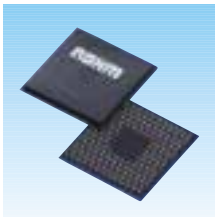
INTEGRATED CIRCUITS

Monolithic ICs

Mastering the art of design in LSI systems



With the growing demand for IT-related equipment and the widespread use of digital audio/video equipment, customer requirements for system LSIs are becoming increasingly complex.

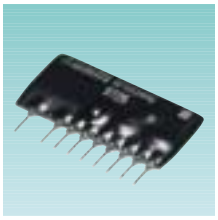
ROHM system LSIs are the product of the extensive expertise the Company has built up over years of successfully manufacturing custom-designed LSIs, as well as the advanced planning and circuit design capabilities of its engineers. At ROHM, we fulfill customers' system LSI needs with complete design support, from product planning through wafer manufacturing, mass production and packaging. We have mastered the art of designing advanced linear circuits that demand exceptional engineering skills, while also enhancing our lineup of analog and digital interface modules, and developing a variety of digital cores. We have also established proprietary low-power, low-noise circuit technologies. All the design tools at our design centers are automated.

Combining these technologies and tools enables us to achieve shorter production and delivery cycles for our custom-designed system LSI products.

Our REAL SOCKET design system, developed as an innovative solution to system LSI design challenges, is already being used to mass-produce system LSI products. REAL SOCKET enables us to meet customer needs for larger-scale integration, with greater speed and reliability than the competition.

Power Modules

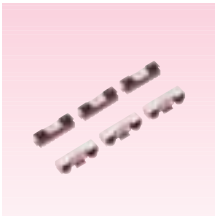
Power Modules make a Tremendous Contribution to Energy Conservation.



ROHM power modules, including AC/DC and DC/DC converters, are contributing to energy conservation and consequently to the prevention of global warming. In recent years, the trend toward low-voltage, large-current power supplies has accelerated, in tandem with the speed of microcomputers. Thus, demand is growing for extremely efficient power supply solutions. ROHM AC/DC converters meet the high-efficiency requirement. These miniaturized, lightweight power modules were developed by making full use of the Company's high-breakdown-voltage, high-speed switching circuit technology. Because they enable a substantial reduction in standby current compared with transformer-type products, ROHM AC/DC converters are enjoying popularity as the standard power supply IC for home appliances. Meanwhile, ROHM DC/DC converters are also achieving new levels of efficiency, miniaturization and safety. They feature a dedicated LSI that incorporates a speed-up circuit and wedge-shaped protection circuit, with reference voltage precision of ± 1%.

Photo Link Modules

Constant innovations in product miniaturization

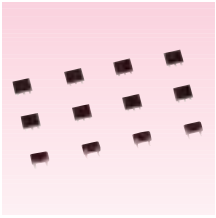


Innovative advancements in board real estate, power requirements, and cost efficiency have made infrared (IR) serial communications a leading data communications alternative for cellular phones, notebook computers, and personal digital assistants (PDAs). ROHM has had a leading role throughout this process by designing and building compact, low-power modules for infrared wireless data communications and photoreceptors in remote control units. Today, ROHM photoreceptor modules are used as infrared receivers in the remote control units in millions of household appliances such as color TVs and DVD players. Through a combination of capabilities; optical semiconductors (infrared LEDs and PIN photodiodes) developed in-house, dedicated sub-micron circuit design technologies, and micro-miniature assembly technologies, we have been able to supply IrDA and photoreceptor modules that have become constant innovations in product miniaturization and energy efficiency.

DISCRETE SEMICONDUCTOR DEVICES

Transistors

New energy-efficient solutions



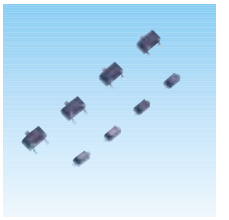
Many electronics manufacturing experts have concluded that traditional transistor designs waste energy, in both their manufacture and use. ROHM leads the industry in addressing the problem, developing and marketing new energy- and space-saving transistors that offer exceptional reliability and endurance. These transistors are available in thin, high-power packages and a variety of other configurations.

As it continues working to meet diverse market needs, ROHM is constantly pursuing innovative transistor solutions. For example, the Company recently released small signal bipolar transistors and MOSFETs in a micro-miniature VMT3 package (1.2 mm by 0.8 mm). This is the world's most compact device package, some 44% smaller in mounting area, at a height 30% lower than previously available transistors. The tiny size of these discrete components makes them ideal for use in portable equipment such as mobile phones, Internet appliances, personal digital assistants, and pagers. The new miniaturized MOSFETs offer low on-resistance and low saturation, thereby reducing power consumption.

ROHM is the largest producer of discrete transistors in the world. This massive manufacturing capacity enables us to provide these components on a very cost-efficient basis.

Diodes

Utilizing original component technology to develop advanced diodes

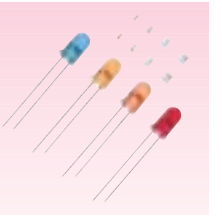


ROHM is honing its leading edge in the diode market by developing new products that help customers reduce the energy consumption of their end products.

Lowering energy consumption can be a difficult proposition with traditional diodes. To minimize the power drain in Schottky diodes, for example, both the forward voltage (VF) and reverse current (IR) must be reduced. However, this has been considered something of an internal contradiction, since attempting to lower VF usually causes the IR to rise. ROHM has resolved the problem with new sub-micron processing technology that makes it possible to maintain a low VF while also achieving large reductions in IR. These environmentally friendly devices have earned strong customer support in the switching regulator and protection circuit markets. ROHM has also moved ahead of the competition by producing and marketing PIN diodes housed in the world's smallest package, theVMN2 (1.0 mm by 0.6 mm), for the ever-expanding cellular phone market.

Light Emitting Diodes

Bright sources in energy efficiency

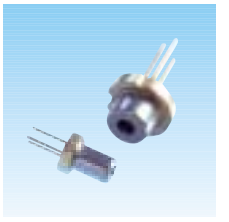


ROHM is one of the world's leading producers of both surface mounted LED and LED lamps. With our advanced compound semiconductor technology, we are able to design and develop packages fit for the needs of the time and our customers.

ROHM's LED line includes the bright LED series (from red to blue) incorporating our original four-element (AlGaInP) compound. These devices are offered in super-thin (1.6 mm by 0.8 mm; 0.4 mm in thickness), top-view, side-view, and back-mount packages. Through this diversity in product offerings, all encompassing higher reliability levels and advanced energy saving features, we maintain our leading role in serving the market demands.

Laser Diodes

Setting the worldwide standard in the optical disc market



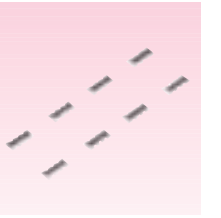
By strengthening its laser lineup with high-power infrared lasers for CD-R/RW and red lasers for DVD, ROHM has become the world leader in producing laser diodes for the growing optical disc drive market.

The DVD market is expanding rapidly, as DVDs replace videotape as the next-generation high capacity recording medium. Meanwhile, more and more personal computers come equipped with CD-R/RW drives, which use CDs as recording media. (CD-R/RW drives are already standard features in the latest PC models.) ROHM laser diodes are finding widespread application in the optical disc drive market generally, and the burgeoning DVD and recordable CD sectors in particular. As the world's largest producer of laser diodes, our manufacturing flexibility enables us to respond quickly to the increasingly diverse needs of the optical disc market as it shifts from playback-only to recordable models.

PASSIVE COMPONENTS

Resistors

Flexibility in production, the key to market leadership



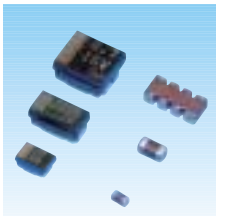
By building key manufacturing equipment in-house and developing highly automated production methods, ROHM has become the low-cost producer in the resistor market, while still boasting a larger share than any other company. With six production facilities worldwide, ROHM can assure high quality and stable supply in this sector.

Ultra-compact rectangular chip resistors and chip resistor networks, first developed by ROHM, are essential components for mobile phone handsets, PDAs, and other information technology equipment. To meet increasing demand, ROHM is increasing production of its recently released MCR006 resistor (0.6 mm by 0.3 mm), a powerful new addition to the conventional MCR series of chip resistors. The Company has also strengthened its resistor lineup by adding the PMR series of chip resistors for battery detection (1 mΩ and over) and the MHR series of high-precision chip resistors (± 0.1%).

ROHM continues meeting the challenges of the era and the needs of end users by offering stable supply, high quality and shorter delivery time with supply chain management.

Capacitors

Higher capacity for smaller products



ROHM multi-layer ceramic chip capacitors and tantalum capacitors have achieved high reliability, thanks to an exclusive cutting-edge automated production system, designed to assure quality stabilization. By successfully establishing production bases overseas, we have enhanced our ability to supply these capacitors to markets worldwide.

ROHM offers an extensive lineup of multi-layer ceramic chip capacitors, ranging from ultra-compact (0603-size) to large (5750-size) products, in response to the growing demand for surface mounting components.

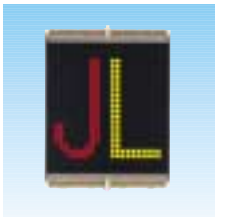
In addition, the Company is further developing miniaturized, larger-capacity tantalum capacitor products. Orders are increasing for ROHM M-case (1608-size) capacitors, designed for cellular phones and digital cameras. These 1608-size products are offered in ROHM's original chip-size packages, which combine the use of bottom and side electrodes to realize an ultra-low height of 0.8 mm.

To meet a wide range of needs, ROHM has also expanded its lineup of conventional tantalum capacitors with built-in open function by adding high-capacity C-case and D-case models.

DISPLAYS

Liquid Crystal Displays

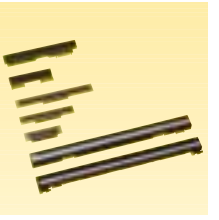
Improved visibility with Chip-On-the Glass



ROHM's COG (Chip-On-Glass) modules with driver ICs placed directly on the LCD panel are widely used in cellular phones, facsimiles, printers, and audio equipments. These are just a few examples of the products that drive the demand for compact and high-density displays. We have developed a microminiature, thin COG module for cellular phone sub-displays. This COG module, which eliminates the need for external components, enjoys a very favorable reputation in the market. We also supply color and monochrome large-scale graphics display units for use in a wide range of public arenas. In addition, our mosaic type LCDs suitable for displaying curved alphanumerical characters are used in destination boards in railroad stations, airports, and electronic information/bulletin boards in buildings. We have also responded to the growing population of the elderly in the Japanese society by developing panels that offer improved visibility in household appliances and products for these senior citizens and the sight-impaired in general.

Thermal Heads / Image Sensor Heads

Bringing innovation together for industry-leading performance



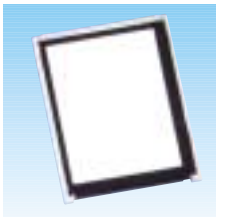
ROHM has considerable manufacturing experience in semiconductors, film forming, and optical technology. Each of these is a key element in the production of thermal print heads and image sensor heads, which in turn are essential components for POS (point-of-sale) system terminals and multifunctional imaging and printing devices. Thus, its technological strengths have helped ROHM maintain its leading position in the worldwide market for print heads and image sensor heads. Made with ROHM's proprietary LSIs and a ceramic substrate that ensures stable operation under high temperature conditions while producing only minimal dust, our thermal print heads and image sensor heads offer exceptional reliability.

To meet rising demand for higher speed mobile printers, we have developed the GP series of thermal print heads with operating voltages from 2.7V to 8.5V, designed for EFT-POS and mobile printer applications. The GP series enables 100 mm/s high-speed printing. We have also released the NE thermal head series for use in color photo printers. With only small variations in heating element resistance values, the NE series realizes prints comparable in quality to true photographs. The new ROHM thermal heads already enjoy great popularity in the market.

Targeting the ever-growing multifunctional device market, we have expanded our lineup of image sensor heads to include high-density 600 dpi and 1200 dpi contact image sensor heads with high-speed scanning capability, designed for flatbed scanners.

LED Displays

Excellent visibility without sacrificing energy efficiency



In addition to three-color displays, ROHM has developed full-color dot-matrix LED modules utilizing RGB emitters. Now the Company has begun supplying the LED units for use in public transportation (at train stations, for example), as well as in factory automation equipment. Providing a 1,024-level grayscale driver for each of the three colors (red, green and blue), these modules are capable of producing up to a billion colors. In addition to traditional message boards, the full-color modules are expected to find applications in large displays for video images and other graphics.

Custom LED backlight modules from ROHM are widely used in mobile phones in Europe and other regions. By taking advantage of our proprietary CAE system, which allows a flexible development approach, ROHM can quickly respond to the increasing demand for thin, lightweight, low power consumption backlight modules. A significant reduction in power consumption has also been achieved by the use of ROHM's high-intensity LEDs.