

Eco-products

NEC Electronics is committed to providing green products that are safe, harmless, and friendly to the environment, while also actively releasing environmental data related to our products. Our green products contribute to our customers' environmental solutions.

Green Product Creation

At NEC Electronics, green product creation involves applying ecological considerations at every stage from product procurement to production, and, finally, use by customers.

Electrical and electronic devices used by consumers consist of a variety of materials and parts. To ensure that these electrical and electronic devices are safe and have minimal impact on the environment, it is essential that ecological considerations are applied from the raw material and part procurement stage. As a components manufacturer, we have gradually made a shift from conventional to environment responsive business activities. Our environmental consciousness continues to grow; now we view the environment responsiveness of components we manufacture to be an element of product quality and make it a primary management objective at NEC Electronics.

Specifically, we strictly comply with the green procurement requirements of our customers who are manufacture electrical and electronic devices. At the same time, we ensure that banned substances are not contained in the materials and parts we purchase by requesting that our purchasing partners follow the green procurement guidelines we have formulated to govern our own voluntary efforts. We also conduct audits of our purchasing partners on a regular basis.

In terms of the product life cycle, particularly from the standpoint of environmental impact reduction during use, we contribute to the production of final products that consume less power by utilizing advanced process technologies to create system LSIs that integrate multiple functions on a single chip and by designing for low power consumption. We are also committed to disclosing information on the chemical substances contained in our products to ensure that consumers and equipment manufacturers can use our semiconductor devices with confidence.

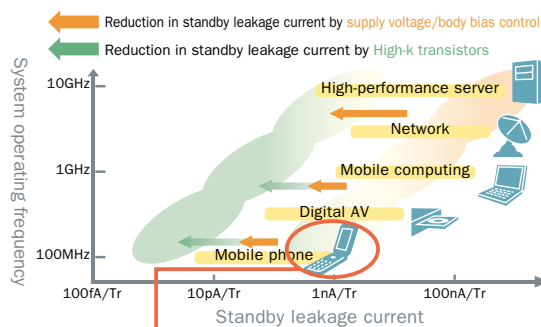
Small, Energy-saving Devices

We provide semiconductor devices with increasingly advanced functions and high-performance that help our customers build greener products.

New energy-saving technologies

Leading-edge electronic devices now under development faced the challenge of physical limitations resulting in greater standby leakage current. By modifying materials and circuit technology, we have developed new technologies that achieve a ninety-percent reduction in leakage current. The new technology will enable our customers to offer products with reduced standby power consumption and CO₂ emissions.

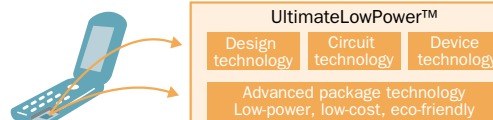
Examples of power consumption reduction



UltimateLowPower™
Brand new technologies enable LSIs with ultralow power consumption

A synergy of device, circuit, and design technologies achieves power reduction in 65nm/55nm generation LSIs

- Ninety percent reduction in power consumed in standby mode by conventional mobile phones.
- New technologies reduce power consumption in products ranging from highspeed digital consumer applications to low-end applications.
- Ultra-low power consumption can be achieved with the same ease as conventional cell-based LSI design.



TALK about ECO — Our environmental efforts



Toshiaki Torihata
Multipurpose
Microcomputer
Systems Division

We provide solutions that achieve a high dimension of energy-saving performance.

Air conditioners account for about 25% of the electric power consumed annually by households. The precise control made possible by microcontrollers is indispensable for achieving energy-saving product systems. Our microcontrollers are used by large numbers of customers in large numbers of product systems. We will continue to provide customers with optimal microcontroller solutions that enable them to provide increasingly energy-saving product systems.

The contribution of LSIs to IT products

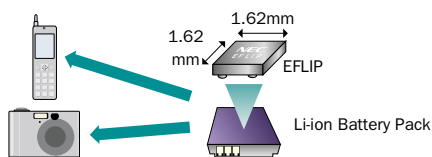
The NEC Electronics Group manufactures semiconductor devices that are smaller, contain more advanced functions, and consume

less power per functional unit and provide solutions that help customers produce energy-saving products.

Examples of LSI contributions

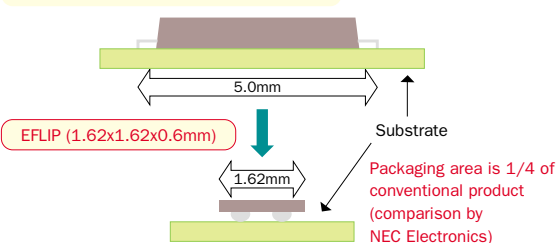
EFLIP* element for mobile-phone lithium battery protection

Compact package reduces packaging area



Before-after comparison

Conventional 6pinHWSON (5.0x2.0x0.8mm)

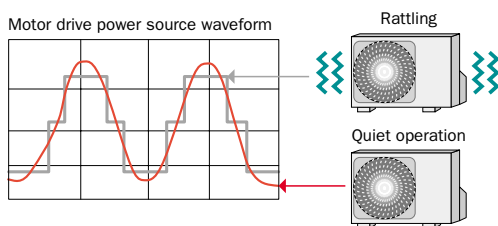
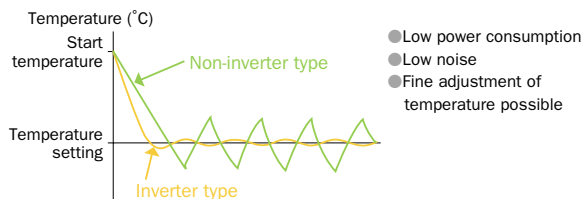


*EFLIP: Ecologically Flip chip MOSFET for Lithium-Ion battery Protection

32-bit microcontroller for inverter air-conditioner

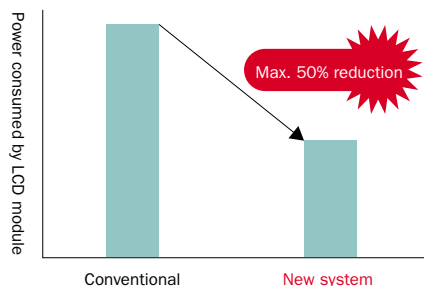
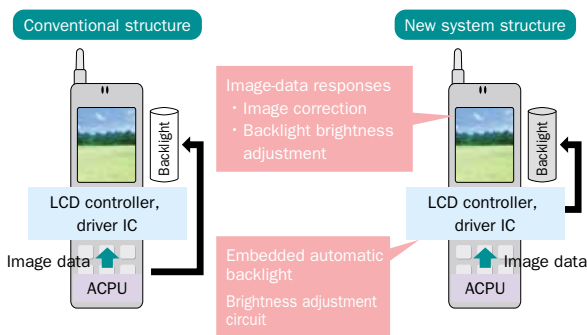
32-bit microcontroller provides fine-tuned control for highly efficient compressor motor

- Reduces unnecessary power consumption by minimizing high and low range of variation in room temperature setting.
- Saves energy by holding down motor drive power loss.



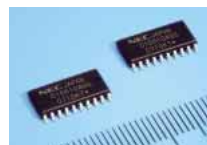
LCD controller, driver IC

Function for automatic adjustment of backlight brightness saves energy



Power IC for injector drive

Improved precision of fuel injection in automobile engines



- Industry's first 130V high-pressure fuel injection improves timing accuracy.
- Embedded circuit protects against current surges and over-heating to prevent destruction of output drive circuit when abnormalities occur.
- Two chips enclosed in one package make possible a compact engine control unit.

Reduces environmental impact by improving automobile fuel consumption and reducing exhaust gas.