

**IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
MARSHALL DIVISION**

W&WSENS DEVICES INC.,)	
)	
Plaintiff,)	Case No. 2:24-cv-00854-JRG
)	
v.)	
)	
SAMSUNG ELECTRONICS CO., LTD.,)	
SAMSUNG ELECTRONICS AMERICA,)	
INC., SAMSUNG SEMICONDUCTOR, INC.,)	
and SAMSUNG AUSTIN SEMICONDUCTOR)	
LLC,)	
)	
Defendants.)	

**PLAINTIFF W&WSENS DEVICES INC.’S DISCLOSURE OF ASSERTED CLAIMS
AND INFRINGEMENT CONTENTIONS UNDER PATENT RULES 3-1 AND 3-2**

Pursuant to Patent Rules 3-1 and 3-2, Plaintiff W&Wsens Devices Inc. (“W&W” or “Plaintiff”) makes the following Disclosure of Asserted Claims and Infringement Contentions to Samsung Electronics Co., Ltd., Samsung Electronics America, Inc., Samsung Semiconductor, Inc., and Samsung Austin Semiconductor LLC (collectively, “Samsung” or “Defendants”), including the claim charts attached hereto as Appendices A-1, A-2, B-1, B-2, C-1, C-2, D-1, D-2 and E (the “Appendices”) for each of the Accused Products of U.S. Patent Nos. 9,525,084 (the “’084 Patent”), 10,446,700 (the “’700 Patent”), 10,468,543 (the “’543 Patent”), 11,621,360 (the “’360 Patent”), and 12,087,871 (the “’871 Patent”) (collectively, the “Asserted Patents”) and the accompanying document production.

W&W makes this disclosure based upon information presently known and reasonably available to it as of the date hereof. This disclosure is preliminary, as W&W’s investigations are ongoing and discovery has not yet commenced in this action. W&W has not received any

Dated: January 7, 2025

By: /s/ Aaron Frankel

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CERTIFICATE OF SERVICE

The undersigned hereby certifies that on January 7, 2025, a true and correct copy of the foregoing **PLAINTIFF W&WSENS DEVICES INC.’S DISCLOSURE OF ASSERTED CLAIMS AND INFRINGEMENT CONTENTIONS UNDER PATENT RULES 3-1 AND 3-2** was served via electronic mail upon counsel of record for Defendants as indicated:

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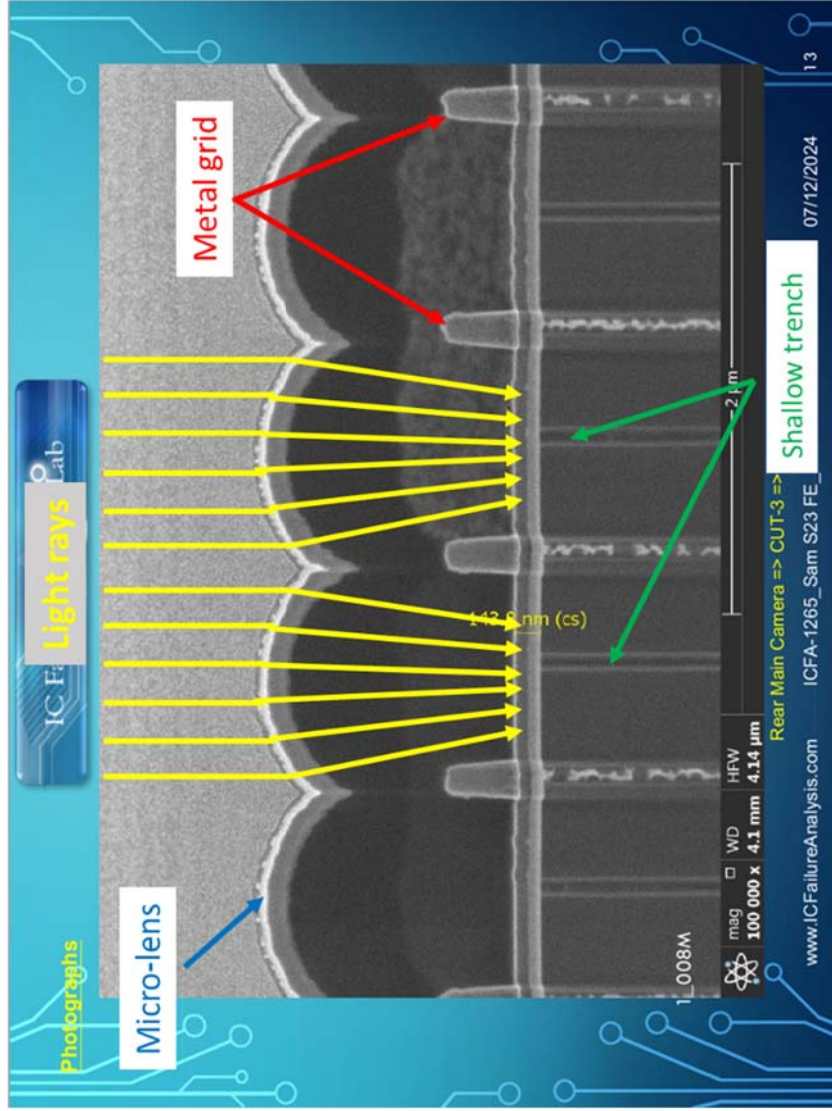
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APPENDIX B-1

1.c

one or more deliberately formed in-pillar holes with solid dielectric therein;

Samsung's CIS Accused Products include one or more deliberately formed in-pillar holes (shallow trenches) with solid dielectric. WWSSENS004710-WWSSENS004753 at 4723. The holes are formed in-pillar as the holes are in between the metal grid and deep trenches, as shown below.



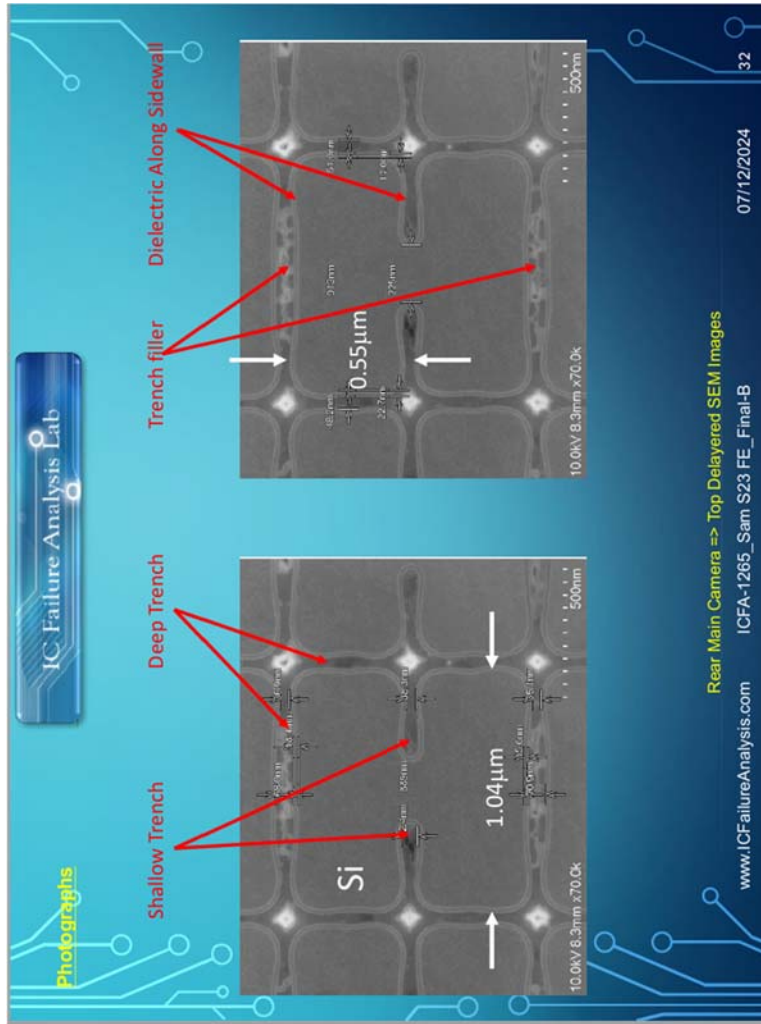
WWSSENS004710-WWSSENS004753 at 4723 (annotated to show the shallow trenches).

1.d	top and bottom electrical contacts electrically coupled with said array of pillars,	<p>WWSENS004710-WWSENS004753 at 4722 (showing dielectric material covering the sidewalls of the pillars).</p> <p>Samsung's CIS Accused Products includes top and bottom electrical contacts electrically coupled with the array of pillars. The electrodes are reverse-bias. The reverse-bias contacts are coupled to the active circuit (1a.2) which is configured to provide reverse bias to the array of pillars. For example, as shown in Figure 3 of Samsung's 2020 2PD Article, the GN3's circuitry turns on the Reset Gate (RS) and Transfer Gate (TG_L or TG_R), such that VDDA is applied to the MSPD so that MSPD's cathode is biased with more positive voltage to establish electric fields in the P-N junction to sweep the photo-generated charges. WWSENS004623-WWSENS004626 at 4623.</p>

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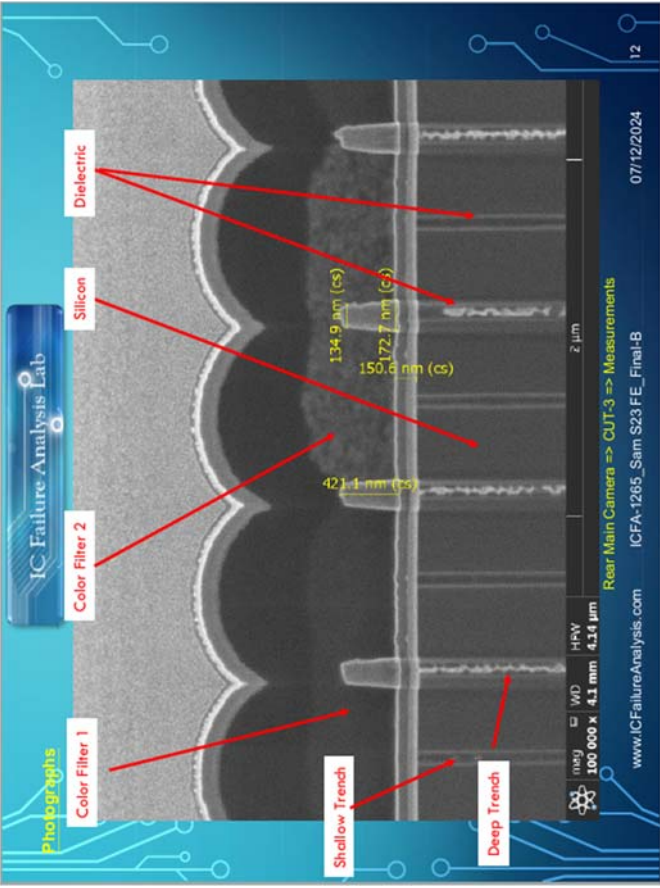
The photodetector device of claim 1, in which each of said pillars has at least two of said one or more in-pillar holes that partly overlap.

As shown below, the pillars have in-pillar holes that partly overlap.



WWSENS004710-WWSENS004753 at 4742 (SEM image showing trenches overlap).

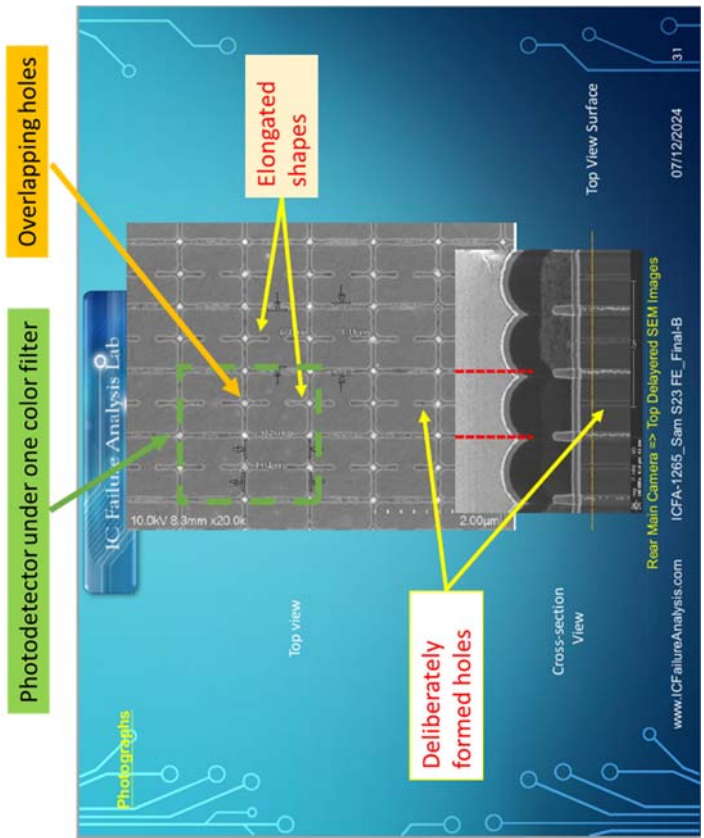
APPENDIX B-2

1.b.4	and each of the first and second doped semiconductor materials and said intermediate semiconductor material comprises Si;	In Samsung's CIS Accused Products, each of the first and second doped semiconductor materials and intermediate semiconductor material comprise silicon.
1.c	one or more deliberately formed in-pillar holes with solid dielectric therein;	<p>Samsung's CIS Accused Products include one or more deliberately formed in-pillar holes (shallow and/or deep trenches) with solid dielectric. WWSSENS004710-WWSSENS004753 at 4722. The holes are formed in-pillar as the holes are in between deep trenches, as shown below.</p>  <p>WWSSENS004710-WWSSENS004753 at 4722 (showing dielectric material covering the sidewalls of the pillars).</p>

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The photodetector device of claim 1, in which each of said pillars has at least two in-pillar holes that partly overlap.

In Samsung's CIS Accused Products, each of the pillars have at least two of the one or more in-pillar holes that partly overlap because the shallow trenches and the deep trenches overlap as shown below.



WWSENS004710-WWSENS004753 at 4741 (annotated top view showing partly overlapping holes).