Innovations Embedded

ROHM
SEMICONDUCTOR

Product Overview

Integrated Circuits

Utilizing the most advanced circuit design and processes to develop innovative, next-generation system ICs.

ROHM uses its expertise in product planning and circuit design cultivated through years of manufacturing custom ICs and employs a uniform production system to ensure a steady, continuous supply of stable, high-quality products.

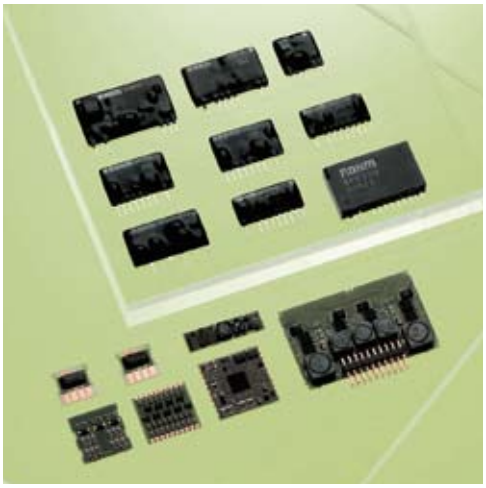
To meet the needs of next generation devices, ROHM develops analog and digital technologies to design innovative ICs such as MSDL serial transmission transceivers/transmitters for mobile phones featuring low power consumption and low EMI; voice synthesis ICs that provide high fidelity, CD-quality voice guidance functionality; sound source ICs that utilize ADPCM compression technology; and AIE (Adaptive Image Enhancer) video processing IC that adjusts the gradation of only specific (dark) areas of images in real time based on ambient light improving visibility.

Power Modules

In-house modularization of semiconductor and electronic components contribute to significantly reduced energy consumption and greater efficiency.

ROHM develops AC/DC converters with output ON/OFF functionality that minimize power during standby as well as units that supply the minimum power required by microcontrollers during non-operation. Reducing power consumption results in more efficient end-user applications and devices.

Technologies created through the development of AC/DC converters for the LED lighting market have contributed to the emergence of high-power LED drivers that supply the optimal current for driving next generation LED applications.

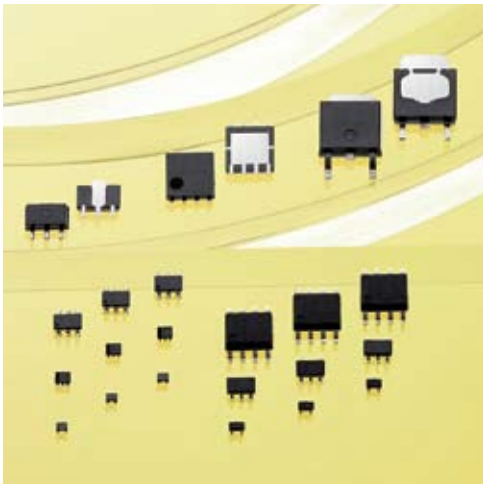


Transistors

ROHM transistors meet market needs through multiple package types and a stable, high-quality supply.

ROHM develops and manufactures transistors with energy saving, compactness and high reliability in mind such as the TCPT package - 50% thinner and featuring 50% more power than current CPT packages. Other types include the MPT6 with characteristics equivalent to the standard SOP8, but in a size smaller by one order of magnitude.

ROHM's MOSFET lineup includes high-speed, low ON-resistance, high voltage resistance models that increase the efficiency of AC power supplies used in thin panels and gaming, and high-power units are available for inverters in large LCD TVs. New products are always being added to the power transistor family such as IGBTs for thin TVs and MOSFETs capable of handling currents from 50 to 100A.



Diodes

ROHM's broad diode lineup is optimized to meet the needs of all types of electronic devices and applications.

In the power sector, ROHM develops Schottky diodes with high voltage resistance, low heat generation, low loss and high voltage resistance (400V-600V), while in the rapidly expanding car electronics market, ROHM offers bidirectional Zener diodes for ESD protection in LANs that decrease both the mounting area and number of components required. Ultra-low capacitance Zener diodes are also available for high-speed digital signals that provide ESD protection in the GHz range in HDMI devices requiring capacitances of 0.1pF or less.

ROHM's Schottky and Zener diode packages are among the smallest in the market (0603 size, 0.6x0.3mm) making them ideal for high density sets.

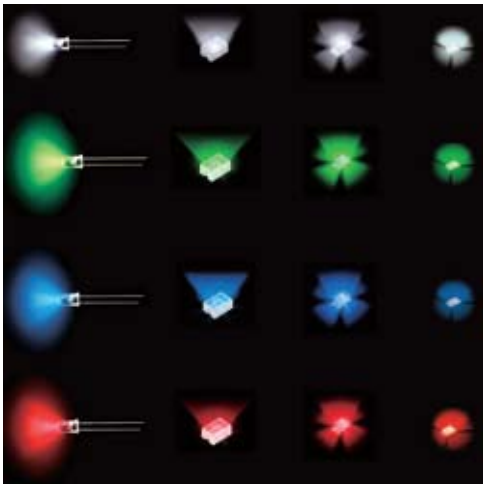
Light Emitting Diodes

ROHM LEDs utilize original semiconductor technologies and proprietary compounds making them among the smallest, thinnest and most energy efficient in the industry.

LEDs are becoming the preferred choice in an increasing variety of equipment due to their compact size and energy efficient operation.

ROHM offers LEDs utilizing a new 4-element structure (AlGaInP) in the industry's smallest, thinnest package (1.0x0.6mm, t=0.2mm) while maintaining the same level of brightness as their conventional 1608-sized counterparts.

LEDs currently under development include low voltage types optimized for increased energy conservation, multicolor phosphor products for LCD backlights and illumination, and ultra-high bright, high reliability units optimized for automotive applications.



LED Displays

From standard to custom modules, ROHM high brightness LEDs and components are incorporated into every display.

0.3-, 0.4-, and 0.6-inch LED numeric displays are available that incorporate ROHM's own high luminance 4-element LEDs (AlGaInP). Features include ten times the brightness of conventional products, low power consumption and high reliability. A broad selection of colors is offered making them ideally suited for all types of devices including household appliances and gaming devices.

In addition, ROHM offers dot matrix modules optimized for both consumer and public displays featuring 1024-step RGB color capability for natural, lifelike color.

Laser Diodes

ROHM utilizes the latest device and film technologies in order to produce laser diodes optimized for a diverse market.

In the laser printer segment, ROHM offers low-droop, high output (5mW-10mW) laser diodes that deliver faster speeds.

Internal frame materials and construction have been improved as well. The lineup includes both low and high output types produced with equipment developed entirely in-house resulting in high quality products.

Sensors

Innovative optical technology.

ROHM sensor products showcase the company's original design and development technologies. The lineup includes photointerrupters that incorporate actuators made from an array of materials (double layer mold construction type).

Photo Link Modules

ROHM IrDA and remote control receiver modules incorporate ICs and optical receiver/transmitter elements for greater compactness and higher speeds.

ROHM develops a high-speed (4Mbps) IrSimple IrDA module that can transfer data 60 to 100 times faster than conventional products while reducing the number of external components required.

Remote control optical receiver modules are available in a compact package that reduces mounting space by half compared with competitive products making them ideal for compact devices and high density sets such as video cameras, gaming devices and car navigation systems. In addition, stable light reception is ensured – even under direct sunlight (100,000lux when irradiated at an angle of 45° with respect to light emission).

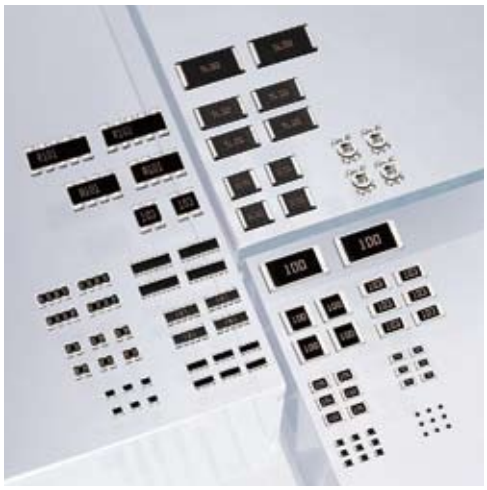
Resistors

ROHM, the chip resistor pioneer, continues to evolve to meet the needs of customers for high quality, short delivery times and stable supply.

For mobile phones, ROHM offers ultra-low resistance (10mΩ) chip resistors for current detection in the 1608 size (1.6x0.8mm) – the smallest in the industry.

Automotive applications require a high degree of reliability. ROHM meets this demand by developing high-reliability resistors capable of stable operation–even in severe environments–such as high-power, high-surge types utilizing original resistor elements, long electrode resistors that ensure high contact reliability, and units highly resistant to sulfuration.

In the digital equipment sector, ROHM offers compact 3-pin EMI filters that can handle high currents and are capable of suppressing noise over a wide band.

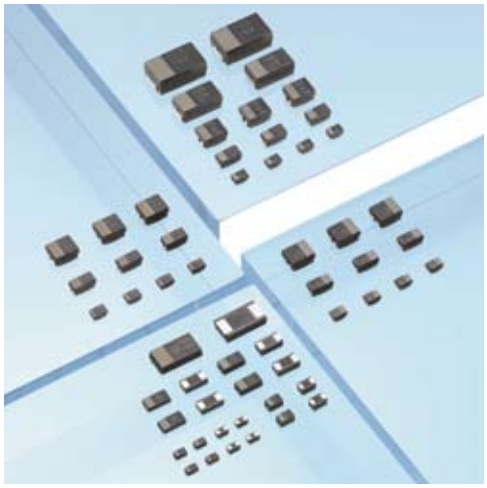


Tantalum Capacitors

ROHM provides high performance, compact capacitors for applications requiring high capacitance and low ESR.

Conductive polymer tantalum capacitors feature significantly reduced ESR and feature decreased risk of smoke and fire compared to conventional manganese dioxide units making them better suited for applications requiring high reliability and a high degree of safety such as optical storage and gaming devices.

A broad lineup of tantalum capacitors is offered, from compact (1.6mmx0.8mm), low profile (t=0.8mm) high capacitance (220µF, 4V) types featuring low ESR and an underside electrode configuration (TCT series) optimized for mobile phones and other compact applications, to large sized models (CL case: 6x3.2mm, t=1.4mm). Ultra-low profile (t=0.9mm) capacitors in the AS case size (3.2x1.6mm) are also available. Future products include even thinner, more compact capacitors with higher capacitance and lower ESR.



Thermal Printheads/Contact Image Sensor Heads

ROHM utilizes the latest thick-/thin-film, LSI and optical technologies to develop thermal printheads and contact images sensor heads tailored to market needs.

ROHM's SE and SH series of thermal printheads feature improved thermal efficiency, greater durability and higher speeds by adopting a unique step-free structure making them optimal for industrial equipment such as barcode labelers, and POS systems requiring high-speed printing and high reliability. ROHM also incorporates proprietary ICs capable of high-speed transfer (CG, CF, DG and DF series).

ROHM contact image sensor heads include models utilizing original optical design and resolution-switching sensor ICs originally developed for high-speed, high-resolution document scanners. Products under development include A4-sized models featuring maximum resolutions of 600dpi and 1200dpi as well as sensors compatible with a greater variety of scanning widths.

Integrated Circuits

EEPROMs
- Serial EEPROMs
- Memory for Plug & Play
- Serial EEPROMs for automotive

Clock Generators
- 3ch programmable clock generators
- Standard clock generator series

Voltage Detector ICs
- Standard voltage detector series

Motor Drivers
- H-bridge drivers for brush motors
- Reversible motor driver ICs for brush motors
- Stepping motor drivers
- DC brushless motor drivers for cooling fans
- System motor driver ICs for CD/DVD players
- System motor drivers for CD/DVD drives and recorders
- Single-chip lens controllers for digital cameras
- System lens drivers for digital and single-lens reflex cameras
- System lens drivers for mobile phone cameras
- Motor driver ICs for printers
- Motor driver ICs for MDs
- Motor driver ICs for tape recorder systems

Power Management ICs
- 78 series regulators
- CMOS LDO regulators for portable equipment
- Standard fixed output LDO regulators
- Standard fixed output LDO regulators with shutdown switch
- Standard variable output LDO regulators
- Secondary fixed output LDO regulators for local power supplies
- Secondary fixed output LDO regulators with shutdown switch for local power supplies
- Secondary variable output LDO regulators for local power supplies
- Monolithic switching regulators with built-in FET
- Large current external FET switching regulator controllers
- Power management switch ICs for PCs and digital consumer electronics
- High-performance regulator ICs for PCs
- Charge protection ICs with built-in FET
- Power management ICs for mobile phones
- System power supply ICs for mobile phone CCD cameras
- System power supply ICs for TVs
- Power supply ICs for TFT-LCD panels
- Regulator ICs for digital cameras and camcorders
- System power supply ICs for automotive electronics
- Power management ICs for automotive body control

LED/LCD Drivers
- LED drivers for LCD backlights
- System LED drivers for mobile phones
- STN-LCD drivers for mobile phones
- Drivers for large LCD panels
- LCD segment drivers

Sensor ICs
- Hall ICs
- Ambient light sensor ICs
- Compact, high accuracy temperature sensor ICs
- Capacitive sensor control ICs

Operational Amplifiers/Comparators
- General-purpose op-amps/comparators

Analog Switches/Logic ICs
- General-purpose CMOS logic ICs
- Serial-in/Parallel-out drivers

D/A Converters
- D/A converters

IT Equipment/Interface ICs
- Wireless LAN modules
- Front-end chipsets for DVD-ROM drives
- IC card interface ICs
- LVDS interface ICs
- MSDL (Mobile Shrink Data Link) transceivers for mobile phones
- IrDA controller ICs

Video and Imaging ICs
- AIE (Adaptive Image Enhancer) series for image correction
- Camera image processors for home electronics and security systems
- HDMI switch ICs
- Video/Audio interfaces for TV and DVD recorders
- Digital video encoders
- Compact video drivers for digital cameras and portable devices
- High-performance system video drivers
- High-performance video signal switcher series
- Video accessory ICs
- LCD timing control ICs
- Analog front-end ICs for image sensors
- Inverter control ICs for large LCD backlights

Audio ICs
- Wireless audio link ICs for FM transmitters
- FM radio one-chip ICs
- High performance Class D speaker amplifiers
- Ultra-compact headphone amplifiers
- Speaker/headphone amplifiers
- Hi-fi voice synthesis ICs
- USB host audio decoder ICs
- Sound processors for home theaters
- Sound processors for FPD TVs
- Digital sound processors for FPD TVs
- Digital sound processors for car audio
- Sound processors for car audio
- Sound processors for mini-component stereos
- Sound path selector ICs for mobile phones
- Melody sound source ICs for mobile phones
- Audio decoder ICs for mobile phones
- Audio interface ICs for digital cameras and camcorders
- Digital signal processor ICs for CD players
- Audio accessory ICs

Discrete, Passive, Opto, Module

Transistors

- MOSFETs (Small Signal/Medium Power/Power)
- Bipolar transistors (Surface mount/Leaded)
- Complex bipolar transistors
- Digital transistors
- Complex digital transistors

Diodes

- Schottky Barrier Diodes (SBDs)
- Fast Recovery Diodes (FRDs)
- Rectifier diodes
- Zener diodes (including TVS)
- Switching diodes
- High frequency diodes
- JEDEC and Euro standard diodes

Resistors

- Compact thick film chip resistors
- Thick film chip resistors
- Low ohmic thick film chip resistors
- High-power low-ohmic chip resistors
- Ultra-low ohmic chip resistors for current detection
- Anti-surge chip resistors
- High voltage resistance chip resistors
- High-power chip resistors
- Sulfur-resistant chip resistors
- Compact chip resistor networks
- Compact 8-element chip resistor networks
- Chip attenuators
- Chip trimmer potentiometers

Tantalum Capacitors

- Bottom surface electrode type (TC, TCT)
- Conductive polymer type (TCO)
- Conductive polymer bottom surface electrode type (TCTO)
- Fail-safe open structure type (TCFG)
- Standard type (TC)

EMI Filters

- Three-terminal EMI filters

Laser Diodes

- 660nm lasers
- 660nm/780nm dual wave lasers
- 780nm high-power lasers

LEDs

- Chip LEDs
- Through-hole LEDs

LED Displays

- High brightness LED numeric displays
- Standard LED numeric displays
- LED dot matrix displays

Optical Sensors

- Transmission-type photointerrupters
- Reflective photosensors (photoreflectors)
- 4-direction detectors
- Infrared LEDs
- Phototransistors

IrDA Infrared Communication Modules

- IrDA infrared communication modules
- Remote control receiver modules

Power Modules

- AC/DC converters
- DC/DC converters
- High-power LED drivers for illumination
- Custom modules

Contact Image Sensor Heads

- For document scanners
- For black and white copiers and fax machines
- For financial and traffic terminals

Printheads

- For facsimiles
- For mobile printers
- For gaming
- For POS terminals
- For ticket or scale printers
- For distribution or food labels
- For high speed packaging printers
- For photo printers
- For card printers

ROHM SEMICONDUCTOR

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For fifty years, our venture spirit and flexibility have kept us ahead of the technology curve and is what our customers expect.

The next fifty…

ROHM SEMICONDUCTOR

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