

**UNITED STATES INTERNATIONAL TRADE COMMISSION
WASHINGTON, D.C.**

In the Matter of

**CERTAIN SEMICONDUCTOR DEVICES
AND PRODUCTS CONTAINING
THE SAME**

Investigation No. 337-TA-_____

**VERIFIED COMPLAINT OF INFINEON TECHNOLOGIES AUSTRIA AG AND
INFINEON TECHNOLOGIES AMERICAS CORP. UNDER SECTION 337 OF THE
TARIFF ACT OF 1930, AS AMENDED**

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TABLE OF CONTENTS

I.	INTRODUCTION	1
II.	THE PARTIES.....	9
A.	The Complainants	9
B.	The Respondents.....	9
III.	THE ASSERTED PATENTS AND NON-TECHNICAL DESCRIPTIONS	10
A.	The '481 Patent.....	10
1.	Identification of Patent and Ownership	10
2.	Non-Technical Description of the '481 Patent	10
3.	Foreign Counterparts to the '481 Patent	11
B.	The '562 Patent.....	12
1.	Identification of Patent and Ownership	12
2.	Non-Technical Description of the '562 Patent	12
3.	Foreign Counterparts to the '562 Patent	13
C.	The '755 Patent.....	14
1.	Identification of Patent and Ownership	14
2.	Non-Technical Description of the '755 Patent	14
3.	Foreign Counterparts to the '755 Patent	15
D.	The '003 Patent.....	15
1.	Identification of Patent and Ownership	15
2.	Non-Technical Description of the '003 Patent	16
3.	Foreign Counterparts to the '003 Patent	18
IV.	SPECIFIC INSTANCES OF IMPORTATION BY RESPONDENTS CONSTITUTING UNLAWFUL AND UNFAIR ACTS.....	19
V.	RESPONDENT'S INFRINGEMENT OF THE ASSERTED PATENTS	28
A.	The '481 Patent.....	29
B.	The '562 Patent.....	31
C.	The '755 Patent.....	33
D.	The '003 Patent.....	34

VI. CLASSIFICATION OF THE INFRINGING PRODUCTS UNDER THE HARMONIZED TARIFF SCHEDULE.....	36
VII. DOMESTIC INDUSTRY RELATING TO THE DOMESTIC INDUSTRY PRODUCTS AND ASSERTED PATENTS	37
A. Infineon’s Domestic Industry Products Practice the Asserted Patents (Technical Prong)	37
B. Infineon’s Investments in the United States Relating to the Domestic Industry Products (Economic Prong).....	39
VIII. LICENSEES	40
IX. RELATED LITIGATION	40
X. REQUESTED RELIEF.....	41

LIST OF EXHIBITS

Exhibit	Description	Designation
1	Certified Copy of U.S. Patent No. 9,899,481	Public
2	Certified Copy of U.S. Patent No. 8,686,562	Public
3	Certified Copy of U.S. Patent No. 9,070,755	Public
4	Certified Copy of U.S. Patent No. 8,264,003	Public
5	Certified Assignment History for U.S. Patent No. 9,899,481	Public
6	Certified Assignment History for U.S. Patent No. 8,686,562	Public
7	Certified Assignment History for U.S. Patent No. 9,070,755	Public
8	Certified Assignment History for U.S. Patent No. 8,264,003	Public
9	Innoscence Website – About us – Dedicated 8” GaN-on-Si, available at https://www.innoscence.com/site/details/375 (Last accessed July 1, 2024)	Public
10	Innoscence APEC 2023 Presentation Excerpt	Public
11	Declaration of Robert V. White Exhibit 11.1 – E-mail confirmation of Parts Order No. 1 Exhibit 11.2 – E-mail confirmation of Parts Order No. 2 Exhibit 11.3 – E-mail confirmation of Request for Quote Exhibit 11.4 – E-mail regarding Request for Quote Exhibit 11.5 – RichardsonRFPD Quote for ISG3201 Exhibit 11.6 – E-mail regarding Purchase Order Exhibit 11.7 – Purchase Order for ISG3201 Exhibit 11.8 – E-mail Acknowledgement of Order Exhibit 11.9 – Receipt for Order of ISG3201 Exhibit 11.10 – Shipment Confirmation for ISG3201	Public Public Public Public Public Public Public Public Public Public
12	List of Accused Products	Public
13	Representative Claim Chart Illustrating Infringement of U.S. Patent No. 9,899,481 by Innoscence’s INN650D080BS Device	Public
14	Representative Claim Chart Illustrating Infringement of U.S. Patent No. 9,899,481 by Innoscence’s INN650DA190A Device	Public
15	Representative Claim Chart Illustrating Infringement of U.S. Patent No. 8,686,562 by Innoscence’s INN650D080BS Device	Public
16	Representative Claim Chart Illustrating Infringement of U.S. Patent No. 9,070,755 by Innoscence’s INN100W032A Device	Public
17	Representative Claim Chart Illustrating Infringement of U.S. Patent No. 8,264,003 by Innoscence’s ISG3201 Device	Public
18	Innoscence Data Sheet INN650DA190A, available at https://shop.mev-elektronik.com/wp-content/uploads/INN650DA190A_Datasheet_V1.0.pdf , last accessed June 30, 2024.	Public
19	Innoscence Technology Website, available at https://www.innoscence.com/site/technology , last accessed June 30, 2024.	Public

I. INTRODUCTION

1. Complainants Infineon Technologies Austria AG (“Infineon Austria”) and Infineon Technologies Americas Corp. (“Infineon Americas”) (collectively, “Infineon” or “Complainants”) respectfully request that the United States International Trade Commission commence an investigation pursuant to Section 337 of the Tariff Act of 1930, as amended, 19 U.S.C. § 1337 (“Section 337”) into violations of Section 337 by Innoscience (Suzhou) Technology Company, Ltd. (“Innoscience Suzhou”), Innoscience (Suzhou) Semiconductor Co., Ltd. (“Innoscience Suzhou Semiconductor”), Innoscience (Zhuhai) Technology Company, Ltd. (“Innoscience Zhuhai”), and Innoscience America, Inc. (“Innoscience America”) (collectively “Innoscience” or “Respondents”).

2. This Complaint is based on Innoscience’s unlawful and ongoing importation into the United States, sale for importation into the United States, and/or sale within the United States after importation of certain semiconductor devices and products containing the same (“the Accused Products”). Innoscience’s Accused Products infringe one or more claims of U.S. Patent Nos. 9,899,481 (“the ’481 Patent”), 8,686,562 (“the ’562 Patent”), 9,070,755 (“the ’755 Patent”), and 8,264,003 (“the ’003 Patent”) (collectively, the “Asserted Patents”). Certified copies of the ’481 Patent, ’562 Patent, ’755 Patent, and ’003 Patent are attached as Exhibits 1, 2, 3, and 4, respectfully. Certified copies of the assignment records of the ’481 Patent, ’562 Patent, ’755 Patent, and ’003 Patent are attached as Exhibits 5, 6, 7, and 8, respectfully.

3. Pursuant to Commission Rules 210.10(b)(1) and 210.12(a)(12), a plain English description of the categories of Accused Products are GaN-on-Si semiconductor devices, GaN Field Effect Transistors (“FETs”), GaN high electron mobility transistors, GaN high electron mobility transistors, and products incorporating such transistors, which are discrete chips,

integrated circuits (ICs), wafers, modules, and demo boards. A non-exhaustive list of Accused Products is attached hereto as Exhibit 12.

4. Pursuant to Commission Rule 210.12(a)(9)(vii), a complete listing of the claims asserted by Infineon in this Investigation (collectively, the “Asserted Claims”) is shown below, with independent claims illustrated in **bold**:

Patent	Asserted Claims
'481 Patent	1 , 2-4, 6, 9, 17
'562 Patent	1 , 2, 8-10, 13 , 14, 15
'755 Patent	1 , 2-4, 8, 9
'003 Patent	1 , 2, 10

5. The Asserted Patents are valid and enforceable. Infineon Austria owns by assignment all rights, title, and interest in the '481 Patent. *See* Exhibit 5. Infineon Americas owns by assignment all rights, title, and interest in the '562 Patent, the '755 Patent, and the '003 Patent. *See* Exhibits 6-8.

6. Infineon is a world-leading designer and manufacturer of semiconductors, including Gallium Nitride (“GaN”) semiconductors and products, used in a variety of electronic and microelectronic applications and industries, including computer systems, telecommunication systems, consumer electronics and goods, automotive products, industrial automation and control systems, and the applications protected by the Asserted Patents. By way of non-limiting example, Infineon develops and sells power transistors, which are semiconductor devices used to amplify or switch electrical signals and power in a vast array of modern applications. Infineon also develops and sells circuits including transistor circuits and integrated circuits incorporating power

No. 60/783,934 filed on March 20, 2006. The '003 Patent expires on March 20, 2027. A true, correct, and certified copy of the '003 Patent is attached as Exhibit 4.

55. Complainant Infineon Americas is the assignee and owner of all right, title, and interest in and to the '003 Patent following an assignment from the named inventor. A true, correct, and certified copy of the assignment history for the '003 Patent is attached as Exhibit 8.

56. Pursuant to Commission Rule 210.12, the Complaint is accompanied by: (1) a true, correct, and certified copy of the '003 Patent (Exhibit 4); (2) a true, correct, and certified copy of the prosecution history of the '003 Patent (Appendix G); a copy of each reference cited therein (Appendix H); and (4) a true, correct, and certified copy of the recorded assignment from the inventor of the '003 Patent (Exhibit 8).

57. Any description of the '003 Patent herein is provided solely for compliance with the Commission Rules, and is not intended to limit, define, or otherwise affect the scope, construction, and/or application of the '003 Patent's language.

2. Non-Technical Description of the '003 Patent

58. The '003 Patent relates to a transistor with a gate (G) that is used to control current flowing between a drain (D) and a source (S). It addresses challenges that can arise when conventional transistors are used in high voltage and/or high speed switching applications. First, large peak drain voltage (V_d) swings during switching creates a large "Miller effect" that causes excessive switching losses. Second, a high transient dV_d/dt when the drain voltage changes rapidly may result in a voltage transient in a gate voltage V_g that can briefly turn on the transistor when it is intended to be off. This unwanted period of conduction, sometimes referred to as a "shoot through," may result in large power and efficiency losses.

59. The '003 Patent generally describes a merged cascode transistor used in a transistor circuit that can address these problems. In one embodiment, the transistor is a single device that

includes a bottom portion Q1 and a top portion Q2 in series in a cascode geometry, as illustrated in Figs. 2 and 3 (reproduced below). Q1's drain (D1) and Q2's source (S2) are merged in a node d1s2 (represented by the arrow 39 in Fig. 3) in a semiconductor element 29 and between Q1 and Q2. In the transistor circuit for this example, the input to the transistor is connected to the gate of Q1 (V_{g1}), while both the gate of Q2 (V_{g2}) and source of Q1 (V_{s1}) are connected to a common voltage of 0 volt. In this example, Q1 is an enhancement mode transistor that is normally off, Q2 is a depletion mode transistor that is normally on, such that when an input V_{g1} is provided to control Q1 to turn off, Q2 will also become off to block the high voltage at the drain V_{d2} from reaching Q1. As a result, even though V_{d2} may have a peak value of hundreds of volts, Q1's drain, which is at the node V_{d1s2} , is substantially reduced to a swing of only a few volts during switching. As a result, the transistor is more efficient and less susceptible to overall power losses.

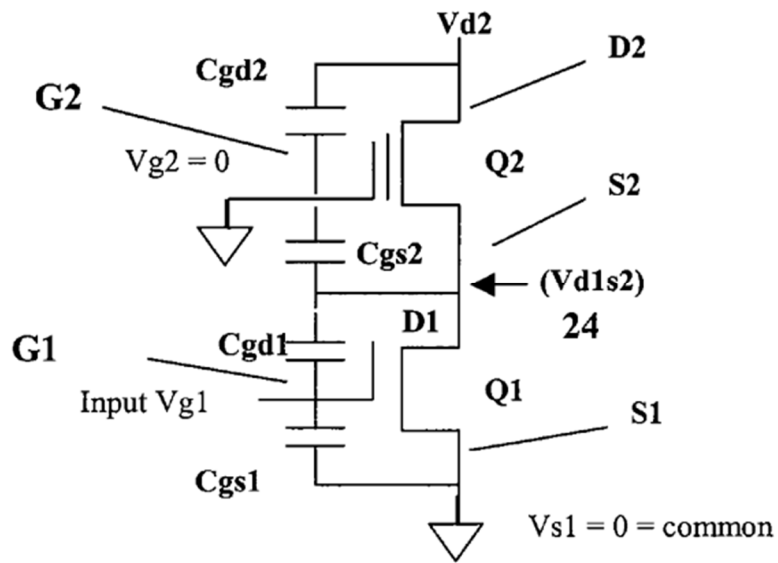


Fig. 2 of the '003 Patent.

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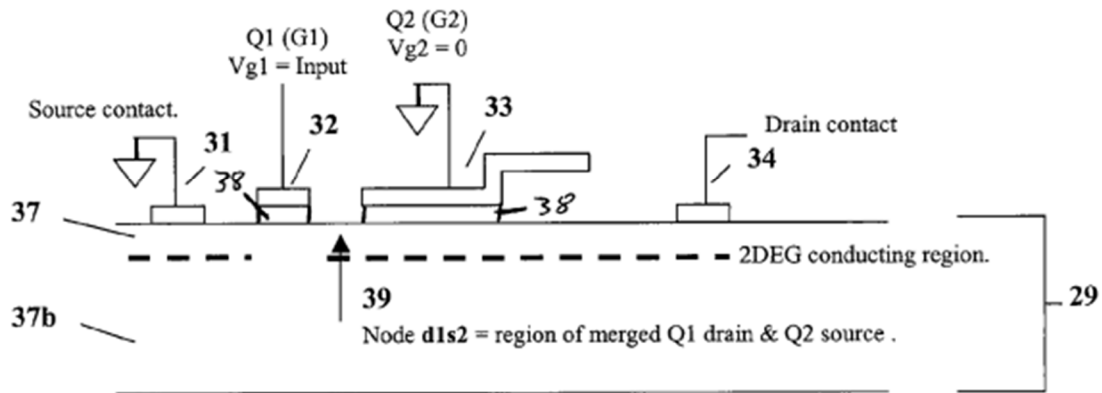


Fig. 3 of the '003 Patent.

3. Foreign Counterparts to the '003 Patent

60. As required under Commission Rule 210.12(a)(9)(v), the following table lists all of the foreign counterpart patents and applications for the '003 Patent that have been filed, issued, denied, abandoned, or withdrawn.

Jurisdiction	Patent/Application No.	Status
Germany	DE112007000667.6	Inactive (withdrawn)
Japan	JP2009530862	Denied
WIPO	PCT/US07/06983	Inactive (withdrawn)

61. For avoidance of doubt, the foregoing identification of specific models or products is not intended to limit the scope of the investigation. The Commission's investigation and any remedy should extend to all of Respondents' infringing products.

84. Infineon expects further discovery to reveal other specific acts of Respondents' importation, sale for importation, and/or sale after importation of Accused Products that infringe the Asserted Patents, including, but not limited to, additional models of the Accused Products.

V. RESPONDENT'S INFRINGEMENT OF THE ASSERTED PATENTS

85. As noted above and set forth in further detail herein, the Accused Products infringe at least the following claims of the Asserted Patents:

Patent	Asserted Claims
'481 Patent	1, 2-4, 6, 9, 17
'562 Patent	1, 2, 8-10, 13, 14, 15
'755 Patent	1, 2-4, 8, 9
'003 Patent	1, 2, 10

86. More specifically, Respondents directly infringe the Asserted Claims in violation of 35 U.S.C. § 271, literally or under the doctrine of equivalents; induce the infringement of these claims in violation of 35 U.S.C. § 271(b); and/or contributorily infringe these claims in violation of 35 U.S.C. § 271(c). Respondents infringe these claims by importing, selling for importation, and/or selling after importation into the United States the Accused Products in violation of 35 U.S.C. § 271. Discovery may reveal that Respondents infringe additional claims of the Asserted Patents, in which case the Complainant may seek leave to amend this Complaint to assert such claims.

87. On information and belief, Respondents manufacture, assemble, package, test, and/or purchase the Accused Products outside the United States, specifically within China. On information and belief, Respondents then import, sell for importation, and/or sell within the United

Accused Products, as well as by contracting with others to offer to sell, sell for importation, sell within the United States after importation, and/or import into the United States the Accused Products.

104. Respondents engage in these unlawful acts with knowledge of the '755 Patent, at least as of July 23, 2024, the date the amended complaint was filed in the N.D. Cal. District Court Case, with knowledge and/or willful blindness that their actions will induce infringement by Respondents' customers, distributors, and/or end users; and with the knowledge and intent to encourage and facilitate infringing sales and uses of the Accused Products through, *inter alia*, the creation and dissemination of promotional and marketing materials, instructional materials, product manuals, and technical materials related to the Accused Products (*see, e.g.*, Exs. 10, 60-61, and 64-66), and offering support and technical assistance to its customers.

105. The amended complaint served on July 23, 2024 included Exhibit 10, which is substantially identical to Exhibit 16 herein and which accordingly provided detailed notice concerning the particular reasons why Innoscience's INN100W032A directly infringes claim 1 of the '755 Patent. Respondents also have knowledge and notice of the '755 Patent at least as of the date of this Complaint, which has also put Respondents on notice of why the Accused Products (including Innoscience's INN100W032A) directly infringe claim 1 of the '755 Patent.

D. The '003 Patent

106. As demonstrated herein, Respondents import, sell for importation, and/or sell after importation into the United States, Accused Products satisfying all limitations of at least the Asserted Claims of the '003 Patent, whether literally or under the doctrine of equivalents. Accordingly, Respondents have directly infringed and continue to directly infringe the Asserted Claims of the '003 Patent under 35 U.S.C. § 271(a).

107. Pursuant to Commission Rule 210.12(a)(9)(viii), a claim chart comparing independent claims 1 and 10 of the '003 Patent to a representative Accused Product (ISG3201) is attached as Exhibit 17. The ISG3201 is among the Innoscience representative Accused Products that Infineon's consultant obtained after they were imported into the United States, sold outside the United States for importation into the United States, and/or sold after importation in the United States by Respondents. *See supra* Section IV.

108. On information and belief, other Accused Products are similar in relevant respect to ISG3201 (including a transistor circuit having a transistor in a merged cascode geometry and with a source-connected second gate that includes a field plate) and infringe the Asserted Claims of the '003 Patent for the same reasons reflected in Exhibit 17.

109. In addition, Respondents have indirectly infringed and continue to indirectly infringe the Asserted Claims of the '003 Patent by inducing infringement. Specifically, Respondents have actively, knowingly, and intentionally induced, and continue to actively, knowingly, and intentionally induce direct infringement of the Asserted Claims of the '003 Patent by customers, distributors, and/or end users by among other things, selling for importation, importing into the United States, and/or selling within the United States after importation the Accused Products, as well as by contracting with others to offer to sell, sell for importation, sell within the United States after importation, and/or import into the United States the Accused Products.

110. Respondents engage in these unlawful acts with knowledge of the '003 Patent, at least as of July 23, 2024, the date the amended complaint was filed in the N.D. Cal. District Court Case, with knowledge and/or willful blindness that their actions will induce infringement by Respondents' customers, distributors, and/or end users; and with the knowledge and intent to

encourage and facilitate infringing sales and uses of the Accused Products through, *inter alia*, the creation and dissemination of promotional and marketing materials, instructional materials, product manuals, and technical materials related to the Accused Products (*see, e.g.*, Exs. 10, 60-61, and 64-66), and offering support and technical assistance to its customers.

111. The amended complaint served on July 23, 2024 included Exhibit 11, which is substantially identical to Exhibit 17 herein and which accordingly provided detailed notice concerning the particular reasons why Innoscience's ISG3201 directly infringes claims 1 and 10 of the '003 Patent. Respondents also have knowledge and notice of the '003 Patent at least as of the date of this Complaint, which has also put Respondents on notice of why the Accused Products (including Innoscience's ISG3201) directly infringe claims 1 and 10 of the '003 Patent.

VI. CLASSIFICATION OF THE INFRINGING PRODUCTS UNDER THE HARMONIZED TARIFF SCHEDULE

112. On information and belief, the Accused Products may be classified under at least the following heading and subheading of the Harmonized Tariff Schedule ("HTS") of the United States: 8541.21.00 (Transistors, other than photosensitive transistors); 8541.50.00 (Other semiconductor devices); 8542.31.00 (Processors and controllers, whether or not combined with memories, converters, logic circuits, amplifiers, clock and timing circuits, or other circuits); 8541.29.0095 (Transistors Other Than Photosensitive, Dissipation Rate 1W And Greater, Operating Frequency Less Than 30 Mhz); and related subheadings of the HTS.

113. This classification is exemplary in nature and not intended to restrict the scope of this Investigation or any exclusion order or other remedy ordered by the Commission.