

INTEGRATING THE LAW BEHIND INTEGRATED CIRCUITS IN INDIA

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Abstract

The paper primarily focuses on the law governing integrated circuits in India. This law illuminates the intellectual property rights behind these crucial components, without which technological advancements would be significantly hindered. Additionally, the paper explores the evolution of semiconductor law, the rights of design registrants under the Act, the extent of their protection, their conferred rights, and the remedies and punishments prescribed for infringement. It also draws comparisons between protections offered in the U.S. and India, highlighting unique features of the Indian legislation. The assignment and transmission of layout designs and associated penalties are extensively discussed. The paper comprehensively examines the rights and limitations of registered users, including the protections they enjoy and any restrictions on those rights. The safeguards under the Act are prominent, with the exceptions being of particular importance. Finally, the paper discusses recent government initiatives, schemes, and projects aimed at growing and developing India's semiconductor infrastructure.

Keywords: Semiconductor, Protection, Registration, Obligation, Liabilities.

1. Introduction

Do we ever wonder what makes our life so easy and smooth? Or rather, what is the first thing we look for when we step out to buy something from the market? The answer to it is simple. To make sure that what we buy makes our life easier and more convenient. Additionally, the trend that we, as the upcoming generation, which is entirely surrounded by technology, have seen is that we are constantly urged to upgrade ourselves with the best possible devices and gadgets. The exclusivity and uniqueness of a product are something we look for to meet our requirements, make our lives smooth, and be full of utility. To make the point in the context of integrated circuits and semiconductors, the author would like to delve further into the law that governs all that goes inside those

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gadgets that have made our lives so comfortable, but before that, we need to understand precisely what a semiconductor integrated circuit is?

In brief, it is the most essential unit in a large number of products like – mobile phones, wristwatches, washing machines, etc. The major need to protect the integrated circuits arises because as technology races, the need to get the machines to process the data faster and function better becomes ever more paramount. The demand to create layout designs that occupies less space, i.e., smaller in size due to decreased dimensions but increased functions, is growing tremendously. The reason behind the requirements for size reduction is that less material will be required to manufacture it, and less space would be required for it to be accommodated in any device. These designs, which are inculcated in the semiconductors, are called layout designs and are the outcome of creative human minds. This creative element is not just an outcome of intangible talent associated with the human mind but involves huge investments and resources. Therefore, when they are duplicated at lower prices, they cause substantial losses to the creator associated with that particular layout design. Hence, we will elaborately discuss the law in place to protect the interests of the creator of these designs.

2. Analysis

2.1. The Evolution of Law

U.S.A. provided the first-ever protection to semiconductor chips through the Semiconductor Chip Protection Act (SCPA) 1984, the impact of which was global. Japan introduced the Japanese Circuit Layout Rights Act (JCLRA) in 1985.¹ Further, to push ahead the efforts offering protection to the semiconductors, a treaty in the year 1989 was formulated, i.e., Intellectual Property in Respect of Integrated Circuits (IPIC Treaty) under the aegis of World Intellectual Property Organisation (WIPO), which is an agency of United Nations, headquartered at Geneva, with a primary mission to promote and protect the Intellectual Property Rights worldwide. This treaty was subsequently made part of the Trade-Related Aspects of Intellectual Property Rights (TRIPS) Agreement. India, being a member of the TRIPS Agreement, enacted The Semiconductor Integrated

¹ Soumik Chakraborty, “Rights under the Semiconductor Act, 2000”, *available at*: <https://www.lawctopus.com/academike/rights-semiconductor-act-2000/> (last visited on August 01, 2023)

Circuit Layout-Design (SICLD) Act in the year 2000. The compliance with TRIPS was under Article 35 to Article 38 of the TRIPS Agreement.

The Semiconductor Integrated Circuits Layout-design Rules came in year 2001. The Registrar and the Registry of Semiconductor Integrated Circuits Layout-Design were brought into force on 1 May, 2004. Even though the legislation was enacted, most of its sections like – Section 1(1), (2), 2, 3(2), 4, 6 to 31, 54, 56 to 92, 95 and 96, which grant protection to the creators of such integrated layout-designs came into force more than a decade later, i.e.-1 May 2011. It was essential to bring in new legislation for the protection of integrated circuits because the existing IPR laws lacked the stringency required for effective safeguarding.

It is important to note that an integrated circuit comprises a large number of pieces and elements that form a block, and each block formed as a result of such a combination is patentable. Hence, a patent claim for the same would be very complex and lengthy because drafting a patent claim for each element and, subsequently, the blocks would be very cumbersome, thereby making it an insufficient law for providing the necessary protection to the integrated circuits. The Designs Act, 2000 would be insufficient to deal with the integrated circuits, because this Act provides more of an “ornamental” protection as compared to “functional” protection, while the integrated circuits need more functional protection. Lastly, the Trade Secrets law governed by the Indian Contract Act would also fall short of granting the needed protection because of a process called – reverse engineering,² which is permissible and is in compliance with articles³ of the IPIC Treaty and TRIPS Agreement.

2.2. Safeguards Provided under the Act

The Act defines a ‘Semiconductor integrated circuit’⁴ as a product that consists of transistors, circuit material, and other elements formed over insulating material in such a fashion that it forms a unique layout under the definition of ‘layout-design’⁵, and

² Reverse engineering is the process of dissecting, analysing, and understanding a product, software, or system to uncover its design, functionality, or underlying technology. This practice involves deconstructing the object of study, often in a systematic and methodical manner, to reveal its components, algorithms, or manufacturing processes.

³ WIPO, TRT/WASHINGTON/001, Article 6(2)(b) of the IPIC Treaty.

⁴ The Semiconductor Integrated Circuit Layout-Design Act, 2000 (Act 37 of 2000), s. 2(r).

⁵ *Id.* at s. 2(h).

performs an electronic function. The Act provides protection to the ‘Registered Proprietor’⁶ of the layout design, wherein the layout-design is allowed to be used by the Registered User,⁷ who is permitted to use the layout design as prescribed under section 25 of the SICLD Act.

One thing that is important to note as we speak about protection, is the “registration” of the layout design that has been sought to be protected under the Act. The registration of the layout design has been made mandatory,⁸ in absence of which no protection can be offered to the creator of a layout design. The protection of 10 years has been prescribed in the legislation, for a layout design that is registered. The need for the registration of a layout design arose because of the rising “Chip Piracy”. It became very easy for people to understand the making of a chip design and then replicate it at lower prices, almost at half the cost at which it was originally made. This caused enormous loss to the original creator of these chips, which took tons of investment in all aspects, including – money, time, creativity, knowledge, and other material resources. Therefore, if a layout design is not registered, it will not provide any right to sue for infringement or recover the damages to the creator of the design.

However, after the design has been registered, there are multiple rights⁹ that the Act confers upon the registered person of that layout design. First and foremost, it is exclusive right to use such a layout design. Next, the protection which the Act confers upon the registered proprietor is exclusive to India, i.e., the Act provides for the protection of the layout design separately. To put it in other words, unlike the U.S.A., which provides for protection only when the layout design or the chip is embedded inside a product or a device. The law in India is, therefore, liberal and offers better protection in the sense that the design layout is protected even when it is not actually implemented in a device that uses such a chip with that particular layout design.¹⁰ The protection offered under the SICLD Act is two-fold: protection for the chip itself and for the product in which such chip has been embedded or fixed for use. For instance, if a new layout design has been created by the name ‘X’ and it has been incorporated into a wristwatch, named ‘Y’, in

⁶ *Id.* at s.2(o).

⁷ *Supra* note 4 at s. 2(p).

⁸ *Id.* at s.16.

⁹ *Id.* at s.17.

¹⁰ *Ibid.*

India, the protection is extended to both X and Y. Unlike in the USA, where protection will only be offered for Y.

When compared to the IPIC, the protection of the layout design in India begins from the date on which the application for registration of the layout design has been sought. However, this protection is subject to the restriction that the design was not commercially exploited. If it falls under the category of commercial exploitation for less than two years, the protection will be granted from the date when it was first exploited.

One crucial observation and point of law to keep in mind when seeking protection under the Act is that there is a difference between obtaining protection and enforcing such a right under the remedy of infringement. Even though protection is granted from the date of application or the date of first commercial exploitation, as the case may be, the claim for damages in case of any kind of infringement will ensue and be enforced only after registration. For example, if one files an application for registration in May 2022 and get the registration in August 2023, he or she will have protection from May 2022, but he or she will be able to sue for any kind of violation only from August 2023.

2.3. Procedure Further

The proprietor can approach the Registry¹¹ and get the design registered under the Act by fulfilling the requisites mentioned in the Act. The application¹² has to be filed keeping in mind the territorial limits, where the business is situated in India, and if the business is situated outside India, that place will be considered as territorial in India wherein the business mentioned it to be a place of service in the application. However, after the application is filed, it is upon the Registrar to suggest amendments¹³ and modifications as deemed necessary to further the registration process. But it is also possible that an application be completely rejected or accepted, subject to various conditions. The registrar will withdraw¹⁴ his acceptance if he finds that the layout design is striking the provisions that mention the grounds of prohibition¹⁵ in cases wherein the

¹¹ *Supra* note 4 at s.5.

¹² *Id.*, at s.8.

¹³ *Id.*, at s.12.

¹⁴ *Id.*, at s.9.

¹⁵ *Id.* at s.7.

layout design will not be registered if it falls in any of those. This can be done prior to registration, even when the application has been accepted. After the application has been accepted by the Registrar, it is necessary that within a period of 14 days, it gets advertised¹⁶ in the journal. If the correction or any kind of amendments¹⁷ are suggested to be done in the application, it will be made accordingly and shall be published again by the registrar in the Journal.

A privilege has been given to people to file their oppositions¹⁸ within a prescribed time frame of 3 months from the date of publication or re-publication in the Journal. Such opposition shall be made following the prescribed procedure.¹⁹ It is then the Registrar who has to serve the copy of the opposition notice to the applicant, who will then have to file a counter-statement within two months from the date of receipt of such notice, laying down the grounds for the defence. Failure to revert back to the opposition notice by the applicant will be deemed as if he abandoned his application. Subsequently, the person who filed the opposition will be served with a copy of the counter-statement, after which the evidence will be submitted by both the parties, i.e., the opposition and the applicant, and they will further be given an opportunity of hearing by the Registrar, if they desire. Any default in doing things in accordance with the prescribed procedure will lead to the opposition or application being considered abandoned. But after all of this procedure has been completed, the Registration²⁰ of the layout design will be done in the cases wherein – either the application was not opposed during the time frame or if it was opposed, the Registrar decided in favour of the applicant. A certificate containing the seal of registry will be issued to the registered applicant, subsequent to which it will be registered in the layout design register. However, in the situation when the layout design is not registered within 12 months from the date of application by any reason of default on the applicant's part, the Registrar may consider the application as abandoned after due notice has been served upon the applicant.

¹⁶ *Id.* at s.10.

¹⁷ *Id.* at s.12.

¹⁸ *Id.* at s.11.

¹⁹ *Id.* at s.11.

²⁰ *Id.* at s.13.

3. Decoding the Registration Process

3.1. Requirements for Holding a Layout Design as Original

One thing that is important to understand in the context of layout design is that it is a combination of elements and interconnections, with respect to which the knowledge already exists in the knowledge domain of the people, who are the creators and the manufacturers of such design. To ascertain the originality of any layout design, it is important to take the whole of the design as original or dissimilar.

To put it another way, the combination shall be taken as a whole, which shall be the result of the creator's own efforts sprouting from the intellectual thought. The layout design seeking protection should have distinct elements when compared to existing ones. When it comes to the comparison with the copyright Act, the idea of 'originality' is weaker in copyright, but the idea of 'novelty' is stronger in patents as compared to the SICLD Act. A unique feature of the Indian legislation on semiconductors is that of 'Inherent distinctiveness',²¹ which is exclusive. It is neither mentioned under the IPIC treaty nor under the TRIPS Agreement. There are two parameters upon which the inherent distinctiveness of the design can be ascertained, i.e.- Firstly, the 'Functions' performed by that Layout design should be distinct and new form those that are already there in other layout designs and secondly, the elements which are used in that layout design are 'Novel'. One example of a Novel element can be newly discovered or created alloys.

3.2. Requisites for Getting Registration of a Layout-Design

In the context of getting the registration of the layout design, it becomes very important to dig into the ingredients of section 7 of the Act. This provision specifically lays down the grounds which when it exists, prohibits registration of a layout design. The first one being the "originality" of a layout design. If a layout design is not original, or when the elements that are already known, when used in a design, taken as a whole to determine its uniqueness, is not original.

The second one is the commercial exploitation of a layout design. If a layout design has been commercially exploited anywhere in India or in any of the countries that are 'the convention', countries will not be registered as a layout design. However, it is

²¹ *Supra* note 4 at s.7(c).

subject to one exception: if the design has been commercially exploited for upto 2 years from the date on which the application for its registration was filed, it will not be considered commercially exploited for the purpose of this section. To put it simply, if the person doesn't exceed the time period of two years, if he's commercially exploiting the layout design that has been sought for registration from the date on which the application is filed, he will not be barred from getting such registration, as it will be deemed that he has not commercially exploited the said design. There exists a fine line between commercial exploitation and monetary gain. It is important under this section that the activity undertaken with respect to the layout design must be for commercial purposes irrespective of the fact that it was necessarily monetary in nature, i.e., it can be commercial in nature even when it is not attached to some monetary gain. The third ground that prohibits the registration of a layout design is when it is not "inherently distinctive," and the fourth one is its incapability to be distinguished from already existing and registered layout designs.

3.3. Assignment and Transmission of a Layout Design

This has been laid down in Chapter 5 of the Act. The Act defines both the assignment²² and transmission²³ of the layout design that has been registered. When the transmission or assignment²⁴ of a layout design has to be made, it has to be in writing and may either be with goodwill or without goodwill.²⁵ After the assignment of a layout design has been made to a person without the goodwill,²⁶ that person will have to, within a period of six months or subject to an extension for a further three months from the date of assignment of such design, will have to apply before the registrar for seeking directions with respect to the advertisement of such an assignment, and shall advertise in the way prescribed. Further, under section 23 of the Act, the person upon whom such layout design has been transferred or assigned has to, by an application with all the essential details, apply before the registrar for such assignment or transmission of the layout design to be entered into the register.

²² *Id.* at s. 2(b).

²³ *Id.* at s. 2(t).

²⁴ *Id.* at s. 20.

²⁵ *Id.* at s. 21.

²⁶ *Id.* at s. 22.

3.4. Registered User of a Layout Design

Section 24 allows the registration of a person as a registered user of a layout design, other than the registered proprietor of such layout design. Further, section 25²⁷ lays down the procedure that needs to be followed for getting the registration of the layout design to the registered user. Firstly, a joint application of the registered proprietor and the registered user shall be made in writing to the registrar in the manner prescribed in the Act and as directed by the Registrar. Secondly, this application must be accompanied by the relevant documents, including the necessary particulars like: a. agreement in writing that has been agreed and signed upon between the registered proprietor and the registered user, which states the “permitted use” of such a layout design, which has been sought for getting registered for the registered user and b. an affidavit has to be given by either the registered proprietor or the person authorised by such registered proprietor, containing – particulars of relationship which is existing or will come into existence between the registered proprietor and the registered user; degree of control that will vest in registered user for such permitted use; the number of registered users for that layout design; the restrictions, permissions and conditions imposed with respect to the permitted use of such layout design and the place of operations; the period of such permitted use with the registered user.

After all the requisites have been fulfilled, the registrar shall register the person as a registered user for that layout design, and in case there is more than one registered user, the registrar will notify them about the same. Under the provision of section 28, the Act also provides protections for the registered user, empowering them to approach the competent criminal court in cases of infringement 'in their own name' as if they were the registered proprietor. or the registered user, which in case of accurate disclosure would have led to a failure in getting the registration as a registered user; change in circumstances from the date of registration, leading to non-justification of the same on the date of cancellation; in case of a pre-existing contract which vested rights in the applicant, and the registration granted would not have been effected, having regard to such vested rights; when an application is filed by such registered user or on an application by any other person on the basis of specifications mentioned in the agreement (between registered proprietor and registered user) for the “topographical dimensions”

²⁷ *Id.* at s.25.

not being enforced or complied with; and when the layout design is not registered anymore.

The Act also lays down protections for the registered user under the provision of section 28, wherein the registered user has been empowered to approach the competent criminal court in the cases of infringement “in his own name” as if he were the registered proprietor. However, this protection is “subject to an agreement” between the registered proprietor and the registered user. It is also important to note certain restrictions placed on a registered user. Under section 29, the registered user is not permitted to assign or transmit the layout design.

The explanation to this provision clarifies that in the following situations, it will not be deemed that the registered user has either assigned or transmitted the layout design:

- a. when he as an individual has entered into the partnership for the purpose of business. Such a firm can use the layout design as long as the “registered user is a member of the firm”.
- b. when it is a firm that has been “reconstituted by way of change in its constitution”, such a firm can also use the layout design as long as the partner of the original firm, being the registered user, retains his partnership and continues to be a partner in the firm which has been reconstituted.

Under the SICLD Act, provisions²⁸ have been inculcated, wherein under “every proceeding in Chapter VII” of the Act, every registered user of a layout design shall be made a party to the proceeding irrespective of the fact that the registered user himself was not an applicant in that case. No cost will be levied on the registered user as long as he doesn’t participate in the proceedings or mark an appearance. This same provision is also applicable in the case of an appeal.²⁹

3.5. Exceptions

Certain exceptions have been provided for in the SICLD Act 2000. When any layout design is reproduced for any – scientific³⁰ purpose like – research, analysis, evaluation or teaching, it will not be considered to be an infringement of the layout design.

²⁸ *Supra* note 4 at s.79.

²⁹ *Id.* at s. 42.

³⁰ *Id.* at s. 18(2).

Another exception is the use by third parties when they are duly authorized by the government, in addition to the use by the Government.³¹ In situations like – public interest, national emergencies, extreme public urgency, remedying an anti-competitive practice, and any other action that needs to be taken for non-commercial public purposes to undertake an activity for the greater public good and uphold the welfare, the government can exploit the protected layout design without any agreement with such registered person, i.e., - registered proprietor, subject to appropriate compensation being paid to such proprietor. Another privilege provided to individuals creating layout designs for registration under the Act is 'Reverse engineering.' Reverse engineering is protected under the Act for limited purposes, such as ensuring “anti-competitiveness.” The legislature's intention can be attributed to the fact that investments are protected, and a pro-competition sentiment is promoted and endorsed to achieve growth and development in the field of semiconductors.

3.6. Liabilities and Penalties

Chapter 9 of the Act talks about the offenses and penalties. In case a person violates the provisions contained in section 18 of the Act, imprisonment³² for a term which may extend to 3 years or with a fine of not less than fifty thousand, extendable to ten lakhs may be imposed on that person or both i.e., imprisonment and fine may be imposed. Section 57 further talks about the penalty that will be levied in case a person falsely represents a layout design as registered; in this case, the person may be inflicted with imprisonment of upto 6 months, or fine of fifty thousand rupees, or both. Further, the punishment has also been mentioned in cases where a person improperly describes a place of business as being connected to the semiconductor integrated circuits and layout design registry.³³ However, immunity³⁴ has been granted to the “innocent buyer” of the chips that have infringed upon the rights of a registered proprietor when a reasonable royalty has been paid by such buyer to the registered proprietor. It is important to note that no civil damages are applicable under this Act, i.e., - injunctions, accounts of profits, or other damages. It is provided under section 60 of the Act that where any person is liable or is convicted under section 56 of the Act, the court has the power to direct the

³¹ *Id.* at s. 51.

³² *Id.* at s.56.

³³ *Id.* at s.58.

³⁴ *Id.* at s.18(6).

government to forfeit all the goods that infringed upon the rights of the registered proprietor or the registered user of such layout design. The court, at its discretion, may further order the forfeited goods to be destroyed.

4. Current Development in India and Recent Trends

The law on semiconductors in India was introduced well back in the year 2000; however, at that time, most of the provisions under the Act did not come into force³⁵ until 2014. When it comes to the application of these provisions provided under the Act, it has not been that vast because the emphasis of the government in India on the growth and development of the semiconductor industry in India started from the year 2019. Prior to October 2014, no applications were received by the Registry for registration of any layout design, thereby making the scope of the Intellectual Property law associated with it very limited and almost negligible.

Regarding certificates being issued, so far, only two certificates have been issued under the Act, i.e., the first one to the Indian Space Research Organisation (ISRO) on 24 May 2016 and the second one to Bharat Electronics Ltd. (BEL) on 20 January 2015. It is important to cite the statistics: even though India's consumption in the semiconductor industry will likely cross USD 80 billion by the year 2026 and USD 110 billion by the year 2030, India's reliance on semiconductor chips from the imports is very great.

Regarding current trends, the manufacturing capacity of some of the most advanced semiconductors, like nodes below 10 nm, rests with South Korea (8%) and Taiwan (92%). The foundries of ISRO and DRDO exist primarily for the fulfilment of their own requirements. The government took various initiatives from the year 2019 when it launched a National Policy on Electronics with an aim to encourage the development of core components like – chipsets. In the year 2021, the Indian Semiconductor Mission (ISM) was introduced which “earmarked an amount of INR 76,000 cr. for semiconductors & display manufacturing.” Further, INR 12,000 cr. was the financial support that was offered per fab.

³⁵ Semiconductor Integrated Circuit Layout-Design Act, 2000 (37 of 2000), s 1(1), (2), 2, 3(2), 4, 6 to 31, 54, 56 to 92, 95, 96 came into force on 01.05.2014. s 93 and 94 came into force on 15.01.2014.

Later in year 2022 SemiconIndia was also organised by Prime Minister Narendra Modi to encourage the companies globally to come and set-up their design, manufacturing and production units for semiconductors in India, so that technological advancement can be encouraged. In this current year, SemiconIndia 2023 was also organised, and many global leaders participated with great enthusiasm. On the recent visit of the Prime Minister to U.S.A., a major deal with Micron was signed to setup a manufacturing unit in the State of Gujarat. There are various companies like – Foxconn, Vedanta, AMD etc. with upcoming projects which they have announced.

5. Conclusion

From the analysis above, it can be seen that the law in India that deals with Integrated circuits and semiconductors is strong. It has its unique features and contains all the necessary safeguards that a creator of a layout design would require for seeking appropriate protection after he acquires the registration certificate in respect of that particular design. The Act grants protection for ten years, which is long enough to enjoy the protection, the requisite to that has been made, i.e., - the registration of such layout design. The requirement of registration as a pre-condition to enjoy the protection is a visionary provision to avoid any future discrepancies concerning the “prior use” or any other contention that may be brought forward by the person wrongfully seeking protection under the Act. The legislation is a strong one as it gives major protection to the “inherently distinctive” and original designs. On the other hand, it keeps in view the social aspect associated with the designs and innovations mentioned under the Act, i.e., - it creates an exception for the government and the entities authorised by the government to use the designs under compulsory licensing to elevate public welfare, remedy situations during emergencies and build a pro-competitive environment for all the entities operating in the market. Even though the legislation is in place, the actual litigation has not been under this statute. The reason for this is the lack of registrations received by the registry, which subsequently leads to declined innovation, which in turn does not cause disputes between the parties who have designs with similar features because, in the first place, there are no registrations with the registry. However, keeping in mind all the recent developments that have happened in the country this year, the registry will soon have design registrations, and the litigation will be ignited under the SICLD Act in the coming years to decide upon the questions of Intellectual Property Rights violations.