

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent of: G.R. Mohan Rao
U.S. Patent No.: 11,121,222
Issue Date: September 14, 2021
Appl. Serial No.: 16/947,294
Filing Date: July 27, 2020
Title: SEMICONDUCTOR DEVICES WITH GRADED DOPANT
REGIONS

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Patent Trial and Appeal Board
U.S. Patent and Trademark Office
P.O. Box 1450
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**PETITIONER'S NOTICE RANKING AND EXPLAINING MATERIAL
DIFFERENCES BETWEEN PETITIONS FOR *INTER PARTES* REVIEW
OF U.S. PATENT NO. 11,121,222**

Petitioner is filing two joinder petitions (IPR2024-00673 and IPR2024-00674) challenging U.S. Patent No. 11,121,222 (the “’222 Patent”). Pursuant to the November 2019 Trial Practice Guide Update (hereinafter “TPG”), this paper provides: “(1) a ranking of the petitions in the order in which [Petitioner] wishes the Board to consider the merits, if the Board uses its discretion to institute any of the petitions, and (2) a succinct explanation of the differences between the petitions, why the issues addressed by the differences are material, and why the Board should exercise its discretion to institute additional petitions.” TPG, 59-61.

I. Ranking of Petitions

Although Petitioner believes that both petitions are meritorious and justified, Petitioner requests that the Board consider the petitions in the following order:

Rank	Petition	Challenged Claims	Primary Ref.
1	IPR2024-00673	1-9, 13-28, and 32-42	Kawagoe, Wieczorek, Wolf
2	IPR2024-00674	44	Payne, Sakai

Notably, IPR2024-00673 (the “’673 Petition”) is a copycat petition of the IPR2023-01242 petition (the “SCI1 Petition”), which Petitioner has requested to join and which has been instituted. IPR2024-00674 (the “’674 Petition”) is a copycat petition of the IPR2023-01244 petition (the “SCI2 Petition”), which Petitioner has requested to join and which has been instituted. Because the ’673

Petition addresses 36 claims (as opposed to one claim challenged by the '674 Patent), Petitioner's rank the IPR2024-00673 Petition first.

II. Circumstances in Which the Board has Instituted Multiple Petitions

The Board has recognized “that there may be circumstances in which more than one petition may be necessary.” TPG, 59. Among these circumstances, the Board has previously recognized that two petitions may warrant institution if the patent owner has asserted a large number of claims. *Id.* The Board has also previously instituted two petitions when the claims are addressed by different prior art references, and thereby present materially different grounds challenging a patent. *Solaredge Technologies Ltd. v. SMA Solar Technology AG*, IPR2019-01224, Paper 10 at 11-13 (PTAB Jan 23, 2020).

The 37 challenged claims across the two Petitions represent the claims of the '222 Patent that Patent Owner has asserted against Petitioner in litigation, or which Petitioner reasonably believes Patent Owner may assert in the litigation.

III. Material Differences Between the Petitions

Because of the significant differences in claim scope between the challenged claims of the '673 Petition and claim 44 challenged in the '674 Petition, different prior art and prior art grounds are used in the two petitions, as set forth in the table below.

Petition	Claims	Ground
Petition I: IPR2023-01242	1-9, 13-14, 16-21, 23-28, 32-42	Ground I: §103 over Kawagoe
	1-2, 4-9, 13-23, 25-28, 32-42	Ground II: §103 over Wieczorek in combination with Wolf
	1-9, 13-14, 16-21, 23-28, 32-42	Ground III: §103 over Kawagoe in view of Gupta
	1-2, 4-9, 13-23, 25-28, 32-42	Ground IV: §103 over Wieczorek in combination with Wolf, in further view of Gupta
	19, 37	Ground V: §103 over Kawagoe in combination with Silverbrook
	19, 37	Ground VI: §103 over Wieczorek in combination with Wolf, in further view of Silverbrook
Petition II: IPR2023-01244	44	Ground I: §103 over Payne
	44	Ground II: §103 over Sakai in combination with Kawagoe

The material differences between the two petitions lie in (i) their mutually exclusive claim sets, (ii) the significant differences in claim scope between claims of the two claim sets, and (iii) the use of different prior art and prior art combinations to better address the difference in claim scope. Notably, the '674 Petition's lone challenged claim 44 claims a "surface layer," a "single drift layer," and "at least one well region disposed in the single drift layer," which are not

claimed in the '673 Petition's challenged claims. The primary references used in the '674 Petition (Payne and Sakai) disclose CMOS devices with nested well structures, whereby shallow wells are disposed in deep wells, to properly address the claimed "single drift layer" and "well region disposed in the single drift layer" unique to claim 44. Payne and Sakai are not used in Petition I because Petition I's challenged claims do not claim those nested structures.

Petitioner presented separate Grounds I and II in the '673 Petition to address claims in each ground that are not addressed in the other. Additionally, Wieczorek is not prior art under 35 U.S.C. §102(b) so Patent Owner could potentially swear behind it. In addition, in contrast to Petition II's challenged claim 44, the claims challenged in the '673 Petition recite "transistors" and/or "devices" in plural, suggesting that Patent Owner may potentially argue that the prior art must disclose multiple devices to satisfy the claims. Gupta is used in Grounds III and IV of the '673 Petition to address that possibility. Lastly, Silverbrook is used in Grounds V and VI to further support arguments that dependent claims 19 and 37 (which apply the claimed inventions to image sensors) would be obvious. In short, two petitions are required because all 34 claims cannot be effectively challenged in a single 14,000-word petition.

IV. The Board Should Institute Both Petitions

Petitioner filed two petitions to adequately address all 36 challenged claims within the statutory word limits for petitions. See *Microsoft Corp. v. IPA Techs. Inc.*, No. IPR2019-00810, Paper 12 at 13-14 (Oct. 16, 2019) (finding multiple petitions reasonable when “[f]aced with word count limitations and a large number of challenged claims”). Notably, the number of challenged claims in the instant petitions is over twice the average. See “PTAB Trial Statistics,” United States Patent and Trademark Office, https://www.uspto.gov/sites/default/files/documents/ptab__aia_fy2022_roundup.pdf (last visited March 11, 2024), at 4, 14 (indicating an average of 15 challenged claims per petition, based on 20,614 challenged claims in 1,367 petitions). Second, due to the fact that Petitioner is filing motions for Joinder with both Petitions and seeks an understudy role, institution of both petitions would not put any additional burden on the Board.

Respectfully submitted,

Dated: March 12, 2024

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CERTIFICATE OF SERVICE

Pursuant to 37 CFR §§ 42.6(e)(4)(i) et seq. and 42.105(b), the undersigned certifies that on March 12, 2024, a complete and entire copy of this Notice Ranking Petitions was provided by Express Mail, to the Patent Owner by serving the correspondence address of record as follows:

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