Products of the Sansha Electric Manufacturing Group That Support Society

Semiconductor business　Power supply business

The Sansha Electric Manufacturing Group supplies products that help stably supply electric power to support the foundation of society. Leveraging our advanced technological capabilities, we have been providing power conversion technologies and power supplies indispensable to industry and life in Japan and beyond.
Our products are in service in a wide variety of environments, including in general households, industrial equipment and key facilities, where they play essential roles in society.
We will continue to provide reliable products and technologies to help realize a sustainable society.

Roles and missions of products

Freely transforming electricity
The electricity generated by power plants and other facilities cannot be used as it is. It must be transformed.
There are roughly five different ways of transforming electricity. The Sansha Electric Manufacturing Group uses these transformation technologies to change electricity in the manner best suited to purposes of use of the power supply. We also use power control technologies to support society in many different areas.

1. **Converting direct current to alternating current**
2. **Converting alternating current to direct current**
3. **Changing the frequency of alternating current**
4. **Changing the voltage of direct current or alternating current**
5. **Changing the amperage of electric current**

What does “efficiently converting electricity” mean?
There is always a loss of electricity every time a power conversion occurs anywhere in the process from the generation of electricity at a power plant, through transmission lines and power supply circuits to the final use of electric appliances by consumers. To reduce this power loss, we are working to develop high performance power devices and high efficiency power supplies.

Lifestyles, medical care and entertainment

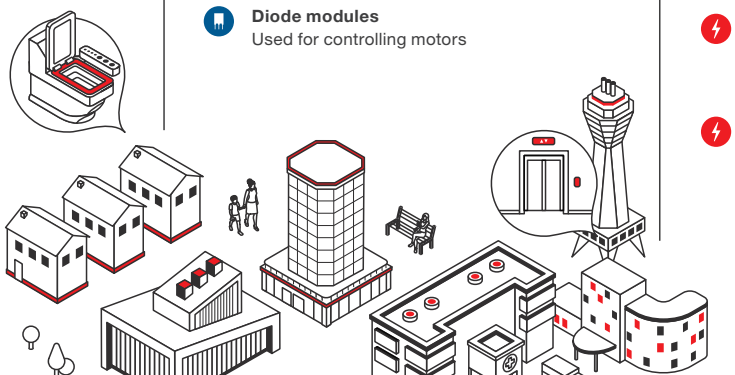
Movie theaters
Power supplies for projectors
Used for projecting images clearly onto a screen

TV studios, halls and stadiums
Power supplies for dimmers
Used for continuously dimming lighting

Home electric appliances and electric bidet toilet seats
Discrete semiconductors
Used for controlling heaters and motors

Medical equipment and ATMs
Small power supplies
Used for supplying stable power

Elevators
Diode modules
Used for controlling motors



General industries

Automobiles and smartphones
Power supplies for surface treatment
Used in plating for increasing the abrasion resistance and oxidation resistance of metal and other surfaces

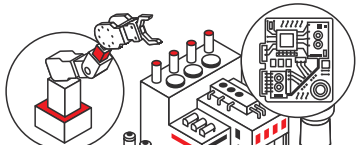
Manufacturing robots and welders
Thyristor and diode modules
Converting alternate current to direct current to protect electric circuits from overvoltage

Power supplies for welding and cutting
Used for welding and cutting steel sheets

Plant equipment for material processing and other purposes
SiC MOSFET modules
Highly efficient generation of high-frequency power in thermal processing and other processes to help reduce power loss and improve processing quality

Electric power regulators
Used to adjust the temperature of electric furnaces in glass processing plants and other facilities

Power supplies for aluminum foil processing
Used for electrochemical etching with the goal of increasing the surface area of aluminum foil

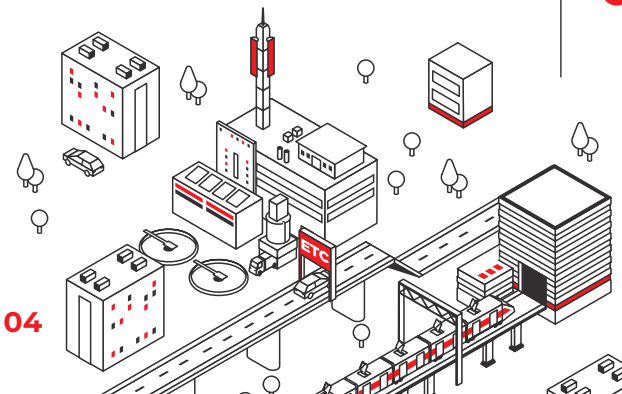


Infrastructure

Expressways, electronic toll collection (ETC) and railway stations
Uninterruptible power supplies and control power supplies
Maintaining the supply of electric power for a certain period of time in the event of a power failure to protect the operation of equipment and data

Electric rolling stock
Diode modules
Used in supplementary power supplies that supply stable voltage and frequency to lighting, air conditioners and other equipment in rolling stock

Water supply and sewage facilities
Power supplies for ozone generation
Used for generating ozone to decompose organic substances in water by applying a high voltage to induce an electric discharge



Energy and the environment

Hydrogen
Power supplies for water electrolysis
Used for supplying a stable electric current to water electrolysis systems to produce hydrogen

New energy
Power conditioners for fuel cells and for storage batteries
Converting electric energy stored in fuel cells and storage batteries and connecting to commercial power networks

Solar (PV) power generation
Power conditioners
Converting direct current power produced by solar (PV) power generation systems to alternating current and connecting them to commercial power networks

Diode modules for preventing backflow
Preventing the backflow of electric current from a storage battery or other device and the subsequent damage of solar panels

Power plants
Power supplies for seawater electrolysis
Generating sodium hypochlorite through seawater electrolysis to prevent marine life from attaching to plant water inlets

Fuel cells and storage batteries
Power supplies for testing and evaluation and charge-discharge products
Used in the testing and evaluation of the characteristics of a range of batteries and automotive equipment

Lithium-ion batteries
Power supplies for copper foil
Used to supply a stable electric current for electrolytic processes that produce copper foil used in lithium-ion batteries as an anode material