ShinDengen

New power. Your power.

Shindengen Electric Manufacturing Co., Ltd.
https://www.shindengen.com

CORPORATE PROFILE

ShinDengen

New power. Your power.

Solution

Our power to create new value helps our customers create new power

Competitive Advantage

Semiconductor device technology

Automotive electrical components

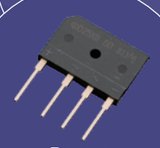
Circuit design technology

Product

PCU

Regulator

EV Chargers



Power semiconductor

Rectifier

Automobile

Two-wheeler

Industrial equipment

Home appliances

Impact

Reducing environmental impact

Reduction of CO_2 emissions

876,703t-CO_2

Reduction in electricity usage

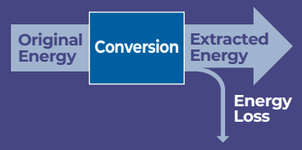
1630million kWh

Infrastructure

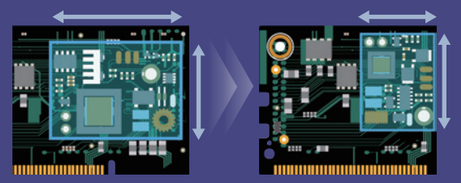
True innovation starts with power supplies

Smaller power supplies enable product innovation. Smaller power supplies can make batteries last longer and make products more efficient, smaller, and lighter. They can also make products of the same size more powerful, or quieter. A power efficiency improvement of just 1% can greatly increase the possibilities of a product.

More efficiently



More compact



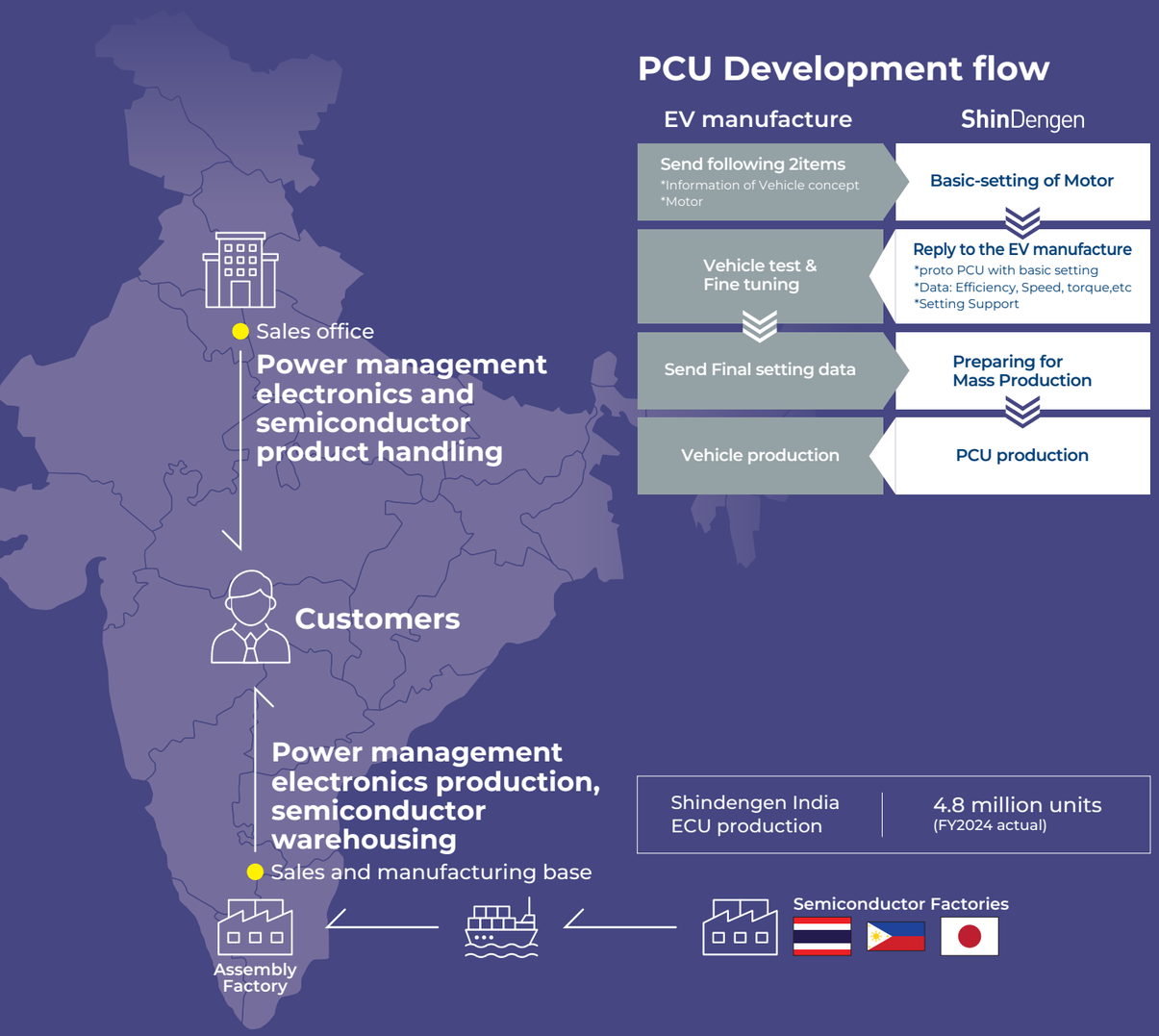
Solving customer problems with the power of technology.

Shindengen starts its product development by looking at the challenges of our customers. Experts in engineering, procurement, manufacturing, and sales work together to design optimal solutions. Aiming to realize a carbon-neutral world, we continue to provide true value with technological innovation that doesn't compromise.

Support system

A new product support system for the growing Indian market

Shindengen is focusing on India because it is the world's largest two-wheeler market and demand for power management electronics, our main products, is extremely high. We are also backed by the trust and technological capabilities we have built up over many years, including through joint development with local manufacturers. Further, India's rapid economic growth and government policies to promote EVs have increased the need for power semiconductors and chargers. We have positioned India as a strategic base for the Asian market as a whole. Therefore, we are building a second local factory to strengthen our production and supply capabilities



PCU Development flow

EV manufacture	ShinDengen
Send following 2items *Information of Vehicle concept *Motor	Basic-setting of Motor
Vehicle test & Fine tuning	Reply to the EV manufacture *proto PCU with basic setting *Data: Efficiency, Speed, torque,etc *Setting Support
Send Final setting data	Preparing for Mass Production
Vehicle production	PCU production

Shindengen India ECU production	4.8 million units (FY2024 actual)

TOPICS

Second factory in India to start operation in 2027

We began producing and selling products in India in 2001 through a joint venture with a local company. In 2012 we launched Shindengen India, a wholly owned subsidiary, in response to market expansion. In India we mainly manufacture regulators and engine control units (ECUs) for two-wheelers. In 2018, to meet the growing demand for two-wheelers, we increased the size of our factory by 2.5 times and started producing ECUs compliant with the Bharat Stage 6 (BS6) emission regulations. In 2023, we started production of the DU012 power control unit (PCU) for electric two-wheelers, providing products that contribute to environmental measures in India. To meet the needs of the ever-growing Indian market, we are also preparing to start operations at our second Shindengen India factory in 2027.

We provide solutions for EV system development by leveraging our knowledge of two-wheeler product development that we have cultivated over many years.

ECUs manufactured by Shindengen India, with in-house developed power semiconductors mounted inside.

Shindengen India manufactures control units, regulators, and ignition systems for two-wheelers, as well as inverter products for generators.

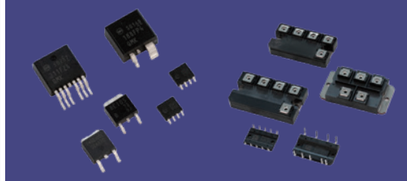
Powering the future of automotive in India

Shindengen delivers advanced power electronics for India's evolving auto sector, supporting hybrid, EV, and ICE vehicles. Our lineup—from ISG and FI controllers to rectifiers—is backed by in-house power semiconductor manufacturing. We provide reliable, efficient, and sustainable mobility solutions tailored to customer needs, helping partners thrive in a dynamic market.

Murali Dharan G,
Head, Sales and Business Development

Core technology synergies that bring new value to your product development capabilities

Power module, MOSFETs, etc.



Development of products with customized shapes, performance, and more

Performance test and feedback

DC/DC converter, PCUs, ECUs, etc.

Equipped with our own semiconductors developed in-house
Development of products that meet customer needs

Performance test and feedback

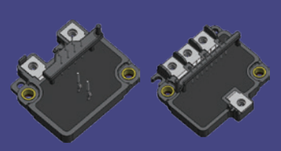
Two-wheelers, automobiles, etc.

Mass production support that meets customer requirements

CASE 1 Supporting product development with the synergies of our core technologies

Our specialized departments worked together to revise structure, materials, and module design and achieve DC/DC converters with high performance and high reliability

The result was the development of the MG033 and MG034 power modules. They are compact and offer heat dissipation, and are designed for DC/DC converters used in automotive applications. Through collaboration among multiple departments, we modularized discrete configurations and achieved smaller sizes, lower temperatures, and significant weight reductions. These high-value-added products contribute to the improvement of automotive performance.



Benefits of MG033/034

- Improvement in heat dissipation
- Miniaturization
- Process simplification

CASE 2 A new start with EV two-wheeler PCUs for an Indian manufacturer

Through close on-site support and trust-building, we achieved mass production together.

Shindengen and an Indian partner company worked together to develop the DU012, a PCU for electric two-wheelers. The DU012 is lightweight and compact but is also highly reliable and highly heat resistant, making it suitable for harsh automotive environments. Its design also achieves highly efficient power control and contributes to the reduction of environmental impact. We will promote the shift to EVs by building a framework for global cooperation, starting with the fast-growing Indian market.

Benefits of DU012

- Smooth acceleration and deceleration
- High reliability under high voltage and current
- Mass production ready and eco-conscious

Message from the project managers

Realizing great synergy benefits! The TW-77 DC/DC converter

Making the automotive modules smaller and improving heat dissipation were major challenges. Engineers from each department worked closely together and shared their knowledge to solve these problems. We will apply this technology to other products and deliver high-value-added products to more customers.

Takayuki Mochizuki
Senior Engineer

Hideki Nishimura
Senior Engineer

Message from the project managers

The story of the great struggle behind sales promotion of the DU012 for two-wheel EV in India

Working closely with our Indian partner was key to the development of the DU012. We utilized our different cultural and technological backgrounds to complete the project, and the first DU012 mass production lot was shipped in May 2023. Our global cooperation framework is a major force for increasing product quality and market adaptability. We will continue to use the strengths of global collaboration to develop new products.

Kento Zaitsu
Assistant Manager
Assistant Adviser/ Marketing

Koji Terashima
Senior Engineer

High current, high power

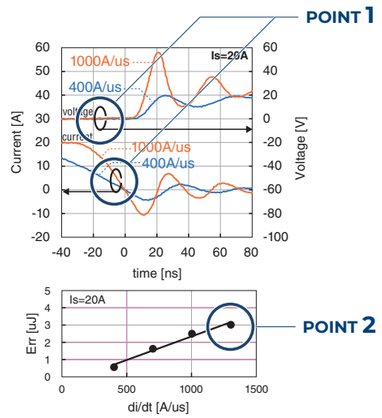
Power devices for high voltage and high current applications

We improve product performance by combining our core semiconductor, circuit, and mounting technologies.

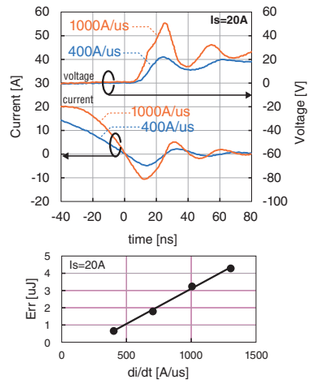
For power supply products, it is important to eliminate waste and reduce losses. This increases power output, reduces heat generation, and creates more space for heat dissipation measures, all without changing the external size. In turn, this enables smaller and lighter applications.

By making efficient use of limited energy, we contribute to the realization of a carbon-neutral world.

EETMOS6



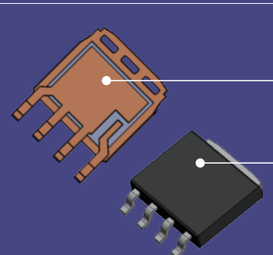
Company I



KEY POINT 1 Products from other companies for high-current (1 kA) applications show some waveform distortion, which causes energy loss. Our EETMOS 6 series, on the other hand, produces highly smooth waveforms, minimizing energy loss during switching.

KEY POINT 2 The higher the energy loss, the higher the point on the graph. As you can see, our EETMOS 6 series exhibits low energy loss, which reduces heat generation and energy consumption.

Technical advantages of EETMOS6



- Copper clips reduce inductance compared to wire connections, achieving low noise
- Gull wing shape (with LF package) and plating after lead frame cutting improves environmental resistance by 1.5 times (compared to other companies)

High quality, environmentally friendly

Thorough quality control and safety are our corporate social responsibility

The Shindengen Group obtained ISO 9001 certification for all its divisions in 1996. We subsequently acquired IATF 16949 certification, a quality management system specific to the automotive industry, and have established a quality control system based on global standards. We build long-term partnerships by providing quality that exceeds customer expectations.

In 2022, we also acquired ISO 45001, the international standard for occupational health and safety management systems.

Expanding globally with quality automotive products

In 2005, we launched the Vehicle Quality (VQ) Promotion Project for our power device products. Since that time, we have been building a system to ensure these products meet the quality requirements for automotive applications. Our efforts to improve our production lines, designs, and manufacturing quality have been recognized by such major Japanese Tier 1 automotive manufacturers such as Denso and Stanley Electric. We have since expanded these activities to include power management electronics, and have implemented them not only at production factories in Japan but also at Group companies around the world. In turn, this has improved quality throughout the Shindengen Group.

Shindengen India Receives Grand Award for QCDDM from Honda's Indian subsidiary

In fiscal 2024, Shindengen India received the Grand Award for QCDDM from Honda Motorcycle and Scooter India (HMSI), one of its major customers in India. The award is a comprehensive evaluation of quality, cost, delivery, and development.

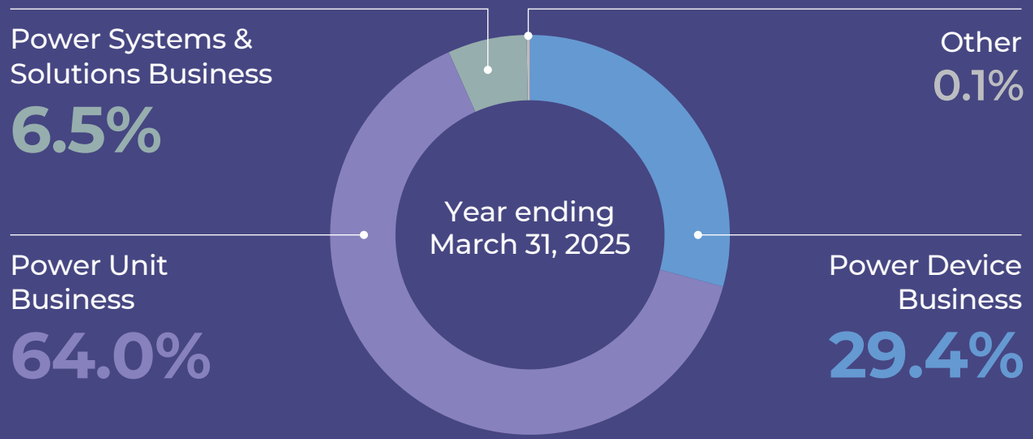
This award is given to HMSI's best supplier and only to one company each year. HMSI presented the award to Shindengen India because of the improvement activities we have implemented in many areas, including our Group's routine quality management as well as on-time delivery, product development that complies with regulations, and cost-improvement proposals.

These efforts have spread throughout the Shindengen Group. Our departments in charge of development, procurement, manufacturing, and sales work together in close cooperation to improve quality.

At a glance

An overview of Shindengen's core businesses, each boasting top industry market shares

Segment sales composition



Established

1949

Net sales

USD 707 milions*

Equity ratio

48.5%

Number of employees

5,251

Network

15 overseas facilities

12 domestic facilities

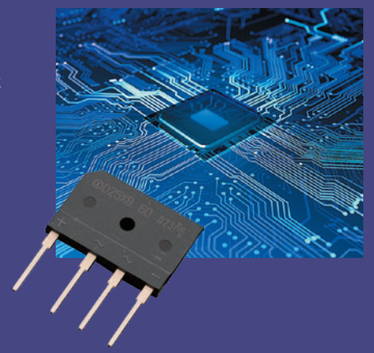
Sales by segment

Automotive: 70.2%

Industrial equipment: 9.2%
Home appliances: 9.0%
Communications: 8.0%

* Amounts in U.S. dollars are included solely for the convenience of readers outside Japan. The rate of ¥149.5= JPY to U.S. $ 1 USD, the approximate rate of exchange prevailing aton March 31, 2025 has been used in translation. The inclusion of such amounts is not intended to imply that Japanese yen have been or could be readily converted, realized, or settled in U.S. dollars at this rate or any other rate.

Power Device Business



Centering on power semiconductors, our Power Device Business offers products that seek to improve energy conversion efficiency. Under this business, we develop diodes, power MOSFETs, power ICs, and power modules that achieve high efficiency, high voltage resistance, and compact size. Its products contribute to the fields of automotive equipment, industrial equipment, home appliances, and renewable energy. Utilizing proprietary mounting technologies and new materials, we provide products that both reduce environmental impact and achieve high performance.

Main products **Diodes, power MOSFETs, power ICs, power modules**

Achievements **Top global market share for diodes** (according to Shindengen research)

Power Unit Business

Our Power Unit Business develops and manufactures power management electronics mainly for two-wheelers and automobiles. Under this business, we offer a range of products that support vehicle safety, comfort, and environmental performance, including engine and motor control units, as well as regulators and ignition systems. Of particular note, we boast the top global market share in power management electronics for two-wheelers. We are also focusing on the development of next-generation products in response to the shift to EVs and the advancement of automatic driving technology. In addition, we are developing EV chargers.

Main products **Two-wheeler ECUs/PCUs, regulators, ignition systems, automobile DC/DC converters, control units, generator inverters, EV DC quick chargers and AC chargers**

Achievements **Top global market share for two-wheeler power management electronics** (according to Shindengen research)

Power Systems & Solutions Business

Under our Power Systems & Solutions Business, we contribute to the increased use of renewable energy and the realization of an energy-efficient world through such areas as power supply equipment for telecommunications and equipment for solar power generation. We provide highly reliable products such as industrial power supplies and lithium-ion battery energy storage systems to support the stable operation of social infrastructure and factory facilities. We are developing energy solutions for a sustainable world.

Main products **Telecommunication station rectifiers, LiB energy storage systems, and inverters; high-voltage DC (HVDC) power supply systems; mobile communication base station rectifiers; monitoring equipment**

Achievements **Top Japanese market share for telecommunications power supplies** (according to Shindengen research)

Our history

Through technology, Shindengen has pioneered the times and created the future

1950’

1949
Shindengen Electric Manufacturing established

1955
Began sales of selenium rectifiers

1957
Released silicon semiconductors

1970’

1973
Released a series of unique products, including a compact water softener, an ultrasonic stain remover, and a foot-operated water tap

1980’

1986
Developed power MOSFETs

1987
Successfully commercialized power ICs

1996
Obtained ISO 9001 certification for all divisions; ISO 14001 certification in 1999

2000’

2002
Developed DC/DC converters for environmentally friendly vehicles

2010’

2011
Rushed to help restore communications infrastructure damaged in the Great East Japan Earthquake and contributed to disaster recovery efforts

2011
Began sales of the MH series, the world’s first multi-phase interleaved PFC ICs.

2017
Renewed corporate brand logo

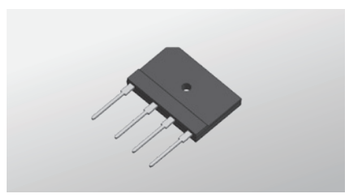
2018
Developed 90 kW EV DC quick charger

2019
Began mass production of P1FE90VX3 high-voltage MOSFETs for EVs

Shindengen products that provide value to society

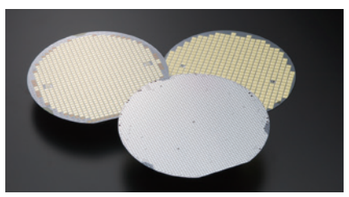
1976
Began selling regulators for two-wheelers.
These regulators were used to control lamp and battery voltage. They became a mainstay product with an 80% share of the global market at peak. Later, we developed power devices in-house and incorporated them into our regulators, enabling them to handle large currents.

1984
Started mass production of SIP bridge 3S and 5S packages.
Today, these packages are de facto world standards, and it was Shindengen who developed them. We later started mass production of 1F packages as well. We have long developed the world’s leading diodes.



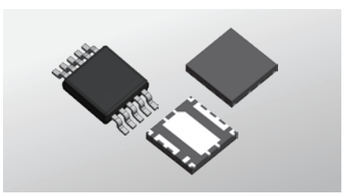
2004
We developed AC generator starter ECUs with FI control for two-wheelers. As air pollution problems have grown more serious in Southeast Asia, this product has become a mainstay in our power management electronics business and has contributed to the reduction of greenhouse gas emissions. Today, Shindengen produces more than 10 million units annually worldwide.

2005
We developed SiC Schottky barrier diodes, That use SiC, a new material, in place of silicon. SiC’s performance exceeds that of silicon and achieves high efficiency and high heat resistance. Since then, we have also engaged in research and development for next-generation devices using materials such as GaN and gallium oxide.



2010
In collaboration with an EV two-wheeler manufacturer, we created motor control units and other products. At the same time we created both AC and DC quick chargers for EV two-wheelers by combining automotive technologies from our power supply and car electronics divisions. The knowledge we accumulated through the development of these products is utilized in our current development of EV-related products, and we are taking steps toward the realization of a carbon-neutral world.

2023
We began sales of the MF2003SV ideal diode.
We developed Japan’s first ideal diode IC. Shindengen’s first automotive AEC-compliant IC, it achieves low dissipation and supports improved automobile fuel efficiency.



Shindengen Group philosophy

"Together with society, our customers, and our employees"

Maximizing energy conversion efficiency for the benefit of humanity and society.

New power, Your power

A power electronics company which creates environmentally friendly, cutting-edge solutions via innovativetechnologies, contributes to a sustainable society, and continues to be needed by all stakeholders

We believe that only by passing on a beautiful earth to the next generation can werealize a future of value, and will contribute toward achieving the goal of “decarbonization,” “a recycle-oriented society,” and “a society in harmony with nature.

Listen closely, look ahead, and create a future of value.

The Shindengen Group will actively promote ESG (Environment, Social and Governance) management as we pursue our corporate mission.
We will contribute to the realization of a sustainable society and strive to enhance our corporate value from a long-term perspective.

Compliance with legislation and other regulations, Respect of Human Rights, A healthy workplace environment, Our relationship with society

Brand Statement

New power. Your power.

Our brand statement expresses the wish that our power to create new value will lead to new power for customers.
“New” suggests cutting edge and a new viewpoint.
“Power” suggests energy efficiency, high performance, our challenge, and the driving force to grow our business.
“New power” also expresses our company name.
“Shin” means “New”, and “Dengen” means “Power” in Japanese.

Under our corporate mission, we will develop products that will help achieve a carbon-neutral world.

The global environmental protection movement is growing stronger. There is more demand than ever, for example, that energy resources be used effectively, and that measures be put in place to combat global warming. In the power electronics industry, the industry in which we operate, the need for higher efficiency has also continued to increase.

Since its establishment in 1949, Shindengen Electric Manufacturing has made the field of power electronics its main business. And in this field, we have used our unique technologies to develop numerous products, including power semiconductors, switching power supplies, and power management electronics, meeting the expectations and gaining the trust of customers around the world. We are a rare company. We develop products such as EV DC quick and AC chargers, power semiconductors for environmentally friendly vehicles, and DC/DC converters. We also possess technologies in the related areas of devices, circuits, and mounting. Going forward, we will continue to develop products that will help achieve a carbon-neutral world by combining, building on, and applying these core technologies. In addition, based on our corporate mission, we will strive to enhance our corporate value and further contribute to society through the realization of growth strategies and the relentless pursuit of business efficiency.

Nobuyoshi Tanaka
President