

**UNITED STATES DISTRICT COURT
EASTERN DISTRICT OF MICHIGAN**

**NORTH PLATE
SEMICONDUCTOR, LLC,**

Plaintiff,

Case No.

v.

JURY TRIAL DEMANDED

IXYS CORPORATION,

Defendant.

COMPLAINT FOR PATENT INFRINGEMENT

Plaintiff North Plate Semiconductor, LLC (“NPS” or Plaintiff”) hereby asserts a claim for patent infringement against Defendant IXYS Corporation (“IXYS” or “Defendant”), and in support thereof allege as follows:

NATURE OF CASE

1. This is an action for patent infringement arising under the patent laws of the United States, 35 U.S.C. §1 et seq., specifically including 35 U.S.C. §271.

2. As set forth below, Plaintiff holds the rights in U.S. Patent Nos. 6,617,641 (“the ‘641 patent”), 6,667,515 (“the ‘515 patent), 6,620,653 (“the ‘653 patent”), 6,717,210 (“the ‘210 patent”), 6,765,239 (“the ‘239 patent”), 6,936,893 (“the ‘893 patent”) (cumulatively “Patents-in-Suit”). The United States patent laws grant the holder of a patent the right to exclude infringers from making, using, selling or importing the invention claimed in a patent, to recover damages for the

infringer's violations of these rights, and to recover treble damages where the infringer willfully infringed the patent. Under 35 U.S.C. § 282(a), the Patents-in-Suit are entitled to a presumption of validity. Plaintiff is suing Defendant for infringing its patents, and doing so willfully. Plaintiff seeks to recover damages from Defendant, including treble damages for willful infringement.

THE PARTIES

3. North Plate Semiconductor, LLC is a company, organized and existing under the laws of the Delaware, with a principal place of business at 39555 Orchard Hill Place, Suite 600, Novi, Michigan, 48375.

4. Upon information and belief, Defendant IXYS CORPORATION, is a corporation organized and existing under the laws of the State of Delaware with its principal place of business at 1590 Buckeye Drive, Milpitas, California 95035.

JURISDICTION

5. This is an action for patent infringement arising under the patent laws of the United States of America, more specifically under 35 U.S.C. § 1, *et seq.*, including 35 U.S.C. §271. This Court has subject matter jurisdiction pursuant to 28 U.S.C. §§ 1331 and 1338(a).

6. This Court has personal jurisdiction over Defendant pursuant to the Michigan Long-arm Statute, Mich. Comp. Laws § 600.715, at least because IXYS: (i) has transacted business in Michigan, (ii) has committed acts of infringement in

Michigan, and (iii) has entered into contracts to furnish material in Michigan. More particularly, on information and belief, Defendant has contracted to supply, and has supplied, one or more of the infringing Accused Products (as defined below in para. 36) to automobile manufacturers and/or automotive parts suppliers located within this judicial district. For example, as shown in Exhibit A, Defendant's website identifies a distributor, Arrow Electronics, Inc., with offices in Michigan, that sells one or more of the Accused Products. In addition, as shown in Exhibit B, Galco Industrial Electronics, Inc., which is located in Madison Heights, Michigan, publicly distributes numerous IXYS products. Further, on information and belief, IXYS has designed, manufactured, imported and sold Accused Products, including infringing power semiconductor devices, to distributors with the knowledge that such devices were specifically designed for, and intending that such devices would be sold by distributors to automobile manufacturers and/or automotive parts suppliers in Michigan. For example, as shown in Exhibit C, a presentation titled, "Power Semiconductor Solutions for Automotive Applications," dated April 2015, and which is available from Defendant's website¹ is specifically directed to the automotive industry, including automobile manufacturers and/or automotive parts suppliers. Further, as disclosed in IXYS's 2016 Annual Report in Exhibit D, Defendant markets the Accused Products through advertisements, technical articles

¹ <http://www.ixys.com/documents/presentation/automotiveapps.pdf>

and press releases that appear regularly in a variety of trade publications, as well as through the dissemination of brochures, data sheets and technical manuals, knowing or have reason to believe that the products are intended to be sold worldwide, including the United States and the State of Michigan. In addition, IXYS's 2016 Annual Report indicates that it has over 3500 customers worldwide, evidencing IXYS's reasonable expectation that its products will be sold and used in the State of Michigan. By virtue of at least the foregoing acts, IXYS purposefully directed its activities towards Michigan, delivered the Accused Products into the stream of commerce with the expectation that those products will be purchased by consumers in Michigan, was aware that the Accused Products are being marketed in Michigan, and further evidence an intent or purpose by IXYS to serve the market of Michigan. Thus, this Court's exercise of personal jurisdiction over IXYS is reasonable and consistent with the requirements of the Due Process Clause of the United States Constitution.

7. This Court has personal jurisdiction over IXYS at least because IXYS has ongoing and systematic contacts with the State of Michigan, and the Eastern District of Michigan. IXYS has purposefully and regularly availed itself of the privileges of conducting business in the State of Michigan and in the Eastern District of Michigan and expected or reasonably should have expected its acts to have consequence in the State of Michigan and within this judicial District.

Plaintiff's causes of action arise directly from Defendant's business contacts and other activities in the State of Michigan and the Eastern District of Michigan. Defendant has committed acts of patent infringement in this District, and has harmed and continues to harm Plaintiff in this District, by, among other things, using, selling, offering for sale, and/or importing the Accused Products into this District.

VENUE

8. Venue properly lies within this judicial district and division, pursuant to 28 U.S.C. §§ 1391(b), (c), and (d), and/or 1400(b).

9. Upon information and belief, Defendant resides in this District for the purposes of venue, insofar as it is subject to the personal jurisdiction in this District, has committed acts of infringement in this District, solicits business in this District, and conducts other business in this District.

THE PATENTS-IN-SUIT

U.S. Patent No. 6,617,641

10. The '641 patent, entitled "High Voltage Semiconductor Device Capable of Increasing a Switching Speed," was duly and lawfully issued by the United States Patent and Trademark Office on September 9, 2003. The '641 patent issued from U.S. Patent Application No. 10/059,186 filed on January 31, 2002 by

inventors Akio Nakagawa and Tomoko Matsudai. A true and correct copy of the '641 Patent is attached hereto as Exhibit E.

11. The '641 Patent is valid and enforceable.

12. The '641 Patent is generally directed to a high voltage semiconductor device, such as an Insulated Gate Bipolar Transistor (IGBT).

13. Plaintiff is the assignee and the owner of all right, title and interest in and to the '641 patent, and has the right to sue and recover damages for infringement thereof.

U.S. Patent No. 6,667,515

14. The '515 patent, entitled "High Breakdown Voltage Semiconductor Device," was duly and lawfully issued by the United States Patent and Trademark Office on December 23, 2003. The '515 patent issued from U.S. Patent Application No. 10/053,660 filed on January 24, 2002 by inventor Tomoki Inoue. A true and correct copy of the '515 Patent is attached hereto as Exhibit F.

15. The '515 Patent is valid and enforceable.

16. The '515 Patent is generally directed to a high breakdown voltage semiconductor device having an insulated gate structure, such as an IGBT or a Metal Oxide Semiconductor Field Effect Transistor (MOSFET).

17. Plaintiff is the assignee and the owner of all right, title and interest in and to the '515 patent, and has the right to sue and recover damages for infringement thereof.

U.S. Patent No. 6,620,653

18. The '653 patent, entitled "Semiconductor Device and Method of Manufacturing the Same," was duly and lawfully issued by the United States Patent and Trademark Office on September 16, 2003. The '653 patent issued from U.S. Patent Application No. 09/961,361 filed on September 25, 2001 by inventors Tomoko Matsudai, Hidetaka Hattori, Akio Nakagawa. A true and correct copy of the '653 Patent is attached hereto as Exhibit G.

19. The '653 Patent is valid and enforceable.

20. The '653 Patent is generally directed to a high voltage semiconductor device, such as an IGBT.

21. Plaintiff is the assignee and the owner of all right, title and interest in and to the '653 patent, and has the right to sue and recover damages for infringement thereof.

U.S. Patent No. 6,717,210

22. The '210 patent, entitled "Trench Gate Type Semiconductor Device and Fabricating Method of the Same," was duly and lawfully issued by the United States Patent and Trademark Office on April 6, 2004. The '210 patent issued from

U.S. Patent Application No. 10/289,339 filed on November 7, 2002 by inventors Akio Takano, Takahiro Kawano. A true and correct copy of the '210 Patent is attached hereto as Exhibit H.

23. The '210 Patent is valid and enforceable.

24. The '210 Patent is generally directed to a semiconductor device employing a trench gate structure and to fabrication method thereof.

25. Plaintiff is the assignee and the owner of all right, title and interest in and to the '210 patent, and has the right to sue and recover damages for infringement thereof.

U.S. Patent No. 6,765,239

26. The '239 patent, entitled "Semiconductor Device Having Junction-Termination Structure of Resurf Type," was duly and lawfully issued by the United States Patent and Trademark Office on July 20, 2004. The '239 patent issued from U.S. Patent Application No. 10/187,369 filed on July 2, 2002 by inventors Michiaki Hiyoshi, Shigeru Hasegawa, Naoyuki Inoue, Tatsuo Harada. A true and correct copy of the '239 Patent is attached hereto as Exhibit I.

27. The '239 Patent is valid and enforceable.

28. The '239 Patent is generally directed to a semiconductor device having a junction-termination structure of a RESURF (Reduced SURface Field) type.

29. Plaintiff is the assignee and the owner of all right, title and interest in and to the '239 patent, and has the right to sue and recover damages for infringement thereof.

U.S. Patent No. 6,936,893

30. The '893 patent, entitled "Power Semiconductor Device," was duly and lawfully issued by the United States Patent and Trademark Office on August 30, 2005. The '893 patent issued from U.S. Patent Application No. 10/677,260 filed on October 3, 2003 by inventors Masahiro Tanaka, Shinichi Umekawa, Tadashi Matsuda, Masakazu Yamaguchi. A true and correct copy of the '893 Patent is attached hereto as Exhibit J.

31. The '893 Patent is valid and enforceable.

32. The '893 Patent is generally directed to a semiconductor device such as an IGBT.

33. Plaintiff is the assignee and the owner of all right, title and interest in and to the '893 patent, and has the right to sue and recover damages for infringement thereof.

GENERAL ALLEGATIONS

34. The Accused Products fall into two categories, Power MOSFET and IGBT semiconductor devices. As disclosed in Defendant's 2016 Annual Report, both Power MOSFET and IGBT semiconductor devices are types of power MOS

(metal-oxide-silicon) transistors that operate at high-switching speeds allowing the design of smaller and less costly end products. Such devices are activated by voltage rather than current, thus requiring less external circuitry to operate, making them more compatible with integrated circuit controls and offering more reliable long term performance. Generally, a power MOSFET (metal-oxide-silicon field-effect transistor) is a switch controlled by voltage at the gate, which is used to vary the amperage and frequency of electricity by switching on and off at high frequency. Power MOSFETs are typically used in power conversion systems focusing on higher voltage applications ranging from 40-4500 volts.

35. As disclosed in Defendant's 2016 Annual Report, an IGBT (insulated-gate bipolar transistor) is used as a switch and achieves many of the advantages of power MOSFETs and of traditional bipolar technology by combining the voltage-controlled switching features of power MOSFETs with the superior conductivity and energy efficiency of bipolar transistors. Generally, for a given semiconductor die size, IGBTs can operate at higher current and voltages, making them more cost-effective devices for high energy applications than power MOSFETs. IGBTs are typically used in AC motor drives, power systems and defibrillators.

36. Upon information and belief, the Accused Products include at least Defendant's GenX4 and GenX3 XPT IGBT, Trench Power MOSFET, and HiperFET Power MOSFET families of power semiconductor devices (collectively

defined as the “Accused Products”). As stated in Defendant’s 2016 Annual Report, the Accused Products are used to provide precisely regulated power required by sophisticated electronic products and equipment demanding energy efficiency. These power semiconductor devices are used in motor drives for applications, such as transportation, robotics, automation and process control equipment; power conversion systems, including uninterruptible power supplies, or UPS, and switch-mode power supplies, or SMPS, for applications such as communications infrastructure, including wireless base stations, network servers and telecommunication switching stations; medical electronics for applications such as defibrillators and MRI equipment; and renewable energy sources, such as wind turbines and solar systems. These products are sold and/or offered for sale throughout the United States, including Michigan.

37. Defendant manufactures the Accused Products, including devices intended for use in power control applications described above, and directly, and through its affiliates, makes, uses, imports, sells and offers to sell the same throughout the United States, including Michigan. Defendant also supports and encourages others to import, use, offer for sale and sell throughout the United States, including Michigan, products incorporating the Accused Products.

COUNT I: INFRINGEMENT OF U.S. PATENT NO. 6,617,641

38. Plaintiff incorporates by reference the allegations set forth in the preceding paragraphs.

39. Defendant has directly infringed and is infringing literally and/or under the doctrine of equivalents, in violation of the §271(a) at least claims 11, 12, 16, 19, and 21 of the '641 Patent at least during the period prior to the expiration of the patent by making, using, importing, offering for sale and/or selling the GenX4 XPT IGBT family of semiconductor devices, including but not limited to device model numbers listed in Exhibit K ("Accused '641 Devices"), in this judicial district and elsewhere throughout the United States.

40. As a non-limiting example of Defendant's infringement of the '641 Patent, set forth in Exhibit K-1, is a preliminary claim chart showing IXYS's infringement of exemplary claims 11, 12, 16, 19, and 21 of the '641 Patent by IXYS's IXXH60N65B4H1 device. The IXXH60N65B4H1 device was analyzed using OM (Optical Microscopy), SEM (Scanning Electron Microscopy), and/or SCM (Scanning Capacitance Microscopy) imaging.

41. Upon information and belief, Defendant's infringement of the '641 Patent by the IXXH60N65B4H1 device is representative of and proof of Defendant's infringement of the '641 Patent by all of the Accused '641 Devices, including the entire GenX4 XPT IGBT family. The Accused '641 Devices

comprise the same, or substantially similar, structural features pertinent to infringement of the '641 Patent. The Accused '641 Devices are binned under different product numbers within the GenX4 XPT IGBT family based upon different characteristics, including, without limitation, number of chips per package, IGBT thermal resistance, and IGBT packaging style.

42. Upon information and belief, Defendant has and continues to intentionally induce others to directly infringe in violation of 35 U.S.C. §271(b), and those actions are undertaken with the specific intent that they will, in fact, induce direct infringement and with full knowledge that Defendant's products infringe one or more claims of the '641 Patent both literally and/or under the doctrine of equivalents. By way of example only, Defendant sells and delivers the infringing Accused '641 Devices to U.S. distributors including Arrow Electronics located in Plymouth, MI, Mouser Electronics located in Mansfield, TX, Digi-Key Electronics located in Thief River Falls, MN and others, and thereafter induces these distributors to sell and offer for sale the infringing products to customers in the United States thereby directly infringing the '641 Patent. Arrow Electronics, Mouser Electronics and Digi-Key maintain websites (arrow.com, mouser.com and www.digikey.com) available to U.S.-based customers that, as a result of Defendant's inducement, stock, sell, and offer for sale the Accused '641 Devices, including the IXXH60N65B4H1 device. (See e.g., Exhibit A). Defendant further

induces third parties to incorporate the Accused '641 Devices as components into additional products for various applications to be used in the United States, by, for example, providing datasheets, application notes, product briefs, and other collateral on their Internet website (<http://www.ixyspower.com>) available to U.S. customers. As disclosed in IXYS's 2016 Annual Report, Defendant markets the accused products through advertisements, technical articles and press releases that appear regularly in a variety of trade publications, as well as through the dissemination of brochures, data sheets and technical manuals, knowing or have reason to believe that the products are intended to be sold worldwide, including the United States.

43. Defendant has been on notice of the '641 Patent and Defendant's infringement of the '641 Patent by the Accused '641 Devices since, at least, January 14, 2015 via letter received by Nathan Zommer, Chairman and Chief Executive Officer of IXYS, and since, at least, April 7, 2015, via letter received by Mr. Zommer, which disclosed infringement by IXYS of the '641 Patent.

44. In view of Defendant's prior notice of Plaintiff's '641 Patent and its infringement thereof, upon information and belief, Defendant's continued infringement of the '641 Patent has been and continues to be willful, and warrants the enhancement of damages awarded as a result of its infringement. In particular,

despite Defendant's prior knowledge of its infringement, Defendant has failed to stop infringing the '641 Patent.

45. Defendant is not licensed or otherwise authorized to make, use, import, sell or offer to sell any semiconductor devices encompassed by the claims in the '641 Patent, and Defendant's conduct is, in every instance, without Plaintiff's consent.

46. Defendant's willful infringement of the '641 Patent renders this an exceptional case within the meaning of 35 U.S.C. §285, justifying an award to Plaintiff of its reasonable attorney fees and costs incurred in connection with this litigation.

47. By reason of Defendant's infringing activities, Plaintiff has suffered, and will continue to suffer, substantial damages in an amount to be proven at trial.

COUNT II: INFRINGEMENT OF U.S. PATENT NO. 6,667,515

48. Plaintiff incorporates by reference the allegations set forth in the preceding paragraphs.

49. Defendant has directly infringed and is infringing literally and/or under the doctrine of equivalents, in violation of the §271(a), at least claims 33 and 34 of the '515 Patent at least during the period prior to the expiration of the patent by making, using, importing, offering for sale and/or selling the GenX4 XPT IGBT family of semiconductor devices, including but not limited to device model

numbers listed in Exhibit L (“Accused ‘515 Devices”), in this judicial district and elsewhere throughout the United States.

50. As a non-limiting example of Defendant’s infringement of the ‘515 Patent, set forth in Exhibit L-1, is a preliminary claim chart showing IXYS’s infringement of exemplary claims 33 and 34 of the ‘515 Patent by IXYS’s IXXH60N65B4H1 device. The IXXH60N65B4H1 device was analyzed using OM (Optical Microscopy), SEM (Scanning Electron Microscopy), and/or SCM (Scanning Capacitance Microscopy) imaging.

51. Upon information and belief, Defendant’s infringement of the ‘515 Patent by the IXXH60N65B4H1 device is representative of and proof of Defendant’s infringement of the ‘515 Patent by all of the Accused ‘515 Devices, including the entire GenX4 XPT IGBT family. The Accused ‘515 Devices comprise the same, or substantially similar, structural features pertinent to infringement of the ‘515 Patent. The Accused ‘515 Devices are binned under different product numbers within the GenX4 XPT IGBT family based upon different characteristics, including, without limitation, number of chips per package, IGBT thermal resistance, and IGBT packaging style.

52. Upon information and belief, Defendant has and continues to intentionally induce others to directly infringe in violation of 35 U.S.C. §271(b), and those actions are undertaken with the specific intent that they will, in fact,

induce direct infringement and with full knowledge that Defendant's products infringe one or more claims of the '515 Patent both literally and/or under the doctrine of equivalents. By way of example only, Defendant sells and delivers the infringing Accused '515 Devices to U.S. distributors including Arrow Electronics located in Plymouth, MI, Mouser Electronics located in Mansfield, TX, Digi-Key Electronics located in Thief River Falls, MN and others, and thereafter induces these distributors to sell and offer for sale the infringing products to customers in the United States thereby directly infringing the '515 Patent. Arrow Electronics, Mouser Electronics and Digi-Key maintain websites (arrow.com, mouser.com and www.digikey.com) available to U.S.-based customers that, as a result of Defendant's inducement, stock, sell, and offer for sale the Accused '515 Devices, including the IXXH60N65B4H1 device. (See e.g., Exhibit A). Defendant further induces third parties to incorporate the Accused '515 Devices as components into additional products for various applications to be used in the United States, by, for example, providing datasheets, application notes, product briefs, and other collateral on their Internet website (<http://www.ixyspower.com>) available to U.S. customers. As disclosed in IXYS's 2016 Annual Report, Defendant markets the accused products through advertisements, technical articles and press releases that appear regularly in a variety of trade publications, as well as through the dissemination of brochures, data sheets and technical manuals, knowing or have

reason to believe that the products are intended to be sold worldwide, including the United States.

53. Defendant has been on notice of the '515 Patent and Defendant's infringement of the '515 Patent by the Accused '515 Devices since, at least, January 14, 2015 via letter received by Nathan Zommer, Chairman and Chief Executive Officer of IXYS, and since, at least, April 7, 2015, via letter received by Mr. Zommer, which disclosed infringement by IXYS of the '515 Patent.

54. In view of Defendant's prior notice of Plaintiff's '515 Patent and its infringement thereof, upon information and belief, Defendant's continued infringement of the '515 Patent has been and continues to be willful, and warrants the enhancement of damages awarded as a result of its infringement. In particular, despite Defendant's prior knowledge of its infringement, Defendant has failed to stop infringing the '515 Patent.

55. Defendant is not licensed or otherwise authorized to make, use, import, sell or offer to sell any semiconductor devices encompassed by the claims in the '515 Patent, and Defendant's conduct is, in every instance, without Plaintiff's consent.

56. Defendant's willful infringement of the '515 Patent renders this an exceptional case within the meaning of 35 U.S.C. §285, justifying an award to

Plaintiff of its reasonable attorney fees and costs incurred in connection with this litigation.

57. By reason of Defendant's infringing activities, Plaintiff has suffered, and will continue to suffer, substantial damages in an amount to be proven at trial.

COUNT III: INFRINGEMENT OF U.S. PATENT NO. 6,620,653

58. Plaintiff incorporates by reference the allegations set forth in the preceding paragraphs.

59. Defendant has directly infringed and is infringing literally and/or under the doctrine of equivalents, in violation of the §271(a), at least claims 10 and 11 of the '653 Patent at least during the period prior to the expiration of the patent by making, using, importing, offering for sale and/or selling the GenX3 XPT IGBT family of semiconductor devices, including but not limited to device model numbers listed in Exhibit M ("Accused '653 Devices"), in this judicial district and elsewhere throughout the United States.

60. As a non-limiting example of Defendant's infringement of the '653 Patent, set forth in Exhibit M-1, is a preliminary claim chart showing IXYS's infringement of exemplary claims 10 and 11 of the '653 Patent by IXYS' IXXH50N60C3D1 device. The IXXH50N60C3D1 device was analyzed using OM (Optical Microscopy), SEM (Scanning Electron Microscopy), and/or SCM (Scanning Capacitance Microscopy) imaging.

61. Upon information and belief, Defendant's infringement of the '653 Patent by the IXXH50N60C3D1 device is representative of and proof of Defendant's infringement of the '653 Patent by all of the Accused '653 Devices, including the entire GenX3 XPT IGBT family. The Accused '653 Devices comprise the same, or substantially similar, structural features pertinent to infringement of the '653 Patent. The Accused '653 Devices are binned under different product numbers within the GenX3 XPT IGBT family based upon different characteristics, including, without limitation, number of chips per package, IGBT thermal resistance, and IGBT packaging style.

62. Upon information and belief, Defendant has and continues to intentionally induce others to directly infringe in violation of 35 U.S.C. §271(b), and those actions are undertaken with the specific intent that they will, in fact, induce direct infringement and with full knowledge that Defendant's products infringe one or more claims of the '653 Patent both literally and/or under the doctrine of equivalents. By way of example only, Defendant sells and delivers the infringing Accused '653 Devices to U.S. distributors including Arrow Electronics located in Plymouth, MI, Mouser Electronics located in Mansfield, TX, Digi-Key Electronics located in Thief River Falls, MN and others, and thereafter induces these distributors to sell and offer for sale the infringing products to customers in the United States thereby directly infringing the '653 Patent. Arrow Electronics,

Mouser Electronics and Digi-Key maintain websites (arrow.com, mouser.com and www.digikey.com) available to U.S.-based customers that, as a result of Defendant's inducement, stock, sell, and offer for sale the Accused '653 Devices, including the IXXH50N60C3D1 device. (See e.g., Exhibit A). Defendant further induces third parties to incorporate the Accused '653 Devices as components into additional products for various applications to be used in the United States, by, for example, providing datasheets, application notes, product briefs, and other collateral on their Internet website (<http://www.ixyspower.com>) available to U.S. customers. As disclosed in IXYS's 2016 Annual Report, Defendant markets the accused products through advertisements, technical articles and press releases that appear regularly in a variety of trade publications, as well as through the dissemination of brochures, data sheets and technical manuals, knowing or have reason to believe that the products are intended to be sold worldwide, including the United States.

63. Defendant has been on notice of the '653 Patent and Defendant's infringement of the '653 Patent by the Accused '653 Devices since, at least, January 14, 2015 via letter received by Nathan Zommer, Chairman and Chief Executive Officer of IXYS, and since, at least, April 7, 2015, via letter received by Mr. Zommer, which disclosed infringement by IXYS of the '653 Patent.

64. In view of Defendant's prior notice of Plaintiff's '653 Patent and its infringement thereof, upon information and belief, Defendant's continued infringement of the '653 Patent has been and continues to be willful, and warrants the enhancement of damages awarded as a result of its infringement. In particular, despite Defendant's prior knowledge of its infringement, Defendant has failed to stop infringing the '653 Patent.

65. Defendant is not licensed or otherwise authorized to make, use, import, sell or offer to sell any semiconductor devices encompassed by the claims in the '653 Patent, and Defendant's conduct is, in every instance, without Plaintiff's consent.

66. Defendant's willful infringement of the '653 Patent renders this an exceptional case within the meaning of 35 U.S.C. §285, justifying an award to Plaintiff of its reasonable attorney fees and costs incurred in connection with this litigation.

67. By reason of Defendant's infringing activities, Plaintiff has suffered, and will continue to suffer, substantial damages in an amount to be proven at trial.

COUNT IV: INFRINGEMENT OF U.S. PATENT NO. 6,717,210

68. Plaintiff incorporates by reference the allegations set forth in the preceding paragraphs.

69. Defendant has directly infringed and is infringing literally and/or under the doctrine of equivalents, in violation of the §271(a) at least claims 1, 2, 4, 6, and 7 of the '210 Patent at least during the period prior to the expiration of the patent by making, using, importing, offering for sale and/or selling the GenX4 XPT IGBT and Trench Power MOSFET family of semiconductor devices, including but not limited to device model numbers listed in Exhibit N ("Accused '210 Devices"), in this judicial district and elsewhere throughout the United States.

70. As a non-limiting example of Defendant's infringement of the '210 Patent, set forth in Exhibits N-1, are preliminary claim charts showing IXYS's infringement of exemplary claims 1, 2, 4, 6, and 7 of the '210 Patent by IXYS's IXXH60N65B4H1 and IXTK600N04T2 devices. The IXXH60N65B4H1 and IXTK600N04T2 devices were analyzed using OM (Optical Microscopy), SEM (Scanning Electron Microscopy), and/or SCM (Scanning Capacitance Microscopy) imaging.

71. Upon information and belief, Defendant's infringement of the '210 Patent by the IXXH60N65B4H1 and IXTK600N04T2 devices is representative of and proof of Defendant's infringement of the '210 Patent by all of the Accused '210 Devices, including the entire GenX4 XPT IGBT and Trench Power MOSFET families. The Accused '210 Devices comprise the same, or substantially similar, structural features pertinent to infringement of the '210 Patent. The Accused '210

Devices are binned under different product numbers within the GenX4 XPT IGBT and Trench Power MOSFET families based upon different characteristics, including, without limitation, number of chips per package, IGBT thermal resistance, and IGBT packaging style for IGBTs and drain-source voltage, drain current, ON resistance, packaging style and thermal resistance for MOSFETs.

72. Upon information and belief, Defendant has and continues to intentionally induce others to directly infringe in violation of 35 U.S.C. §271(b), and those actions are undertaken with the specific intent that they will, in fact, induce direct infringement and with full knowledge that Defendant's products infringe one or more claims of the '210 Patent both literally and/or under the doctrine of equivalents. By way of example only, Defendant sells and delivers the infringing Accused '210 Devices to U.S. distributors including Arrow Electronics located in Plymouth, MI, Mouser Electronics located in Mansfield, TX, Digi-Key Electronics located in Thief River Falls, MN and others, and thereafter induces these distributors to sell and offer for sale the infringing products to customers in the United States thereby directly infringing the '210 Patent. Arrow Electronics, Mouser Electronics and Digi-Key maintain websites (arrow.com, mouser.com and www.digikey.com) available to U.S.-based customers that, as a result of Defendant's inducement, stock, sell, and offer for sale the Accused '210 Devices, including the IXXH60N65B4H1 and IXTK600N04T2 devices. (See e.g., Exhibit

A). Defendant further induces third parties to incorporate the Accused ‘210 Devices as components into additional products for various applications to be used in the United States, by, for example, providing datasheets, application notes, product briefs, and other collateral on their Internet website (<http://www.ixyspower.com>) available to U.S. customers. As disclosed in IXYS’s 2016 Annual Report, Defendant markets the accused products through advertisements, technical articles and press releases that appear regularly in a variety of trade publications, as well as through the dissemination of brochures, data sheets and technical manuals, knowing or have reason to believe that the products are intended to be sold worldwide, including the United States.

73. Defendant has been on notice of the ‘210 Patent and Defendant’s infringement of the ‘210 Patent by the Accused ‘210 Devices since, at least, January 14, 2015 via letter received by Nathan Zommer, Chairman and Chief Executive Officer of IXYS, and since, at least, April 7, 2015, via letter received by Mr. Zommer, which disclosed infringement by IXYS of the ‘210 Patent.

74. In view of Defendant’s prior notice of Plaintiff’s ‘210 Patent and its infringement thereof, upon information and belief, Defendant’s continued infringement of the ‘210 Patent has been and continues to be willful, and warrants the enhancement of damages awarded as a result of its infringement. In particular,

despite Defendant's prior knowledge of its infringement, Defendant has failed to stop infringing the '210 Patent.

75. Defendant is not licensed or otherwise authorized to make, use, import, sell or offer to sell any semiconductor devices encompassed by the claims in the '210 Patent, and Defendant's conduct is, in every instance, without Plaintiff's consent.

76. Defendant's willful infringement of the '210 Patent renders this an exceptional case within the meaning of 35 U.S.C. §285, justifying an award to Plaintiff of its reasonable attorney fees and costs incurred in connection with this litigation.

77. By reason of Defendant's infringing activities, Plaintiff has suffered, and will continue to suffer, substantial damages in an amount to be proven at trial.

COUNT V: INFRINGEMENT OF U.S. PATENT NO. 6,936,893

78. Plaintiff incorporates by reference the allegations set forth in the preceding paragraphs.

79. Defendant has directly infringed and is infringing literally and/or under the doctrine of equivalents, in violation of the §271(a) at least claims 1 and 2 of the '893 Patent at least during the period prior to the expiration of the patent by making, using, importing, offering for sale and/or selling the GenX4 XPT IGBT family of semiconductor devices, including but not limited to device model

numbers listed in Exhibit O (“Accused ‘893 Devices”), in this judicial district and elsewhere throughout the United States.

80. As a non-limiting example of Defendant’s infringement of the ‘893 Patent, set forth in Exhibit O-1, is a preliminary claim chart showing IXYS’s infringement of exemplary claims 1 and 2 of the ‘893 Patent by IXYS’s IXXH60N65B4H1 device. The IXXH60N65B4H1 device was analyzed using OM (Optical Microscopy), SEM (Scanning Electron Microscopy), and/or SCM (Scanning Capacitance Microscopy) imaging.

81. Upon information and belief, Defendant’s infringement of the ‘893 Patent by the IXXH60N65B4H1 device is representative of and proof of Defendant’s infringement of the ‘893 Patent by all of the Accused ‘893 Devices, including the entire GenX4 XPT IGBT family. The Accused ‘893 Devices comprise the same, or substantially similar, structural features pertinent to infringement of the ‘893 Patent. The Accused ‘893 Devices are binned under different product numbers within the GenX4 XPT IGBT family based upon different characteristics, including, without limitation, number of chips per package, IGBT thermal resistance, and IGBT packaging style.

82. Upon information and belief, Defendant has and continues to intentionally induce others to directly infringe in violation of 35 U.S.C. §271(b), and those actions are undertaken with the specific intent that they will, in fact,

induce direct infringement and with full knowledge that Defendant's products infringe one or more claims of the '893 Patent both literally and/or under the doctrine of equivalents. By way of example only, Defendant sells and delivers the infringing Accused '893 Devices to U.S. distributors including Arrow Electronics located in Plymouth, MI, Mouser Electronics located in Mansfield, TX, Digi-Key Electronics located in Thief River Falls, MN and others, and thereafter induces these distributors to sell and offer for sale the infringing products to customers in the United States thereby directly infringing the '893 Patent. Arrow Electronics, Mouser Electronics and Digi-Key maintain websites (arrow.com, mouser.com and www.digikey.com) available to U.S.-based customers that, as a result of Defendant's inducement, stock, sell, and offer for sale the Accused '893 Devices, including the IXXH60N65B4H1 device. (See e.g., Exhibit A). Defendant further induces third parties to incorporate the Accused '893 Devices as components into additional products for various applications to be used in the United States, by, for example, providing datasheets, application notes, product briefs, and other collateral on their Internet website (<http://www.ixyspower.com>) available to U.S. customers. As disclosed in IXYS's 2016 Annual Report, Defendant markets the accused products through advertisements, technical articles and press releases that appear regularly in a variety of trade publications, as well as through the dissemination of brochures, data sheets and technical manuals, knowing or have

reason to believe that the products are intended to be sold worldwide, including the United States.

83. Defendant has been on notice of the '893 Patent and Defendant's infringement of the '893 Patent by the Accused '893 Devices since, at least, January 14, 2015 via letter received by Nathan Zommer, Chairman and Chief Executive Officer of IXYS, and since, at least, April 7, 2015, via letter received by Mr. Zommer, which disclosed infringement by IXYS of the '893 Patent.

84. In view of Defendant's prior notice of Plaintiff's '893 Patent and its infringement thereof, upon information and belief, Defendant's continued infringement of the '893 Patent has been and continues to be willful, and warrants the enhancement of damages awarded as a result of its infringement. In particular, despite Defendant's prior knowledge of its infringement, Defendant has failed to stop infringing the '893 Patent.

85. Defendant is not licensed or otherwise authorized to make, use, import, sell or offer to sell any semiconductor devices encompassed by the claims in the '893 Patent, and Defendant's conduct is, in every instance, without Plaintiff's consent.

86. Defendant's willful infringement of the '893 Patent renders this an exceptional case within the meaning of 35 U.S.C. §285, justifying an award to

Plaintiff of its reasonable attorney fees and costs incurred in connection with this litigation.

87. By reason of Defendant's infringing activities, Plaintiff has suffered, and will continue to suffer, substantial damages in an amount to be proven at trial.

COUNT VI: INFRINGEMENT OF U.S. PATENT NO. 6,765,239

88. Plaintiff incorporates by reference the allegations set forth in the preceding paragraphs.

89. Defendant has directly infringed and is infringing literally and/or under the doctrine of equivalents, in violation of the §271(a) at least claims 10, 11, 16, 17, and 18 of the '239 Patent at least during the period prior to the expiration of the patent by making, using, importing, offering for sale and/or selling the HiperFET Power MOSFET family of semiconductor devices, including but not limited to device model numbers listed in Exhibit P ("Accused '239 Devices"), in this judicial district and elsewhere throughout the United States.

90. As a non-limiting example of Defendant's infringement of the '239 Patent, set forth in Exhibit P-1, is a preliminary claim chart showing IXYS's infringement of exemplary claims 10, 11, 16, 17, and 18 of the '239 Patent by IXYS's IXFH60N50P3 device. The IXFH60N50P3 device was analyzed using OM (Optical Microscopy), SEM (Scanning Electron Microscopy), and/or SCM (Scanning Capacitance Microscopy) imaging.

91. Upon information and belief, Defendant's infringement of the '239 Patent by the IXFH60N50P3 device is representative of and proof of Defendant's infringement of the '239 Patent by all of the Accused '239 Devices, including the entire HiperFET Power MOSFET family. The Accused '239 Devices comprise the same, or substantially similar, structural features pertinent to infringement of the '239 Patent. The Accused '239 Devices are binned under different product numbers within the HiperFET Power MOSFET family based upon different characteristics, including, without limitation, drain-source voltage, drain current, ON resistance, packaging style and thermal resistance.

92. Upon information and belief, Defendant has and continues to intentionally induce others to directly infringe in violation of 35 U.S.C. §271(b), and those actions are undertaken with the specific intent that they will, in fact, induce direct infringement and with full knowledge that Defendant's products infringe one or more claims of the '239 Patent both literally and/or under the doctrine of equivalents. By way of example only, Defendant sells and delivers the infringing Accused '239 Devices to U.S. distributors including Arrow Electronics located in Plymouth, MI, Mouser Electronics located in Mansfield, TX, Digi-Key Electronics located in Thief River Falls, MN and others, and thereafter induces these distributors to sell and offer for sale the infringing products to customers in the United States thereby directly infringing the '239 Patent. Arrow Electronics,

Mouser Electronics and Digi-Key maintain websites (arrow.com, mouser.com and www.digikey.com) available to U.S.-based customers that, as a result of Defendant's inducement, stock, sell, and offer for sale the Accused '239 Devices, including the IXFH60N50P3 device. (See e.g., Exhibit A). Defendant further induces third parties to incorporate the Accused '239 Devices as components into additional products for various applications to be used in the United States, by, for example, providing datasheets, application notes, product briefs, and other collateral on their Internet website (<http://www.ixyspower.com>) available to U.S. customers. As disclosed in IXYS's 2016 Annual Report, Defendant markets the accused products through advertisements, technical articles and press releases that appear regularly in a variety of trade publications, as well as through the dissemination of brochures, data sheets and technical manuals, knowing or have reason to believe that the products are intended to be sold worldwide, including the United States.

93. Defendant has been on notice of the '239 Patent and Defendant's infringement of the '239 Patent by the Accused '239 Devices since, at least, January 14, 2015 via letter received by Nathan Zommer, Chairman and Chief Executive Officer of IXYS, and since, at least, April 7, 2015, via letter received by Mr. Zommer, which disclosed infringement by IXYS of the '239 Patent.

94. In view of Defendant's prior notice of Plaintiff's '239 Patent and its infringement thereof, upon information and belief, Defendant's continued infringement of the '239 Patent has been and continues to be willful, and warrants the enhancement of damages awarded as a result of its infringement. In particular, despite Defendant's prior knowledge of its infringement, Defendant has failed to stop infringing the '239 Patent.

95. Defendant is not licensed or otherwise authorized to make, use, import, sell or offer to sell any semiconductor devices encompassed by the claims in the '239 Patent, and Defendant's conduct is, in every instance, without Plaintiff's consent.

96. Defendant's willful infringement of the '239 Patent renders this an exceptional case within the meaning of 35 U.S.C. §285, justifying an award to Plaintiff of its reasonable attorney fees and costs incurred in connection with this litigation.

97. By reason of Defendant's infringing activities, Plaintiff has suffered, and will continue to suffer, substantial damages in an amount to be proven at trial.

PRAYER FOR RELIEF

WHEREFORE, Plaintiff requests this Court enter judgment as follows:

A. That the '641, '515, '653, '210, '893 and '239 patents are valid and enforceable;

B. That Defendant has directly and indirectly infringed at least claims 11, 12, 16, 19, 21 of the '641 patent, claims 33, 34 of the '515 patent, claims 10, 11 of the '653 patent, claims 1, 2, 4, 6, 7 of the '210 patent, claims 1, 2 of the '893 patent, claims 10, 11, 16, 17, 18 of the '239 patent;

C. That such infringement is willful;

D. That Defendant account for and pay to Plaintiff all damages pursuant to 35 U.S.C. § 284 to adequately compensate Plaintiff for Defendant's infringement of the Patents-in-Suit, but in no event less than a reasonable royalty for the use made by Defendant of the invention set forth in the Patents-in-Suit;

E. That Plaintiff receives enhanced damages, in the form of treble damages, pursuant to 35 U.S.C. § 284;

F. That this is an exceptional case under 35 U.S.C. § 285;

G. That Defendant pay Plaintiff all of Plaintiff's reasonable attorneys' fees and expenses pursuant to 35 U.S.C. § 285;

H. That Plaintiff be granted pre-judgment and post-judgment interest in accordance with 35 U.S.C. § 284 on the damages caused to it by reason of Defendant's infringement of the Patents-in-Suit, including pre-judgment and post-judgment interest on any enhanced damages or attorneys' fees award;

I. That costs be awarded in accordance with 35 U.S.C. § 284 to Plaintiff;
and

J. That Plaintiff be granted such other and further relief as the Court may deem just and proper under the circumstances.

DEMAND FOR JURY TRIAL

Plaintiff hereby demands a trial by jury on all issues so triable in this action.

Dated: April 17, 2017

Respectfully submitted,

Kroub, Silbersher & Kolmykov PLLC

/s/ Sergey Kolmykov

Sergey Kolmykov (*Admission pending*)

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