

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

HARBOR ISLAND DYNAMIC, LLC,	§	
	§	Case No. 2:24-cv-00140-JRG
Plaintiff,	§	
	§	<b><u>JURY TRIAL DEMANDED</u></b>
v.	§	
	§	
SAMSUNG ELECTRONICS CO. LTD. and	§	
SAMSUNG ELECTRONICS AMERICA,	§	
INC.,	§	
	§	
Defendants.	§	

**AMENDED COMPLAINT FOR PATENT INFRINGEMENT**

Plaintiff Harbor Island Dynamic, LLC (“HID” or “Plaintiff”) for its Amended Complaint against Defendants Samsung Electronics Co., Ltd. (“Samsung Electronics”) and Samsung Electronics America, Inc. (“Samsung Electronics America”) (collectively “Samsung” or “Defendants”) alleges as follows:

**THE PARTIES**

1. HID is a limited liability company organized and existing under the laws of the State of Texas, with its principal place of business located at 101 East Park Boulevard, Suite 600, Plano, Texas 75074.
  
2. Defendant Samsung Electronics is a corporation organized and existing under the laws of the Republic of Korea, with its principal place of business at 129 Samsung-Ro, Yeongtong-Gu, Suwon-Si, Gyeonggi-Do, 443-742, Republic of Korea. Upon information and belief, Samsung Electronics does business in Texas, directly or through intermediaries, and offers its products and/or services, including those accused herein of infringement, to customers and potential customers located in Texas, including in the Judicial District of the Eastern District of Texas.

3. Defendant Samsung Electronics America is a corporation organized under the laws of New York, with its principal place of business at 85 Challenger Road, Ridgefield Park, New Jersey 07660. Upon information and belief, Samsung Electronics America has corporate offices in the Eastern District of Texas at 1303 East Lookout Drive, Richardson, Texas 75082 and 2800 Technology Drive, Suite 200, Plano, Texas 75074. Samsung Electronics America has publicly indicated that, in early 2019, it would be centralizing multiple offices in a new location in the Eastern District of Texas at the Legacy Central office campus,<sup>1</sup> located at 6225 Declaration Drive, Plano, Texas 75023. Samsung Electronics America may be served with process through its registered agent CT Corporation System, 1999 Bryan Street, Suite 900, Dallas, Texas 75201-3136.

4. Defendants have authorized sellers and sales representatives that offer and sell products pertinent to this Complaint through the State of Texas, including in this Judicial District, and to consumers throughout this Judicial District, such as: Best Buy, 422 West TX-281 Loop, Suite 100, Longview, Texas 75605; AT&T Store, 1712 East Grand Avenue, Marshall, Texas 75670; Sprint Store, 1806 East End Boulevard North, Suite 100, Marshall, Texas 75670; T-Mobile, 900 East End Boulevard North, Suite 100, Marshall, Texas 75670; Verizon authorized retailers, including Russell Cellular, 1111 East Grand Avenue, Marshall, Texas 75670; Victra, 1006 East End Boulevard, Marshall, Texas 75670; and Cricket Wireless authorized retailer, 120 East End Boulevard South, Marshall, Texas 75670.

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<sup>1</sup> <https://news.samsung.com/us/samsung-electronics-america-open-flagship-north-texas-campus/>, last accessed Apr. 29, 2019

### **JURISDICTION AND VENUE**

5. This is an action for patent infringement arising under the patent laws of the United States, 35 U.S.C. §§ 1, *et seq.* This Court has subject matter jurisdiction over this action pursuant to 28 U.S.C. §§ 1331, 1332, 1338, and 1367.

6. This Court has specific and personal jurisdiction over each of the Defendants consistent with the requirements of the Due Process Clause of the United States Constitution and the Texas Long Arm Statute. Upon information and belief, each Defendant has sufficient minimum contacts with the forum because each Defendant transacts substantial business in the State of Texas and in this Judicial District. Further, each Defendant has, directly or through subsidiaries or intermediaries, committed and continues to commit acts of patent infringement in the State of Texas and in this Judicial District as alleged in this Complaint, as alleged more particularly below.

7. Venue is proper in this Judicial District pursuant to 28 U.S.C. §§ 1400(b) and 1391(b) and (c) because each Defendant is subject to personal jurisdiction in this Judicial District, has committed acts of patent infringement in this Judicial District, and has a regular and established place of business in this Judicial District. Each Defendant, through its own acts and/or through the acts of each other Defendant, makes, uses, sells, and/or offers to sell infringing products within this Judicial District, regularly does and solicits business in this Judicial District, and has the requisite minimum contacts with the Judicial District such that this venue is a fair and reasonable one. Further venue is proper in this Judicial District because Samsung Electronics is a foreign corporation formed under the laws of Korea with a principal place of business in Korea. Further, upon information and belief, the Defendants have admitted or not contested proper venue in this Judicial District in other patent infringement actions.

**FACTUAL BACKGROUND**

8. On January 26, 2016, the United States Patent and Trademark Office duly and legally issued U.S. Patent No. 9,245,826 (the “’826 Patent”) entitled “Anchor Vias For Improved Backside Metal Adhesion To Semiconductor Substrate.” A true and correct copy of the ’826 Patent is attached hereto as Exhibit A.

9. On August 10, 2010, the United States Patent and Trademark Office duly and legally issued U.S. Patent No. 7,772,673 (the “’673 Patent”) entitled “Deep Trench Isolation And Method For Forming Same.” A true and correct copy of the ’673 Patent is attached hereto as Exhibit B.

10. On September 29, 2015, the United States Patent and Trademark Office duly and legally issued U.S. Patent No. 9,147,609 (the “’609 Patent”) entitled “Through Silicon Via Structure, Method Of Formation, And Integration In Semiconductor Substrate.” A true and correct copy of the ’609 Patent is attached hereto as Exhibit C.

11. On June 29, 2010, the United States Patent and Trademark Office duly and legally issued U.S. Patent No. 7,745,886 (the “’886 Patent”) entitled “Semiconductor on Insulator (SOI) Switching Circuit.” A true and correct copy of the ’886 Patent is attached hereto as Exhibit D.

12. HID is the sole and exclusive owner of all right, title, and interest to and in the ’826 Patent, the ’673 Patent, the ’609 Patent, and the ’886 Patent (together, the “Patents-in-Suit”), and holds the exclusive right to take all actions necessary to enforce its rights to the Patents-in-Suit, including the filing of this patent infringement lawsuit. HID also has the right to recover all damages for past, present, and future infringement of the Patents-in-Suit and to seek injunctive relief as appropriate under the law.

13. On February 27, 2024, HID filed its original Complaint in this Action. Dkt. 1 (“Original Complaint”).

14. The Original Complaint set forth in detail how Samsung’s products meet all the limitations of the claims of the Patents-in-Suit.

15. On information and belief, Defendants, as sophisticated technology companies, monitor new patent case filings, and thus obtained the Original Complaint on February 27, 2024.

16. On March 5, 2024, Samsung Electronics America was served with the Original Complaint in this Action. Dkt. 10.

17. On information and belief, Samsung Electronics received the Original Complaint on or about March 5, 2024 from Samsung Electronics America.

18. Defendants have been aware of all the Patents-in-Suit at least as early as the filing of the Original Complaint on February 27, 2024.

19. Defendants have been aware of how they infringe the Patents-in-Suit at least as early as the filing of the Original Complaint on February 27, 2024.

### **INFRINGEMENT ALLEGATIONS**

20. HID has at all times complied with the marking provisions of 35 U.S.C. § 287 with respect to the Patents-in-Suit. On information and belief, prior assignees and licensees have also complied with the marking provisions of 35 U.S.C. § 287.

21. Samsung infringes each of the Patents-in-Suit by making, using, offering to sell, selling, and/or importing into the United States products that satisfy each and every limitation of one or more claims of each of the Patents-in-Suit. These products include at least Samsung’s smartphones, tablets, and other similar devices (“the Accused Products”).

**COUNT I**  
**(Infringement of the '826 Patent)**

22. Paragraphs 1 through 21 are incorporated by reference as if fully set forth herein.

23. Samsung has manufactured, used, marketed, distributed, sold, offered for sale, and imported into the United States, products that infringe the '826 Patent.

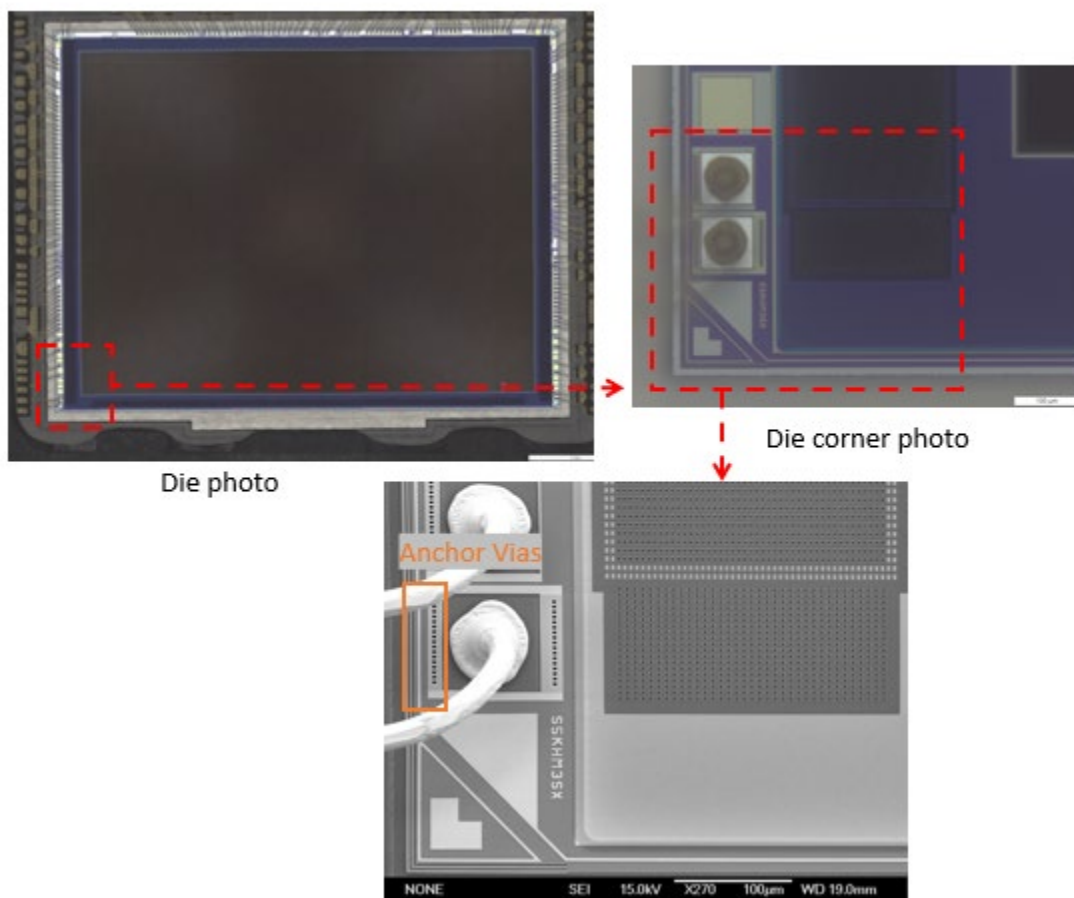
24. HID has not licensed or otherwise authorized Samsung to make, use, offer for sale, sell, or import any products that embody the inventions of the '826 Patent.

25. Defendants have and continue to directly infringe the '826 Patent, either literally or under the doctrine of equivalents, without authority and in violation of 35 U.S.C. § 271, by making, using, offering to sell, selling, and/or importing into the United States products that satisfy each and every limitation of one or more claims of the '826 Patent. For example, Samsung manufactures CMOS Image Sensors, such as the S5KHM3SX CIS, S5KJN1 CIS, S5KGM5SX CIS, S5KGN1SP CIS, S5K4H7YX CIS, S5K3J1X03 CIS, S5K2G1XX CIS, and other sensors. Samsung includes CMOS Image Sensors that infringe the '826 Patent, such as the S5KHM3SX CIS, in its smartphones and other devices, at least including the Samsung Galaxy S22 Ultra Smartphone (the "'826 Accused Products").

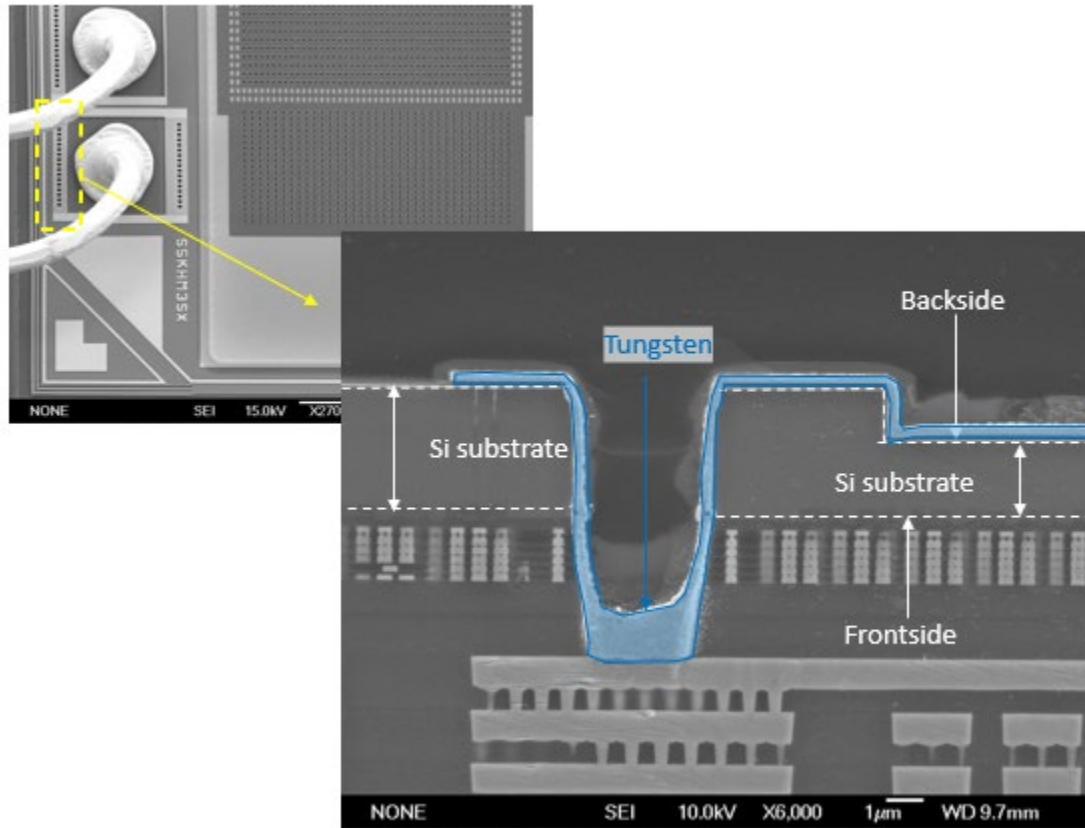
26. For example, Defendants have and continue to directly infringe at least Claim 1 of the '826 Patent by making, using, offering to sell, selling, and/or importing into the United States products that comprise a structure comprising at least one anchor via disposed in at least one corner of a semiconductor substrate; a metal filler within said at least one anchor via, said metal filler having a protruding portion extending from a backside of said semiconductor substrate; a backside metal layer on a bottom surface of said semiconductor substrate, said backside metal layer being bonded to said protruding portion of said metal filler of said at least one anchor via; wherein said

metal filler within said at least one anchor via does not provide ground connection to one or more active devices in said semiconductor substrate.

27. The '826 Accused Products comprise a structure comprising at least one anchor via disposed in at least one corner of a semiconductor substrate. For example, SEM analysis shows that the S5KHM3SX CIS includes a structure that includes at least one anchor via located in a corner of a semiconductor substrate.

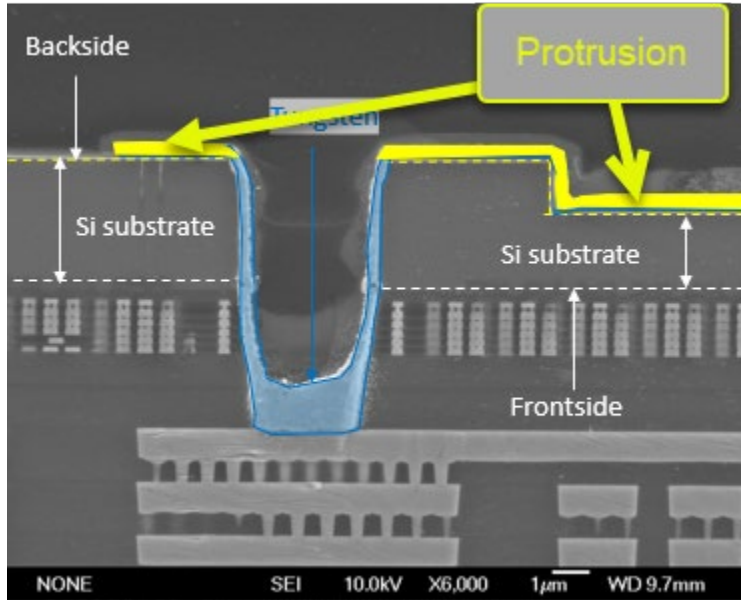


28. The structure of the '826 Accused Products further comprises a metal filler within said at least one anchor via. For example, the anchor via of the S5KHM3SX CIS comprises a tungsten layer partially filling the via.

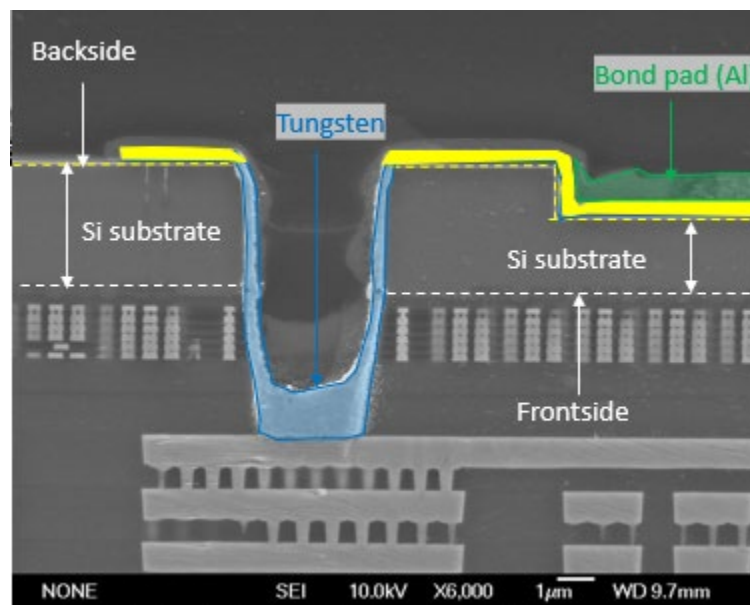


29. The metal filler of the '826 Accused Products has a protruding portion extending from a backside of said semiconductor substrate. For example, the tungsten layer extends out of the via and protrudes from the backside of the substrate.





30. The structure of the '826 Accused Products has a backside metal layer on a bottom surface of said semiconductor substrate, said backside metal layer being bonded to said protruding portion of said metal filler of said at least one anchor via. For example, the S5KHM3SX CIS comprises an aluminum bondpad layer that is bonded to the protruding portion of the tungsten layer.



31. The metal filler of the '826 Accused Products does not provide ground connection to one or more active devices in said semiconductor substrate. For example, the tungsten layer of the '826 Accused Products does not provide ground connection to any active device in the substrate.

32. As shown above, the '826 Accused Products are made by a process that comprises a method comprising: forming at least one anchor via in at least one corner of a semiconductor substrate; depositing a metal filler within said at least one anchor via, said metal filler having a protruding portion extending from a backside of said semiconductor substrate; forming a backside metal layer on a bottom surface of said semiconductor substrate, said backside metal layer being bonded to said protruding portion of said metal filler of said at least one anchor via; wherein said metal filler within said at least one anchor via does not provide ground connection to one or more active devices in said semiconductor substrate.

33. Defendants have and continue to directly infringe one or more method claims of the '826 Patent under 35 U.S.C. § 271(g) by importing into the United States, offering to sell, selling, or using within the United States, the '826 Accused Products and/or non-trivial and essential components thereof that were made by the processes patented and claimed in the '826 Patent. For example, Samsung imports, offers to sell, sells, and uses S5KHM3SX CIS, S5KJN1 CIS, S5KGM5SX CIS, S5KGN1SP CIS, S5K4H7YX CIS, S5K3J1X03 CIS, S5K2G1XX CIS, and other sensors that were made according to Claim 11 of the '826 Patent. The image sensors are nontrivial and essential components of Samsung's products, such as the Samsung Galaxy S22 Ultra Smartphone.

34. Defendants and/or subsidiaries of one or both Defendants operate foundries, fabs, and manufacturing centers both in the United States and overseas. On information and belief, the

'826 Accused Products and/or components thereof that are made by the processes claimed in the '826 Patent are manufactured in one or more of these foundries, fabs, and manufacturing centers.

35. On information and belief, either: a) one or both of Defendants practices the '826 Patent's patented processes; or b) one or both of Defendants owns or controls the entity practicing the '826 Patent's patented processes.

36. Defendants have had notice of the '826 Patent and how they infringe it since at least February 27, 2024.

37. Defendants have and continue to indirectly infringe one or more claims of the '826 Patent by knowingly and intentionally inducing others, including Samsung customers and end-users of the '826 Accused Products and products that include the '826 Accused Products, to directly infringe, either literally or under the doctrine of equivalents, by making, using, offering to sell, selling, and/or importing into the United States products that include infringing technology, such as the Samsung Galaxy S22 Ultra Smartphone. Defendants further have and continue to indirectly infringe one or more claims of the '826 Patent by knowingly and intentionally inducing others, including Samsung customers, to include infringing Samsung products within their own downstream products that they make, use, sell, or offer for sale in the United States or import into the United States, for example, Leopard Imaging camera modules, Google Pixel 7 Pro smartphone, and Motorola Moto G Stylus 5G smartphone. As a sophisticated technology company, to the extent Defendants failed to investigate their infringement upon learning of the '826 Patent, they have been willfully blind. Defendants have induced infringement by others, including customers and distributors, with the intent to cause infringing acts by others or, in the alternative, with the belief that there was a high probability that others, including end-users, infringe the '826 Patent, but while remaining willfully blind to the infringement.

38. Defendants have willfully infringed, and continue to willfully infringe, the '826 Patent by intentionally and deliberately carrying out acts of direct and indirect infringement, while knowing, or taking deliberate steps to avoid learning, that those acts infringe. For example, Defendants have known of the '826 Patent since at least February 27, 2024, but have not ceased infringement

39. HID has suffered damages as a result of Defendants' direct and indirect infringement of the '826 Patent in an amount to be proved at trial.

**COUNT II**  
**(Infringement of the '673 Patent)**

40. Paragraphs 1 through 21 are incorporated by reference as if fully set forth herein.

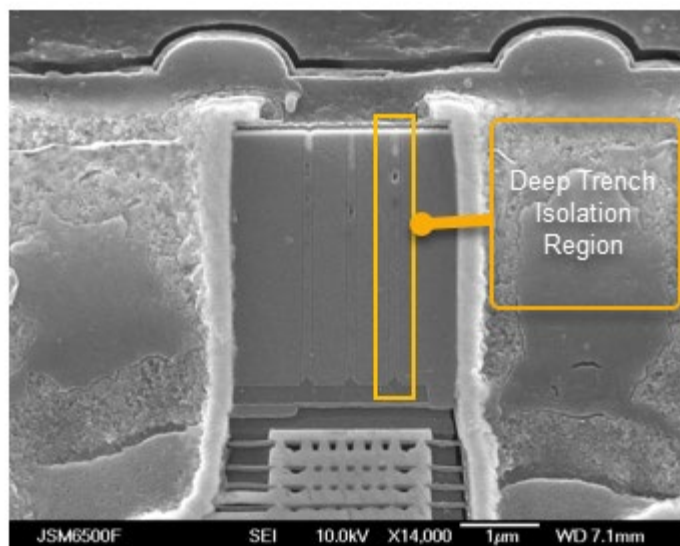
41. Samsung has manufactured, used, marketed, distributed, sold, offered for sale, and imported into the United States, products that infringe the '673 Patent.

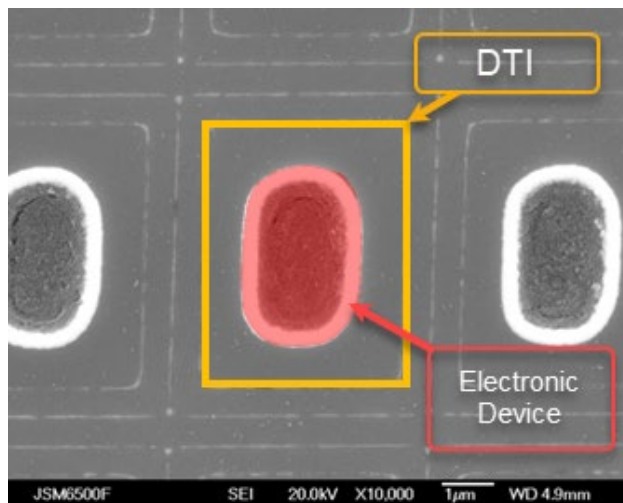
42. HID has not licensed or otherwise authorized Samsung to make, use, offer for sale, sell, or import any products that embody the inventions of the '673 Patent.

43. Defendants have and continue to directly infringe the '673 Patent, either literally or under the doctrine of equivalents, without authority and in violation of 35 U.S.C. § 271, by making, using, offering to sell, selling, and/or importing into the United States products that satisfy each and every limitation of one or more claims of the '673 Patent. For example, Samsung manufactures CMOS Image Sensors, such as the S5KHM3SX CIS, S5KJN1 CIS, S5KGM5SX CIS, and other sensors that infringe the '673 Patent. Samsung includes these CMOS Image Sensors that infringe the '673 Patent, such as the S5KHM3SX CIS, in its smartphones and other devices, at least including the Samsung Galaxy S22 Ultra Smartphone (the "'673 Accused Products").

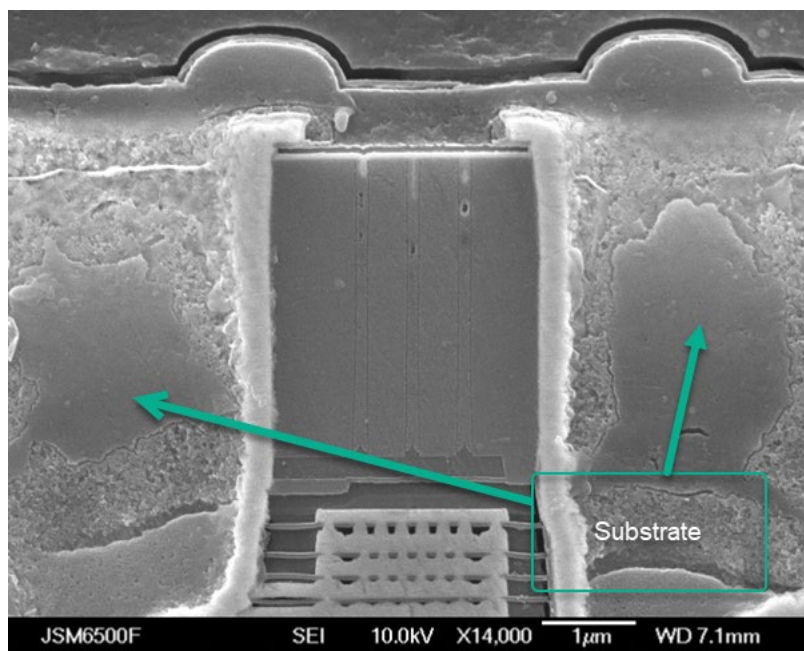
44. For example, Defendants have and continue to directly infringe at least Claim 1 of the '673 Patent by making, using, offering to sell, selling, and/or importing into the United States products that comprise a semiconductor die comprising at least one deep trench isolation region for isolating an electronic device, said at least one deep trench isolation region comprising: a trench situated in a substrate of said semiconductor die, said trench having a plurality of sides surrounding said electronic device, and at least one trench chamfered corner formed between and connecting said plurality of sides; wherein said at least one trench chamfered corner causes a reduction in a thickness of a polysilicon layer within said trench.

45. The '673 Accused Products comprise a semiconductor die including at least one deep trench isolation region for isolating an electronic device. For example, SEM analysis shows that the S5KHM3SX CIS includes a deep trench isolation region ("DTI") that isolates an electronic device.

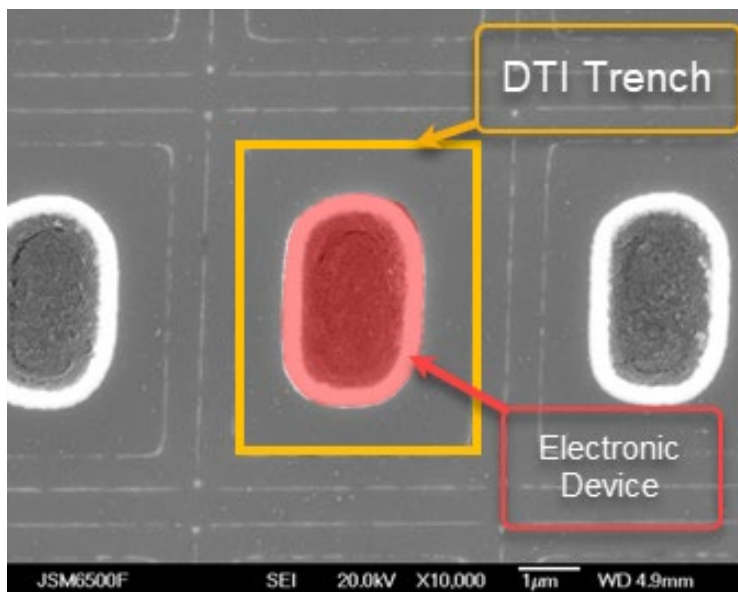




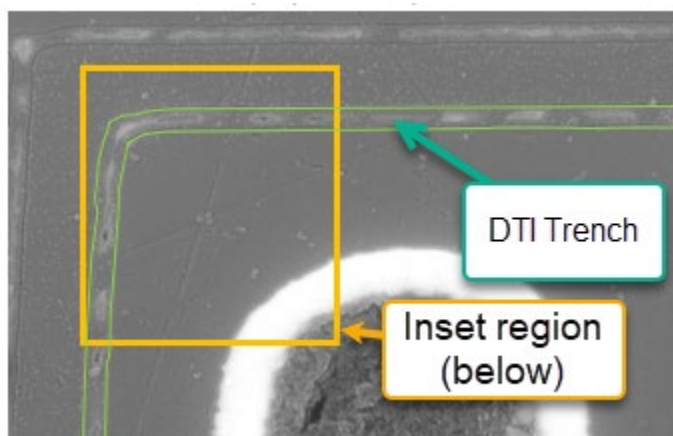
46. The at least one deep trench isolation region of the '673 Accused Products further comprises a trench situated in a substrate of said semiconductor die. For example, the DTI of the S5KHM3SX CIS comprises a trench situated in the semiconductor die substrate. The trench defines the boundaries of the DTI, and the DTI is situated in a substrate of the semiconductor die.



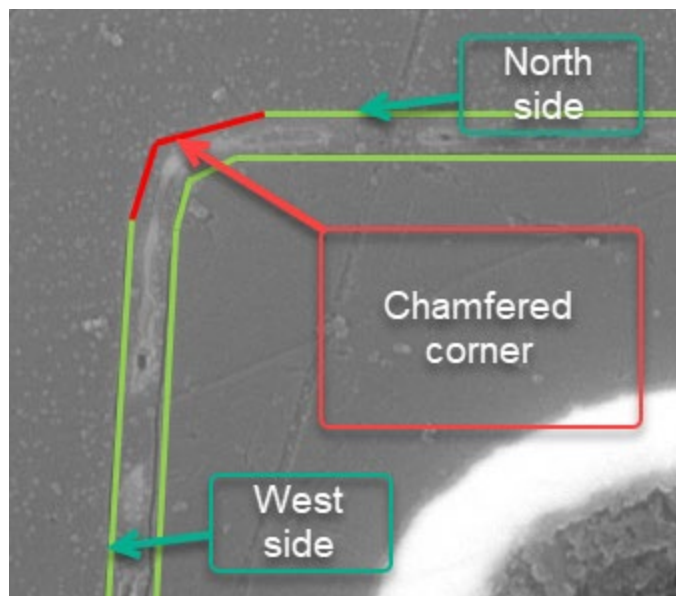
47. The trench of the '673 Accused Products has a plurality of sides surrounding said electronic device. For example, the DTI of the S5KHM3SX CIS comprises a trench situated in the semiconductor die substrate, with multiple sides that surround the electronic device.



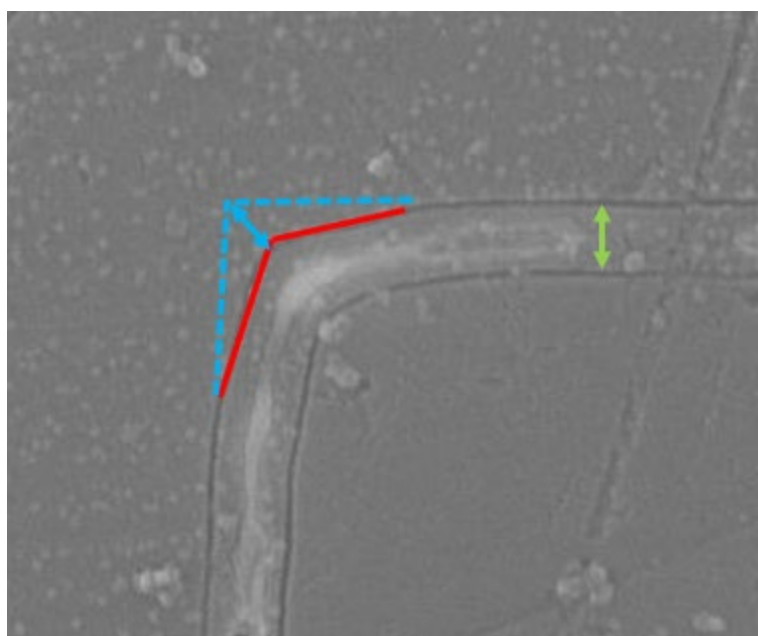
48. The at least one deep trench isolation region of the '673 Accused Products further comprises at least one trench chamfered corner formed between and connecting said plurality of sides. For example, the DTI of the S5KHM3SX CIS comprises at least one trench chamfered corner formed between and connecting the north and west sides.<sup>2</sup>



<sup>2</sup> "North" and "west" are used for demonstrative purposes only.



49. The at least one trench chamfered corner of the '673 Accused Products further causes a reduction in a thickness of a polysilicon layer within said trench. For example, the trench chamfered corner of the S5KHM3SX CIS reduces the thickness of the polysilicon layer of the DTI trench.



50. Defendants have had notice of the '673 Patent and how they infringe it since at least February 27, 2024.



51. Defendants have and continue to indirectly infringe one or more claims of the '673 Patent by knowingly and intentionally inducing others, including Samsung customers and end-users of the Accused Products and products that include the '673 Accused Products, to directly infringe, either literally or under the doctrine of equivalents, by making, using, offering to sell, selling, and/or importing into the United States products that include infringing technology, such as the Samsung Galaxy S22 Ultra Smartphone. Defendants further have and continue to indirectly infringe one or more claims of the '673 Patent by knowingly and intentionally inducing others, including Samsung customers, to include the '673 Accused Products within their own downstream products that they make, use, sell, or offer for sale in the United States or import into the United States, for example, the Google Pixel 7 Pro smartphone, and Motorola Moto G Stylus 5G smartphone. As a sophisticated technology company, to the extent Defendants failed to investigate their infringement upon learning of the '673 Patent, they have been willfully blind.

52. Defendants have induced infringement by others, including customers and distributors, with the intent to cause infringing acts by others or, in the alternative, with the belief that there was a high probability that others, including end-users, infringe the '673 Patent, but while remaining willfully blind to the infringement.

53. Defendants have willfully infringed, and continue to willfully infringe, the '673 Patent by intentionally and deliberately carrying out acts of direct and indirect infringement, while knowing, or taking deliberate steps to avoid learning, that those acts infringe. For example, Defendants have known of the '673 Patent since at least February 27, 2024, but have not ceased infringement.

54. HID has suffered damages as a result of Defendants' direct and indirect infringement of the '673 Patent in an amount to be proved at trial.

**COUNT III**  
**(Infringement of the '609 Patent)**

55. Paragraphs 1 through 21 are incorporated by reference as if fully set forth herein.

56. Samsung has manufactured, used, marketed, distributed, sold, offered for sale, and imported into the United States, products that infringe the '609 Patent.

57. HID has not licensed or otherwise authorized Samsung to make, use, offer for sale, sell, or import any products that embody the inventions of the '609 Patent.

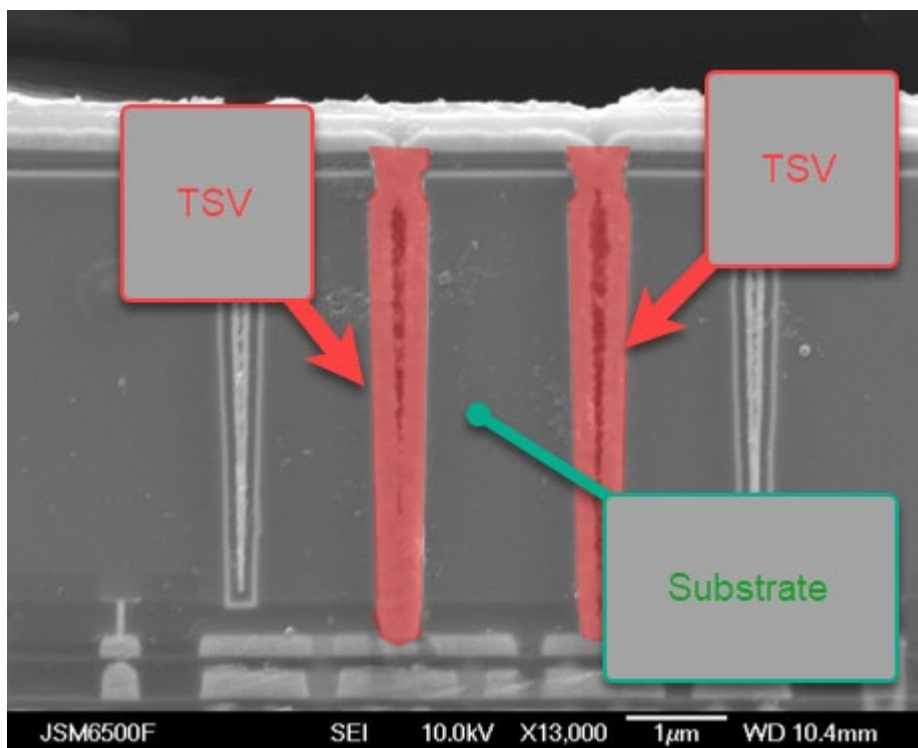
58. Defendants have and continue to directly infringe the '609 Patent, either literally or under the doctrine of equivalents, without authority and in violation of 35 U.S.C. § 271, by making, using, offering to sell, selling, and/or importing into the United States products that satisfy each and every limitation of one or more claims of the '609 Patent. For example, Samsung manufactured components, such as the S5K2G1XX BIS backside illuminated sensor, S5K4H7 BIS backside illuminated sensor, and other sensors that infringe the '609 Patent (the "'609 Accused Products").

59. For example, Defendants have and continue to directly infringe at least Claim 1 of the '609 Patent by making, using, offering to sell, selling, and/or importing into the United States products that comprise a semiconductor substrate having a plurality of devices, said semiconductor substrate comprising: a plurality of through silicon vias disposed in said substrate extending from a top surface of said substrate to a bottom surface of said substrate; a conductive filler disposed within each of said plurality of through silicon vias, each of said plurality of through silicon vias having a hollow center to reduce thermal stress in said semiconductor substrate, said hollow center being entirely surrounded by said conductive filler to provide space for said conductive filler to expand inward; wherein each of said plurality of through silicon vias has a pinched off region at a

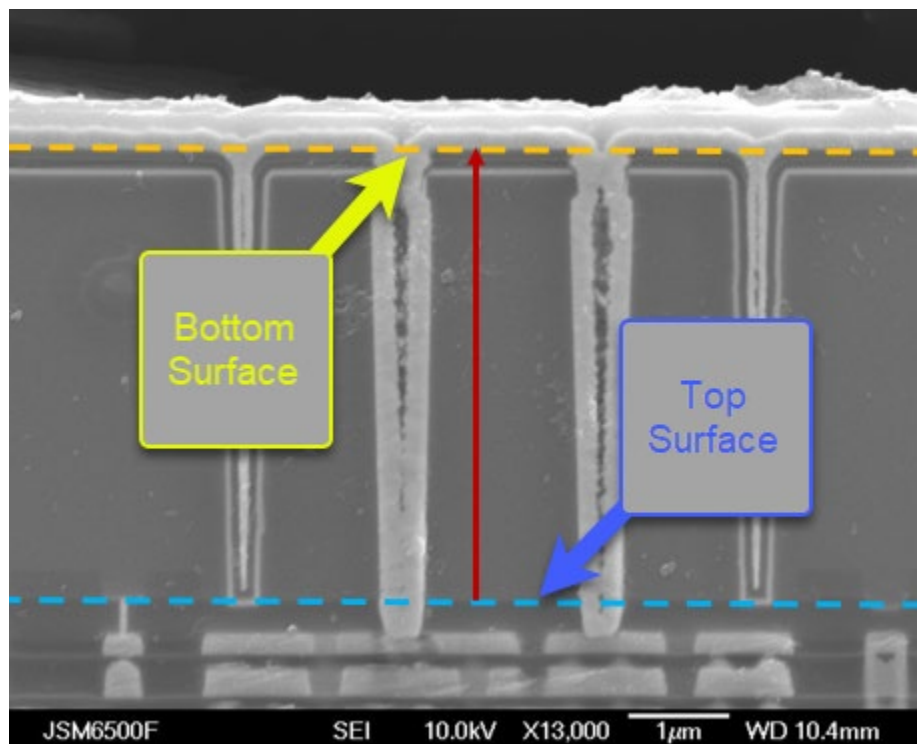
bottom portion to prevent contamination during processing of said semiconductor substrate, and wherein said hollow center is tapered in said pinched off region.

60. The '609 Accused Products comprise a semiconductor die semiconductor substrate having a plurality of devices. For example, the S5K2G1XX BIS includes multiple photodiodes and transistors on a semiconductor substrate.

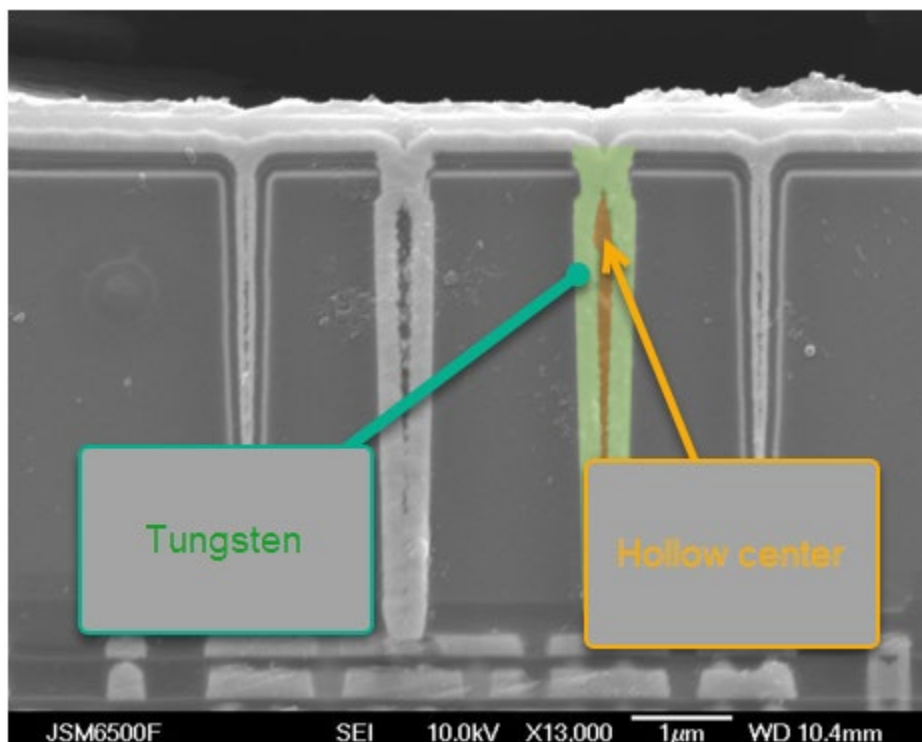
61. The substrate of the '609 Accused Products further comprises a plurality of through silicon vias disposed in said substrate. For example, the S5K2G1XX BIS comprises Through Silicon Vias (TSVs) in the substrate.



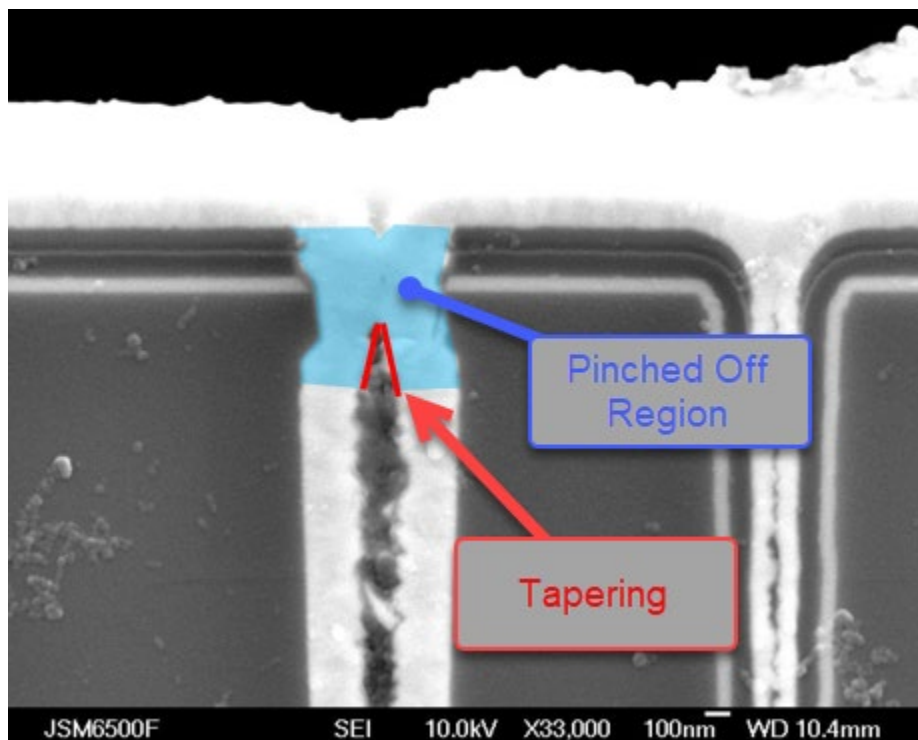
62. The TSVs of the Accused Products extend from a top surface of said substrate to a bottom surface of said substrate. For example, the TSVs of the S5K2G1XX BIS extend from a top surface of the substrate to the bottom surface.



63. The substrate of the '609 Accused Products further comprises a conductive filler disposed within each of said plurality of through silicon vias, each of said plurality of through silicon vias having a hollow center to reduce thermal stress in said semiconductor substrate, said hollow center being entirely surrounded by said conductive filler to provide space for said conductive filler to expand inward. For example, a conductive filler (tungsten) is disposed in each of the TSVs of the S5K2G1XX BIS. The tungsten filler has a hollow center and is completely surrounded by the conductive filler.



64. Each of the TSVs of the '609 Accused Products has a pinched off region at a bottom portion to prevent contamination during processing of said semiconductor substrate, and wherein said hollow center is tapered in said pinched off region. For example, each of the TSVs of the S5K2G1XX BIS includes an area where the substrate and tungsten pinch inwards. The hollow center tapers within that area.



65. Defendants have had notice of the '609 Patent and how they infringe it since at least February 27, 2024.

66. Defendants have and continue to indirectly infringe one or more claims of the '609 Patent by knowingly and intentionally inducing others, including Samsung customers and end-users of the '609 Accused Products and products that include the Accused Products, to directly infringe, either literally or under the doctrine of equivalents, by making, using, offering to sell, selling, and/or importing into the United States products that include infringing technology, such as the Samsung Galaxy S22 Ultra Smartphone. Defendants further have and continue to indirectly infringe one or more claims of the '609 Patent by knowingly and intentionally inducing others, including Samsung customers, to include the '609 Accused Products within their own downstream products that they make, use, sell, or offer for sale in the United States or import into the United States, for example, Leopard Imaging camera modules and Motorola Moto G Stylus 5G

smartphones. As a sophisticated technology company, to the extent Defendants failed to investigate their infringement upon learning of the '609 Patent, they have been willfully blind.

67. Defendants have induced infringement by others, including customers and distributors, with the intent to cause infringing acts by others or, in the alternative, with the belief that there was a high probability that others, including end-users, infringe the '609 Patent, but while remaining willfully blind to the infringement.

68. Defendants have willfully infringed, and continue to willfully infringe, the '609 Patent by intentionally and deliberately carrying out acts of direct and indirect infringement, while knowing, or taking deliberate steps to avoid learning, that those acts infringe. For example, Defendants have known of the '609 Patent since at least February 27, 2024, but have not ceased infringement.

69. HID has suffered damages as a result of Defendants' direct and indirect infringement of the '609 Patent in an amount to be proved at trial.

**COUNT IV**  
**(Infringement of the '886 Patent)**

70. Paragraphs 1 through 21 are incorporated by reference as if fully set forth herein.

71. Samsung has manufactured, used, marketed, distributed, sold, offered for sale, and imported into the United States, products that infringe the '886 Patent.

72. HID has not licensed or otherwise authorized Samsung to make, use, offer for sale, sell, or import any products that embody the inventions of the '886 Patent.

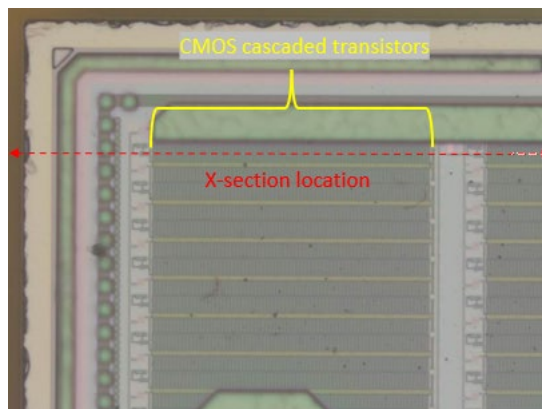
73. Defendants have and continue to directly infringe the '886 Patent, either literally or under the doctrine of equivalents, without authority and in violation of 35 U.S.C. § 271, by making, using, offering to sell, selling, and/or importing into the United States products that satisfy each and every limitation of one or more claims of the '886 Patent. For example, Samsung's

smartphones, including at least the Samsung Galaxy S22 Ultra include components that infringe the '886 Patent (the "'886 Accused Products").

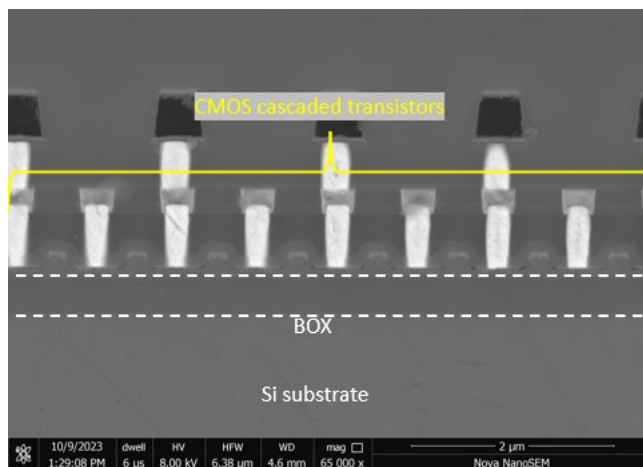
74. For example, Defendants have and continue to directly infringe at least Claim 1 of the '886 Patent by making, using, offering to sell, selling, and/or importing into the United States products that comprise a switching circuit comprising: a plurality of cascaded transistors fabricated in a device layer situated over a buried oxide layer and a bulk semiconductor layer; each of said plurality of cascaded transistors having a source/drain junction that does not contact said buried oxide layer, thereby forming a source/drain junction capacitance; at least one trench extending through said device layer and contacting a top surface of said buried oxide layer, thereby electrically isolating at least one of said plurality of cascaded transistors in said switching circuit so as to reduce voltage and current fluctuations in said device layer.

75. The '886 Accused Products comprise a switching circuit. For example, the Galaxy S22 includes a PK5562\_01 Antenna Switch and Coupler die.

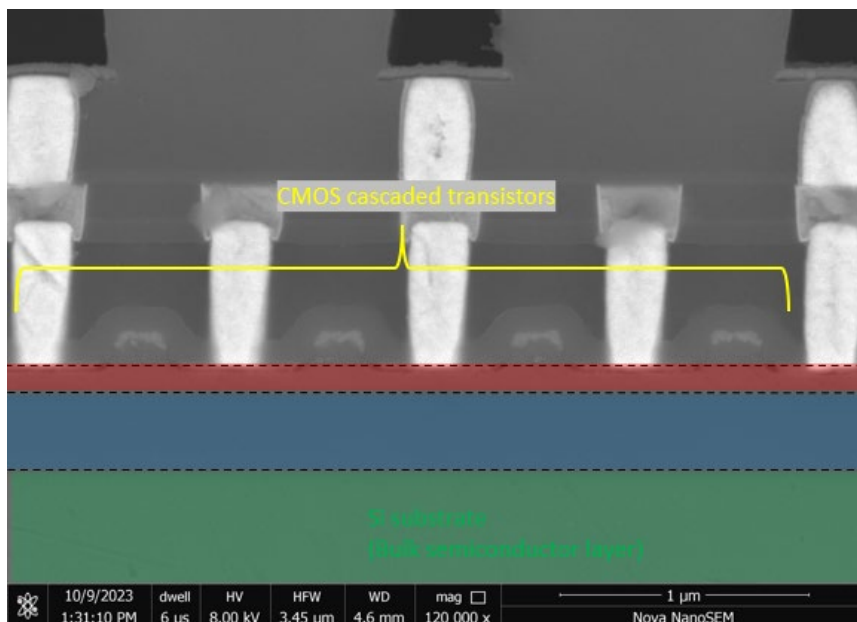
76. The switching circuit of the '886 Accused Products comprises a plurality of cascaded transistors. For example, the PK5562\_01 comprises multiple CMOS cascaded transistors.





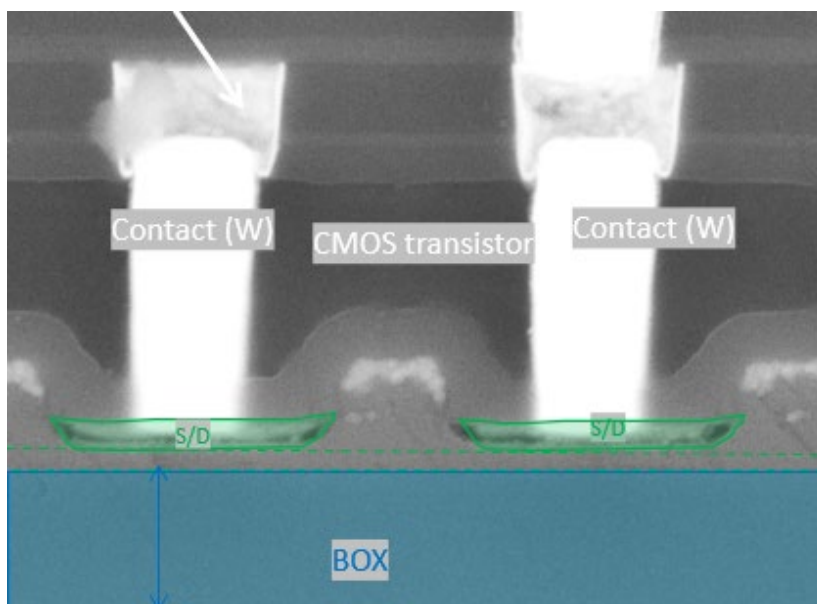


77. The plurality of cascaded transistors is fabricated in a device layer situated over a buried oxide layer and a bulk semiconductor layer. For example, the PK5562\_01 cascaded transistors are fabricated in a device layer situated over a buried oxide layer and a bulk semiconductor layer.

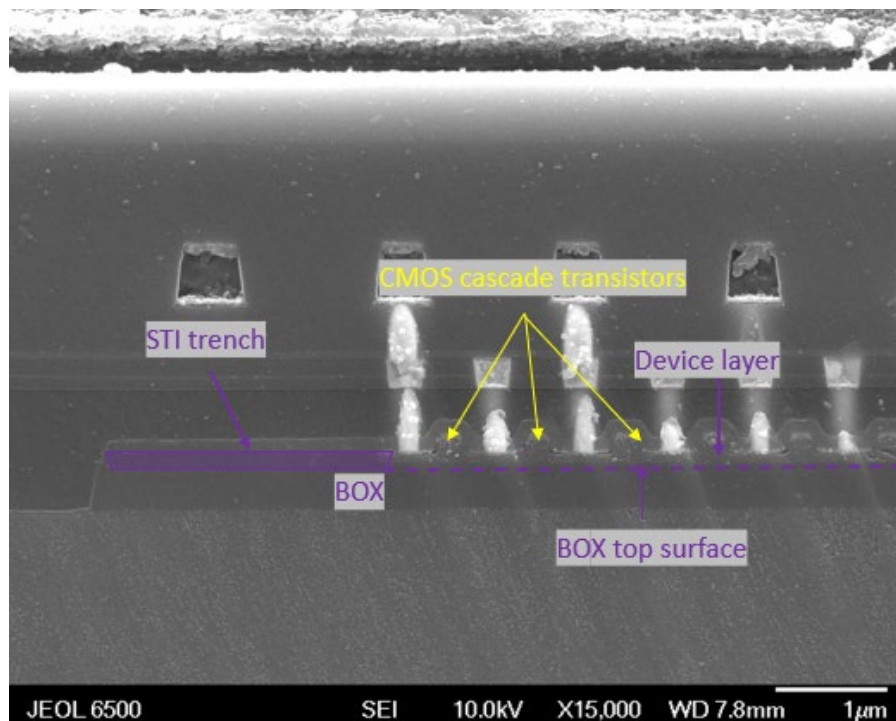


78. Each of the plurality of cascaded transistors in the '886 Accused Products have a source/drain junction that does not contact said buried oxide layer, thereby forming a source/drain junction capacitance. For example, the PK5562\_01 cascaded transistors have source/drain

junctions that are contained in the device layer and do not contact the buried oxide layer, thereby forming a source/drain junction capacitance.



79. The '886 Accused Products have at least one trench extending through said device layer and contacting a top surface of said buried oxide layer, thereby electrically isolating at least one of said plurality of cascaded transistors in said switching circuit so as to reduce voltage and current fluctuations in said device layer. For example, the PK5562\_01 has an STI trench that extends through the device layer and contacts a top surface of the buried oxide layer. The STI trench electrically isolates at least one of the cascaded transistors and thereby reduces voltage and current fluctuations in the device layer.



80. Defendants have had notice of the '886 Patent and how they infringe it since at least February 27, 2024

81. Defendants have and continue to indirectly infringe one or more claims of the '886 Patent by knowingly and intentionally inducing others, including Samsung customers and end-users of the '886 Accused Products, to directly infringe, either literally or under the doctrine of equivalents, by making, using, offering to sell, selling, and/or importing into the United States products that include infringing technology, such as the Samsung Galaxy S22 Ultra Smartphone. As a sophisticated technology company, to the extent Defendants failed to investigate their infringement upon learning of the '886 Patent, they have been willfully blind.

82. Defendants have induced infringement by others, including customers and distributors, with the intent to cause infringing acts by others or, in the alternative, with the belief that there was a high probability that others, including end-users, infringe the '886 Patent, but while remaining willfully blind to the infringement.

83. Defendants have willfully infringed, and continue to willfully infringe, the '886 Patent by intentionally and deliberately carrying out acts of direct and indirect infringement, while knowing, or taking deliberate steps to avoid learning, that those acts infringe. For example, Defendants have known of the '886 Patent since at least February 27, 2024, but have not ceased infringement.

84. HID has suffered damages as a result of Defendants' direct and indirect infringement of the '886 Patent in an amount to be proved at trial.

**DEMAND FOR JURY TRIAL**

Plaintiff hereby demands a jury for all issues so triable.

**PRAYER FOR RELIEF**

WHEREFORE, HID prays for relief against Defendants as follows:

- a. Entry of judgment declaring that Defendants have directly and/or indirectly infringed one or more claims of each of the Patents-in-Suit;
- b. Entry of judgment declaring that Samsung's infringement of the Patents-in-Suit is willful;
- c. An order awarding damages sufficient to compensate HID for Defendants' infringement of the Patents-in-Suit, but in no event less than a reasonable royalty, including supplemental damages post-verdict, together with pre-judgment and post-judgment interest and costs;
- d. Enhanced damages pursuant to 35 U.S.C. § 284;
- e. Entry of judgment declaring that this case is exceptional and awarding HID its costs and reasonable attorney fees under 35 U.S.C. § 285;
- f. An accounting for acts of infringement;

g. Such other equitable relief which may be requested and to which the Plaintiff is entitled; and

h. Such other and further relief as the Court deems just and proper.

Dated: July 8, 2024

Respectfully submitted,

/s/ Alfred R. Fabricant

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