing a different, narrower claim constructions in the district court than in this IPR without any explanation for why a different construction is necessary here.

The 152-page Petition also fails to comply with 37 C.F.R. § 42.24 (a)(1)(i), exceeding the 14,000 word limit for Petitions by thousands of words. The Petition uses excessive words in images, deleted spacing between words, and excessive acronyms or abbreviations for word phrases to circumvent the rules on word count. Patent Owner will be significantly prejudiced if it is limited to 14,000 words in its Patent Owner's Response to respond to the 152-page Petition.

Finally, the Petition fails to comply with 37 C.F.R. §42.104(a), which requires Petitioners to certify that the '768 Patent "is available for *inter partes* review and that the petitioner is not barred or estopped from requesting an *inter partes* review challenging the patent claims on the grounds identified in the petition." Instead, the Petition certifies only that "the '768 Patent is eligible for IPR."

For each of these reasons, institution should be denied.

II. THE '768 PATENT

The '768 Patent discloses a "method and structure to manufacture a glass substrate" and a "chip building a system on the glass substrate." *See* Ex. 1001, 1:18-19. The glass substrate comprises "multiple metal conductors through in said glass substrate and multiple metal bumps are between said glass substrate and said display panel substrate, wherein said one of said metal conductors is connected to one of said contact pads through one of said metal bumps." *Id.*, abstract.

Claim 1 is reproduced below:

Claim	Claim Language
1(Pre)	A chip package comprising:
1A	a first polymer layer having a first surface and a second surface opposite to said first surface , wherein said first surface is substantially parallel to said second surface , wherein said first polymer layer has a thickness between 100 and 300 micrometers and has a coefficient of expansion between 3 and 10 ppm / °C.;
1B	a first metal plug vertically in a first through via in said first polymer layer, wherein said first metal plug comprises a first copper layer, wherein the first copper layer contacts with a sidewall of said first through via;
1C	a second metal plug vertically in a second through via in said first polymer layer, wherein said second metal plug comprises a second copper layer, wherein a top surface of said second metal plug and a top surface of said first metal plug are in the same horizontal plane;
1D	a first interconnection scheme over said first surface, wherein said first interconnection scheme comprises a first metal interconnect over said first surface, a second metal interconnect over said first surface, a third metal interconnect over said first surface and a second polymer layer over said first, second and third metal interconnects, wherein said first metal interconnect is connected to said first metal plug, wherein said second metal interconnect is connected to said second metal plug, wherein said first metal interconnect comprises a first metal layer, a third copper layer on said first metal layer, and a fourth copper layer on said third copper layer;
1E	a first metal bump over said first interconnection scheme and said second metal plug, wherein said first metal bump comprises a tin-containing layer; and
1F	a first semiconductor chip under said first interconnection scheme, wherein said first semiconductor chip comprises a fourth metal interconnect on a first metal pad of said first semiconductor chip, wherein said fourth metal interconnect comprises a second metal layer on said first metal pad and a fifth copper layer over said second metal layer, wherein said fifth copper layer has a thickness between 5 and 30

	micrometers, wherein said fourth metal interconnect is connected to said third metal interconnect.
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III. LEVEL OF ORDINARY SKILL

Petitioners allege the following level of ordinary skill:

A POSITA at the time of the '768 Patent would have had at least a bachelor's degree in electrical engineering, materials science, or physics (or an equivalent degree), and at least two years of experience in semiconductor design or semiconductor manufacturing. A master's degree or Ph.D. in a relevant field may substitute for some work experience or vice versa. Additional education or experience might substitute for the above requirements.

Pet., 1. For the purposes of this preliminary response, Patent Owner does not dispute Petitioners' level of ordinary skill.

IV. CLAIM CONSTRUCTION

Petitioners allege that "[f]or this IPR only, claim construction is unnecessary because, as set forth herein, the prior art falls within the indisputable scope of the Challenged Claims under any reasonable construction (including any proposed in litigation)." Pet., 2. As discussed below, this Petition should be dismissed because Petitioners have proposed a different, narrower construction in the district court litigation for the term "semiconductor chip."

For the purposes of this preliminary response, Patent Owner does not believe any claims need to be construed. Patent Owner reserves the right to propose claim terms for construction should this IPR be instituted. In the corresponding district court litigation, Patent Owner has not proposed any specific constructions for any claim terms.

**V. PETITIONERS FAIL TO DEMONSTRATE A REASONABLE
LIKELIHOOD THAT ANY OF THE CHALLENGED CLAIMS ARE
UNPATENTABLE**

**A. The Petition Fails To Comply With 37 C.F.R. §42.104(b)(3)
Because It Advances Inconsistent Claim Construction Positions Before
The Board and District Court**

The Petition asserts that “claim construction is unnecessary.” Pet., 2. But in the parallel district court litigation between Patent Owner and Petitioner Apple, Apple has identified a claim term for construction and provided a proposed construction for that term. In the district court litigation, Apple has identified the term “semiconductor chip” for construction. Apple has asserted that “semiconductor chip” should be construed to have its plain and ordinary meaning which is “a semiconductor device comprising an IC (integrated circuit).” Ex. 2014. In the district court, Apple stated it believe this construction “may be relevant to lack of written description or enablement, an/or non-infringement.” Ex. 2015, 4. The term “semiconductor chip” is present in both independent claims (1

and 16) as well as dependent claims 3, 4, 6, 11-13, 17, 18, 21, and 23-27 of the '768 Patent. *See* Ex. 1001.

The Petition should be denied because Petitioner Apple has proposed inconsistent positions for the construction of “semiconductor chip.” 37 C.F.R. §42.104(b)(3) requires the Petition identify “how the challenged claim is to be construed.” “Although the Board’s rules do not necessarily prohibit petitioners from taking inconsistent claim construction positions before the Board and a district court, [] when a petitioner advances different positions before the Board and a district court, that petitioner is required to explain why those different positions are warranted. *Tesla, Inc. v. Intellectual Ventures II LLC*, IPR2025-00340, Paper 18, 3 (PTAB Nov. 5, 2025) (informative). *See also Revvo Techs., Inc. v. Cerebrum Sensor Techs., Inc.*, IPR2025-00632, Paper 20, 4 (PTAB Nov. 3, 2025) (precedential) (“the rules discourage petitioners from seeking broader constructions at the Board to support a patentability challenge while seeking narrower constructions in litigation to avoid infringement liability”); *Revvo Techs. Inc. v. Cerebrum Sensor Techs, Inc.*, IPR2025-00632, Paper 36 (PTAB Jan. 26, 2026) (vacating decision granting institution and denying institution where petitioner failed to sufficiently explain why it was taking a different claim construction position in the IPR); Changes to the Claim Construction Standard for Interpreting Claims in Trial Proceedings Before the Patent Trial and Appeal Board,

83 Fed. Reg. 51,340, 51,350 (Oct. 11, 2018) (“Claim Construction Standard”) (adopting the *Phillips* standard “will promote a more fair and balanced system because parties will no longer be able to argue for a broader claim scope in PTAB proceedings than that used by federal courts.”)

Here, Petitioners have not identified why different claim construction positions are warranted in the district court and IPR. Pet., 2. Instead of applying Apple’s proposed construction for “semiconductor chip” from district court, Petitioners instead apply no construction. *See, e.g.*, Pet., 2. Accordingly, the Petition should be denied under *Tesla* and *Revvo*.

B. The Petition Fails To Comply With 37 C.F.R. §42.24(a)(1)(i) Because It Substantially Exceeds 14,000 Words.

37 C.F.R. § 42.24 (a)(1)(i) limits Petitions requesting *inter partes* review to 14,000 words. The Trial Practice Guide explains that “when certifying word count, a party need not go beyond the routine word count supplied by their word processing program.” However, the Trial Practice Guide warns that “Parties should not abuse the process.” Patent Trial and Appeal Board Consolidated Trial Practice Guide (“CTPG”), 38 (Nov. 2019)¹ (“Word Count and Page Limits”). “Except in cases of obvious abuse, the Board will generally accept a party’s certification of

¹ Available at <https://www.uspto.gov/sites/default/files/documents/tpgnov.pdf>.

compliance with word count limits.” *Id.* The Consolidated Trial Practice Guide explains:

Excessive words in figures, drawings, or images, deleting spacing between words, or using excessive acronyms or abbreviations for word phrases, in order to circumvent the rules on word count, may lead to a party’s brief not being considered. *See, e.g., Pi Net Int’l, Inc. v. JPMorgan Chase & Co.*, 600 F. App’x 774 (Fed. Cir. 2015).

Id., 40.

This is a case of obvious abuse. The Petition is **152 pages long**, not counting sections that are not considered for the word count. *See* Pet., 1-152. Two normal, 14,000-word Petitions could fit in 152 pages. While Petitioners certify a word count of 13,759 words, that certification does not take into account the “excessive words in figures, drawing, or images,” the “delet[ed] spacing between words” or the “use[of] excessive acronyms [and] abbreviations for word phrases” rampant throughout the 152 pages of the Petition. CTPG, 40.

The Petition contains roughly **141 images of figures**, almost all of which contain additional words that are not part of the certified word count. Counting only additional words that were added to these figures by Petitioners and were not already present in the original figures, these 141 images account for approximately **1370** additional words.

The Petition contains excessive acronyms and abbreviations for word phrases, including “REOS” for “reasonable expectation of success” (53 uses), “MTC” for “motivation to combine” (74 uses) and “RDL” for “polymer-metal redistribution layer” (42 uses). These unusual abbreviations alone account for **over 500 additional words**. This is without counting more common abbreviations such as POSITA, CTE, etc., which would balloon the word count by hundreds more words.

Many of the limitations also contain only cross references in lieu of argument or explanation. *See, e.g.*, Pet., 58-60. While this is an obvious attempt to circumvent the word limit, it also calls into question whether the Petition satisfies 37 C.F.R. § 42.104(b)(4)’s requirement to identify “how the construed claim is unpatentable.” By stating, for example, only “Sections V.A.5, VI.A” to explain why a limitation is allegedly unpatentable, it forces Patent Owner and the Board to attempt to infer what Petitioners’ arguments are. Pet. 58. In the example above, Section VI.A covers 8 pages and 24 different limitations, most of which are cross-references themselves. Pet., 59-67.

Patent Owner’s complaint is not so much the methods Petitioners used to evade the word limits but rather the sheer scope of the evasion. Annotated figures, abbreviations and contractions are common in Petitions and ordinarily not something Patent Owner would raise, however here the sheer number of annotated

figures, abbreviations, acronyms, and cross references are an obvious and blatant attempt to circumvent the rules on word count.

Further, there is no reason this Petition needed to be twice as long as a normal Petition. This is not a patent with an excessive number of claims. The '768 Patent has only 28 claims. Ex. 1001, cls. 1-28. The independent claims are not short, but there are only two. *Id.*, cls. 1 and 16. The entire claim section takes up less than two pages. Many of the limitations are repeated between the two claim sets. The issue is that the Petition contains seven separate grounds that collectively cover each claim of the '768 Patent multiple times. Pet., 2. There was no need for a single Petition to advance seven separate grounds over 152 pages given the claims at issue.

Finally, rebutting a Petition of this extraordinary length is prejudicial to Patent Owner. Patent Owner does not necessarily need extra word count for this paper given the limited scope of the optional preliminary response and the recent changes in IPR practice moving discretionary denial issues into separate briefing. However, Patent Owner will need extra word count for the Patent Owner Response if this IPR is instituted. A typical 13,000-14,000-word Patent Owner Response is usually around 70-80 pages. If this IPR is instituted, the Patent Owner Response will require significantly more arguments and significantly more evidence (with expert testimony) to address all the arguments raised in the 152-page Petition.

Taken together, this is a case similar to *Pi Net Int'l, Inc. v. JPMorgan Chase & Co.*, 600 F. App'x 774 (Fed. Cir. 2015) where a brief obviously abused the word count feature in order to circumvent the word limits. This Petition far exceeds the 14,000-word limit. Petitioners' failure to comply with 37 C.F.R. §42.24(a)(1)(i) is an additional reason institution must be denied.

C. The Petition Fails To Comply With 37 C.F.R. § 42.104(a)

37 C.F.R. § 42.104(a) requires that the “petitioner must certify that the patent for which review is sought is available for *inter partes* review and that the petitioner is not barred or estopped from requesting an *inter partes* review challenging the patent claims on the grounds identified in the petition.” 37 C.F.R. § 42.104(a) (emphasis in original). The Petition states only “Petitioners certify the '768 Patent is eligible for IPR”:

III. REQUIREMENTS UNDER 37 C.F.R. § 42.104

A. Grounds for Standing Under 37 C.F.R. § 42.104(a)

Petitioners certify the '768 Patent is eligible for IPR.

Pet., 1.

Petitioner's statement certifies the '768 Patent is “*eligible* for IPR,” not that the patent is “*available* for inter partes review” as required by § 42.104(a). And Petitioner's statement completely fails to certify that “the petitioner is not barred or

estopped from requesting an inter partes review challenging the patent claims on the grounds identified in the petition” as required by § 42.104(a). Because the Petitioners fail to comply with 37 C.F.R. § 42.104(a), institution must be denied.

D. Grounds 1A and 1B

1. Sundaram Does Not Provide an Enabling Disclosure of a Polymer Interposer

Independent claims 1 and 16 each recite “a first polymer layer ... wherein the first polymer layer has a thickness between 100 and 300 micrometers.” Claim 1 further recites that the “first polymer layer” “has a coefficient of expansion between 3 and 10 ppm/°C.”² Petitioners rely on Sundaram as disclosing the claimed “first polymer layer” based on a single passing reference to “flexible polymers” as one potential material for the interposer 105 in Sundaram Figure 3. Pet., 5 (*citing* Ex. 1004, 5:54-57). Sundaram’s discussion of the material that makes up interposer 105 and its properties is almost universally about silicon, glass or a glass-polymer layered interposer. Sundaram has no substantive discussion or data about an interposer made of a polymer alone.

² Claim 20 depends from independent claim 16 and recites the same coefficient of thermal expansion limitation.

Sundaram explains that desirable properties for the interposer material include silicon-matched coefficient of thermal expansions (“CTE”), surface flatness, dimensional stability, high electrical resistance, and thin and large panel availability. Ex. 1004, 5:62-67. Sundaram teaches that glass is the best material for interposer 105 because glass has the desired properties compared to other materials that may be chosen for interposer 105. *Id.* Sundaram teaches that “glass interposers have extremely low electrical loss with respect to signal propagation.” *Id.*, 7:35-36. According to Sundaram, “glass interposers eliminate the need for through-silicon-vias (TSVs) in the logic IC, which substantially, if not completely, eliminates complications of 3D ICs discussed above.” *Id.*, 7:39-41.

Sundaram also provides several examples of substrate material with test results provided for the different material choices. Sundaram’s Example 1 was based on an interposer made of a glass substrate with a thin polymer liner on the top and bottom surfaces of the glass. *Id.*, 8:17-22. Examples 3 through 5 each used a polymer-lined glass interposer. *Id.*, 9:15-16, 9:60-61, 9:66-67, 10:17-24.

Sundaram also has several examples where silicon or polymer-laminated silicon was the interposer material. *Id.*, 10:66-11:2, 12:20-22, 12:34-35, 12:41-44, 13:16-19, 13:34-36, 13:59-61. Never once does Sundaram describe an example where only a polymer was used as the interposer material.

Indeed, Sundaram provides no enabling disclosure for an interposer made of a polymer alone. Sundaram does not provide example polymers. Sundaram does not provide thicknesses or other dimensions for polymers. Sundaram provides no data from which a POSITA could choose a polymer that would achieve Sundaram's objectives including providing short via interconnections, at an ultra-fine via pitch of 10-30 microns. *Id.*, 5:32-44.

2. Sundaram Does Not Teach or Suggest a Polymer Interposer Having the Claimed Thickness

Independent claims 1 and 16 of the '768 patent recite a "first polymer layer" having "a thickness between 100 and 300 micrometers." Ex. 1001, 22:56-57, 24:33-34. Sundaram provides a POSITA with no basis to select a polymer interposer having a thickness between 100 and 300 micrometers. The Petition points to Sundaram at 2:22-25 and 14:34-36 as disclosing a "first polymer layer [that] has a thickness between 100 and 300 micrometers." Pet., 6. But Sundaram 2:22-25 does not mention the material the interposer is made from. And the example at 14:34-36 is discussing a single crystal silicon interposer, not a polymer interposer. Ex. 1004, 14:6-10 ("Single Crystal Silicon Interposer Examples").

A person of ordinary skill in the art would understand – based on Sundaram's own disclosures – that polymer interposers exhibit materially different mechanical and thermo-mechanical properties compared to silicon or glass

interposers. As shown in Sundaram's Table 1 (below), glass materials exhibit coefficients of thermal expansion (CTE) of approximately 3.8-8.5 ppm/°C and Young's moduli on the order of 70-77 GPa, whereas Sundaram's polymer materials exhibit substantially higher CTE values of approximately 31-67 ppm/°C and dramatically lower Young's moduli of approximately 1.8-6.9 GPa.

TABLE 1

	Young's Modulus (GPa)	Poisson's Ratio	CTE (ppm/° C.)	Stress free Temp. (° C.)
Glass 1	77	0.22	3.8	25
Glass 2	71	0.24	8.5	25
Polymer 1	1.83	0.3	67	232
Polymer 2	6.9	0.3	31	120
Copper	121	0.3	17.3	25

Ex. 1004, 33.

These differences represent order-of-magnitude variations in both thermal expansion and mechanical stiffness. Table 1 highlights the vast disparity in physical properties between glass/silicon and polymers and shows that polymers exhibit significantly higher CTE and much lower Young's Modulus. In the context of an "ultra-thin" interposer, these characteristics would likely lead to catastrophic failure. Accordingly, a person of ordinary skill in the art would not reasonably extrapolate the disclosed thickness values or experimental results for silicon or

glass interposers (e.g., approximately 175 μm (Ex. 1004, 9:14-16)) to polymer interposers, which would be expected to exhibit fundamentally different warpage, stress, and reliability behaviors at comparable thicknesses. Therefore, Sundaram does not teach or enable a polymer interposer having the thickness range recited in challenged claim 1.

3. Sundaram Teaches Away from a Polymer Interposer

Independent claims 1 and 16 of the '768 patent recite a “chip package” including “a first polymer layer.” Ex. 1001, 22:52-53, 24:29-30. Sundaram teaches that one of the advantages of using a glass interposer is that glass has a “silicon-matched coefficient of thermal expansions (CTE).” Ex. 1004, 5:62-63. Sundaram also teaches that silicon has a CTE of 2.6 ppm/ $^{\circ}\text{C}$. *Id.*, 12:9. Glass has a CTE between 3.8 and 8.5 ppm/ $^{\circ}\text{C}$. *Id.*, 8:61-62. Sundaram’s polymers, on the other hand, have CTEs between 31 and 67 ppm/ $^{\circ}\text{C}$. *Id.*, 8:63-64. If a POSITA reading Sundaram wanted to choose an interposer material that has a “silicon-matched” CTE, a POSITA would choose glass – *not* a polymer – because glass has a CTE that is much more closely matched to silicon’s CTE. Thus, a POSITA reading Sundaram would not use a polymer interposer because polymers do not have “silicon matched” CTEs.

E. Grounds 2A and 2B

The Petition uses Ground 2A to challenge independent claim 1 and several of its dependent claims. Pet., 2. Ground 2B challenges other claims that depend from claim 1. Pet., 2. Neither Ground 2A or Ground 2B challenge independent claim 16 or any of its dependent claims 17-28.

1. Haba Alone or in Combination with Lin-191 Do Not Teach or Suggest the Claimed Thickness of the Polymer Layer

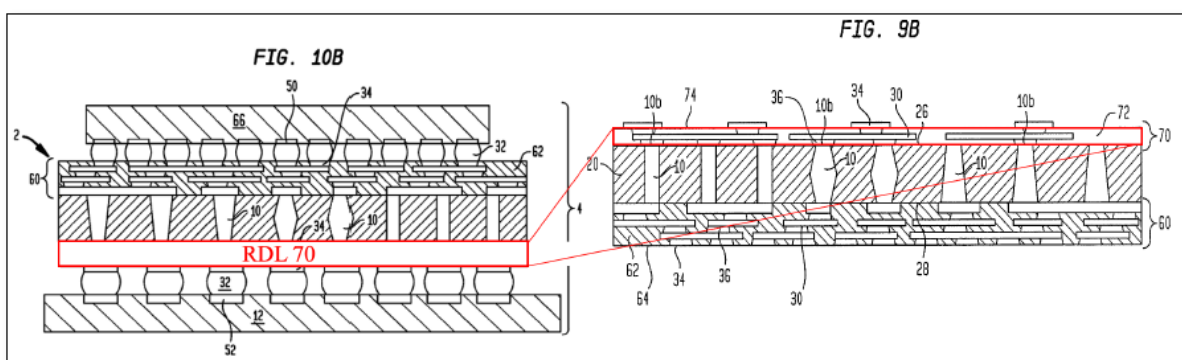
Independent claims 1 and 16 recites that “said first polymer layer has a thickness between 100 and 300 micrometers.” Ex. 1001, 22:56-57, 24:33-34. The Petition asserts that Haba alone discloses this thickness because Haba says that “the first dielectric layer can be formed to have a thickness of at least 10 μm between the first and second surfaces.” Ex. 1009, 2:34-36. Read literally, there is no upper bound to the thickness being taught by Haba. Neither the Petition, nor Petitioner’s expert, provide any basis for a POSITA to select a thickness between 100 and 300 micrometers, as claimed. Pet., 76; Ex. 1003, ¶ 319. A POSITA would recognize based on the teachings of the references used in this Petition that a desired thickness may be influenced by the particular material selected, the CTE of that material, and the thermal isolation that may be desired of the material (among other factors). Ex. 1004, 2:4-6, 5:32-44, 5:62-67, 7:35-44. The Petition makes no

attempt to justify why a POSITA would have selected a thickness between 100 and 300 micrometers.

Alternatively, the Petition argues that Haba in combination with Lin-191 teaches or suggests the claimed polymer thickness. Lin-191 teaches that its substrate can be anywhere between 10 and 1,000 micrometers thick. Ex. 1005, ¶ [0051]. Lin-191 provides no guidance as to how a POSITA would select a particular thickness within that broad range and not such guidance is identified in the Petition. Pet., 76-77. The Petition cites Lin-191 for the teaching that the substrate can be 10 and 150 micrometers. *Id.* (citing Ex. 1005, ¶ [0290]). But the actual quote says the substrate can be “between 1 and 10 micrometers, between 3 and 50 micrometers or between 10 and 150 micrometers.” Thus, Lin-191 is teaching three ranges, two of which (1 to 10 and 3 to 50) have no overlap with the claimed range, and one of which only partially overlaps. Further, this selective quote ignores the other teachings in Lin-191 of other thicknesses within the broader range of 10-1,000 micrometers, even after being thinned as taught by Lin-191. *Id.* As with Haba, the Petition provides no basis why a POSITA would have selected a thickness in the claimed range of 100 to 300 micrometers.

2. The Petition Selectively Alters Haba to More Closely Align with the Claims

The Petition states that Petitioner's mapping of the claim elements to the cited references "relies on Haba, FIGS. 9B and 10B, where the "embodiment of [interconnection] component 2 shown in FIG. 9B can be used...in a similar arrangement as shown in FIGS. 10A and 10B." Pet., 72. As the basis for this combination, Petitioner's expert argues that the entirety the structure of Haba Figure 9B would be included in the arrangement shown in Haba Figure 10B. Ex. 1003, ¶¶ 306-307. But Haba Figure 10B expressly shows that not all of Figure 9B is included in Figure 10B. Figure 10B does not include a redistribution layer 70 between pads 34 and layer 20. Below is the annotated set of figures from Petitioner's expert declaration where the expert inserts redistribution layer 70 between pads 34 and layer 20 in Figure 10B.



EX1009 at FIGS. 9B, 10B.

Ex. 1003, ¶ 307. First, a POSITA would readily recognize that inserting the expert's RDL 70 in Figure 10B is not taught or suggested by Haba, is not needed,

and is in fact counter-productive. Haba's Figure 10B shows what part of Figure 9B would be included in the arrangement shown in Figure 10B. It does not include Figure 9's RDL 70.

Second, RDL 70 is not needed in Figure 10B because Figure 10B shows a one-to-one correlation between pads 34 and pins 10 in layer 20. Thus, in Figure 10B, the insertion of RDL 70 is completely unnecessary and would have been recognized by a POSITA as such. Finally, inserting RDL 70 in Figure 10B is counter-productive because additional processing steps would be necessary to form RDL 70. Haba teaches that redistribution layer 70 is similar in structure to redistribution layer 60. Ex. 1009, 7:59-60. Haba explains that redistribution layer 60 is formed by multiple layers and multiple processing steps. Ex. 1009, 6:59-7:26. Moreover, Haba expressly teaches that the component 2 used in Figure 10B is only "in a similar arrangement" to that shown in Figure 9B. Based on these teachings, a POSITA would have no reason to modify Figure 10B by inserting Figure 9B's RDL 70.

The Petition concedes that its revised version of Figure 10B is necessary for its Haba-based claim mappings. Pet., 72-73 ("Petitioners' mapping relies on Haba, FIGS. 9B and 10B ...").

Because there no reason why a POSITA would have revised Haba's Figure 10B in the way relied upon in the Petition, or selected the claimed polymer

thicknesses based on Haba or Lin-191, the Petition fails to show that there is a reasonable likelihood that Petitioners would prevail with respect to any of challenged claims 1-15 under Grounds 2A and 2B.

F. Grounds 3A-3C- The Yu-Lin-191 Combination Does Not Teach or Suggest the Claimed Thickness of the Polymer Layer

Grounds 3A-3C challenge independent claim 16 and its dependent claims 17-28. Pet., 2.

Claim 16 recites that “said first polymer layer has a thickness between 100 and 300 micrometers.” Ex. 1001, 24:33-34. The Petition asserts that Yu’s molding compound 18 corresponds to the claimed “first polymer layer.” Pet., 119. But Yu does not disclose the thickness of the molding compound 18 or even a range of thicknesses. Thus, the Petition looks to a secondary reference, Lin-191, for disclosure of a polymer layer having the claimed thickness. Pet., 120-121. Lin-191 states that encapsulating layer 85 has a thickness between 20 and 500 micrometers and preferably between 30 and 100 micrometers. Ex. 1005, ¶ [0109]. But rather than rely on the preferred thickness of “between 30 and 100 micrometers,” Petitioners selectively choose the teaching that the layer 85 is 20-500 micrometers. There is no reason to choose the less preferred 20-500 micrometer range rather than the preferred thickness of 30 to 100 micrometers

other than the fact that the 20-500 micrometer range overlaps with the claimed 100-300 micrometer thickness. This is obvious hindsight.

Alternatively, the Petition relies on a calculation in which the thicknesses of different structures in Lin-191's Figure 21 are added together. But again, Petitioners selectively choose to rely on dimensions that conveniently add up to a thickness that Petitioners claim renders the claimed thickness obvious. Pet., 121. For example, Lin-191 states that metal pillars or bumps 14 have a thickness "between 15 and 520 micrometers, and preferably between 20 and 110 micrometers." Ex. 1005, ¶ [0066]. Petitioners chose to use the 20-110 micrometer thickness in its calculation instead of the 15-520 micrometer thickness because the 20-110 micrometer thickness helps Petitioners arrive at a thickness for layer 85 between 23.011 micrometers and 121.3 micrometers. Pet., 121. This is pure hindsight recreation of the claimed thickness.

Neither the Petition nor Petitioner's expert provide any basis or explanation for why a POSITA would have chosen one set of thicknesses over the other set of thicknesses disclosed in Lin-191. Pet., 120-122; Ex. 1003, ¶¶ 452-459. Hindsight cannot be a basis for finding the challenged claims obvious.

VI. CONCLUSION

For at least the foregoing reasons, Petitioners have failed to demonstrate a reasonable likelihood that any challenged claim is unpatentable. Thus, institution of this *inter partes* review must be denied.

Dated: March 2, 2026

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CERTIFICATE OF COMPLIANCE

Pursuant to 37 C.F.R. § 42.24(d), Patent Owner certifies that this Patent Owner Preliminary Response has 4,932 words as counted by the word-processing system used to prepare this document. This word count complies with the 14,000 word limit under 37 C.F.R. § 42.24(b)(1).

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CERTIFICATE OF SERVICE

The undersigned hereby certifies that the foregoing PATENT OWNER'S
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