

Elmos Semiconductor & Rutronik

Innovative Automotive Solutions in Sensors, Motor- and Power Control



V1.0

elmos[®]

RUTRONIK COMPANY PROFILE

Rutronik Electronics Worldwide Your Broadline Distributor for Electronic Components

The Family owned distributor you can rely on

- Founded 1973 in Ispringen, Germany
- Leading distributor for Semiconductors, Passives, Electromechanical Components, Storage Technologies, Wireless Technologies and Lighting Solutions

Your Global Broadline Distributor

- 82 offices in 37 countries worldwide
- Identical support & service levels worldwide
- Third largest distributor in Europe
- 10th largest distributor worldwide
- > 30,000 customers worldwide
- 28 billion parts permanently available
- Second Source: Entire portfolio with alternative product sources
- Automotive Business Unit: A team of dedicated experts specialized in the support of our Automotive customers
- Over 250 franchised manufacturers

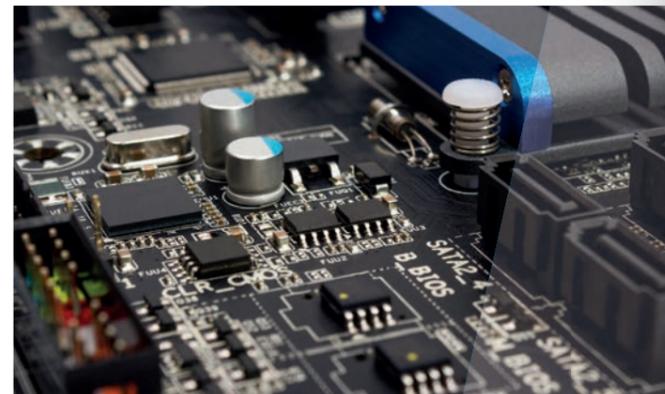
Rutronik Initiatives



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ELMOS COMPANY PROFILE

Semiconductor Company Setting Standards in Innovation



Worldwide Leading Products

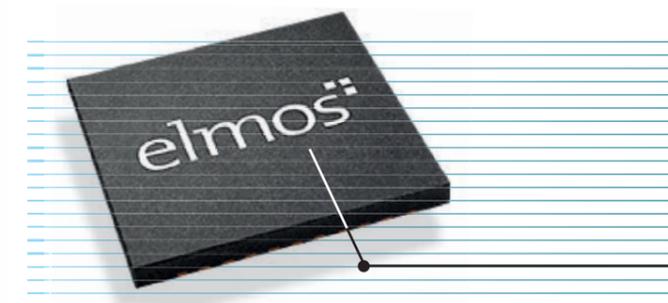
- Elmos serves megatrends (ADAS, EV...) and attractive niches with benchmark innovations
- Leading ICs with #1 positions worldwide: Ultrasonic ranging, climate control, gesture recognition, ambient LED Light, soon LED Rear-Light

Long-Term Experience in ICs

- Founded in 1984 in Dortmund, Germany, IPO 1999
- Broad expertise in analog mixed-signal integrated circuit design; sales ~85% Automotive
- Main strength: Deeply understand our customers application needs to create system innovation

Enabling Growth

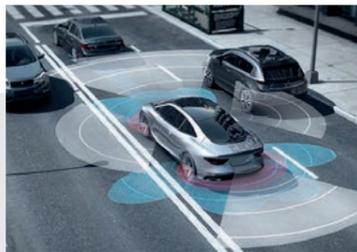
- Global player for automotive ASSPs and ASICs
- Specialized design and application experts; worldwide sales offices and application support
- Fablite approach: Flexible production strategy for wafer processing and test operations



INNOVATION MATTERS



SENSORS



RANGING



SENSOR ICs

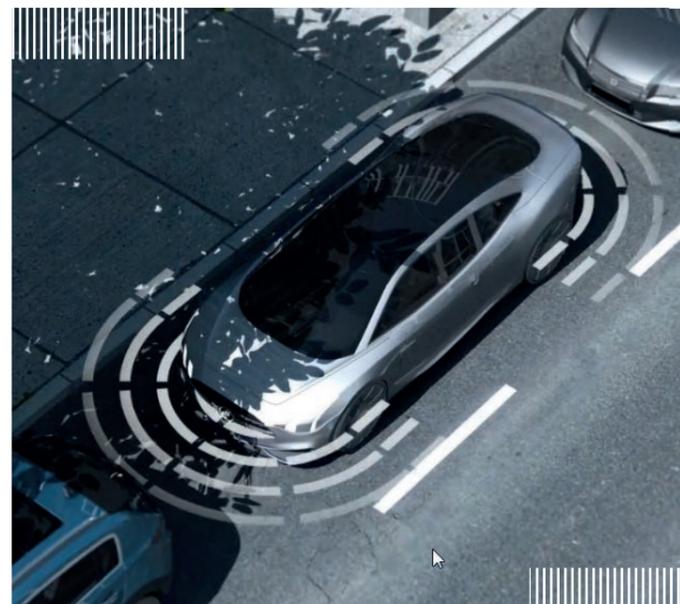


OPTICAL

PRODUCT SEGMENT RANGING

IC SOLUTIONS FOR ASSISTED AND AUTONOMOUS DRIVING

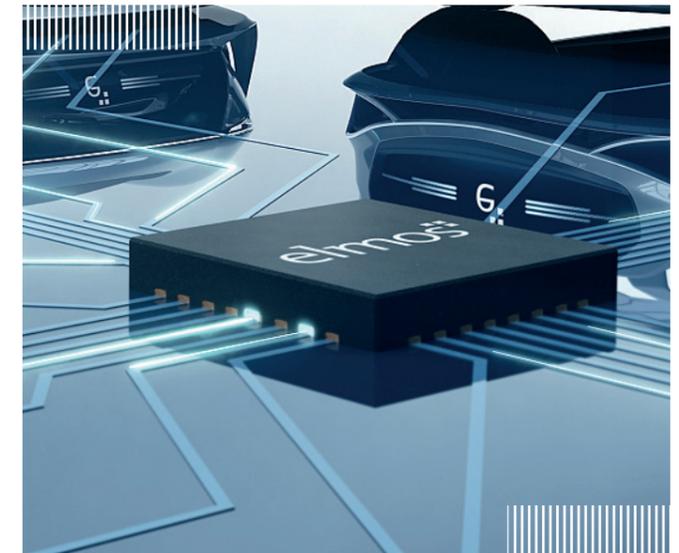
- Global market leader in ultrasonic ICs
- More than 1 billion ranging ICs in the field, broad ASSP product portfolio
- From most affordable (Direct Drive) to highest performance (ADAS applications)
- Enabling object localization, level- & flow-metering
- Several ultrasonic master ICs support latest system architectures



PRODUCT SEGMENT SENSOR ICs

BRIDGING THE PHYSICAL WORLD PRECISELY TO STANDARD ANALOG AND DIGITAL INTERFACES

- More than 15 years of experience in automotive and industrial sensing
- Benchmark IC solutions for sensing pressure, temperature, inductance, capacitance and magnetic field
- Portfolio of sensor signal processors
 - Supporting all standard sensor interfaces
 - Enabling functional safety applications
 - Lowest BOM cost at best performance



PRODUCT SEGMENT OPTICAL

TRANSFORMING USER EXPERIENCE

- Intuitive and robust: Pioneering in automotive gesture control with >50 million ICs in the field
 - Proximity and swipes
 - Object detection
 - Touchless door / trunk access
- Reliable and eco-friendly
 - Presence and motion detection
 - Rain and light sensing
 - Smoke detection
- Development of LiDAR key components
 - Highly efficient optical CMOS receivers
 - LiDAR read-out ICs
 - Best of class laser diode driver



INNOVATION MATTERS



SYSTEMS



MOTOR CONTROL



LIGHTING

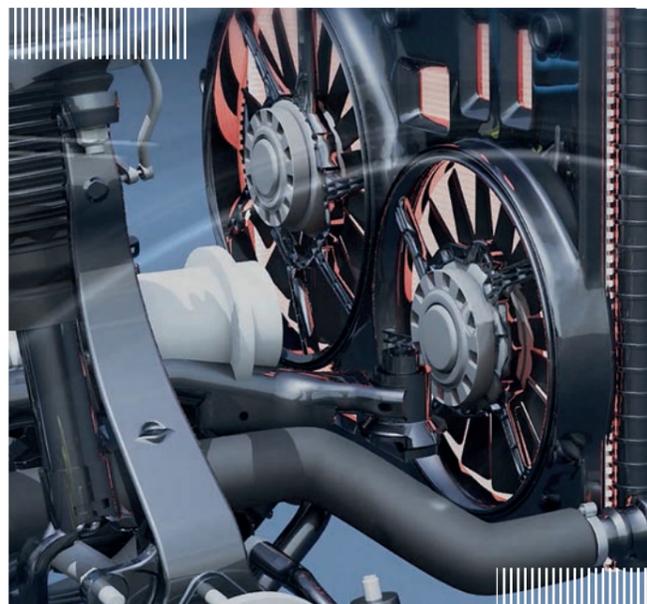


SAFETY, POWER,
CUSTOM ICs

PRODUCT SEGMENT MOTOR CONTROL

HIGHLY INTEGRATED MOTOR CONTROL ICs: BEST PERFORMANCE AND LOW SYSTEM COST

- Broad product portfolio for DC, Stepper and BLDC motors
 - Unique BLDC motor control family for 12V, 24V and 48V board net architecture for typ. 5W up to 3000W motors
 - Advanced motor control algorithms for sensor-less drives
- Innovative ICs for motor driven HVAC systems
 - #1 for smart HVAC actuators
 - >500 million ICs delivered
 - Benchmark for low noise and high efficiency



PRODUCT SEGMENT LIGHTING

IMPROVE COMFORT AND SAFETY FUNCTIONS

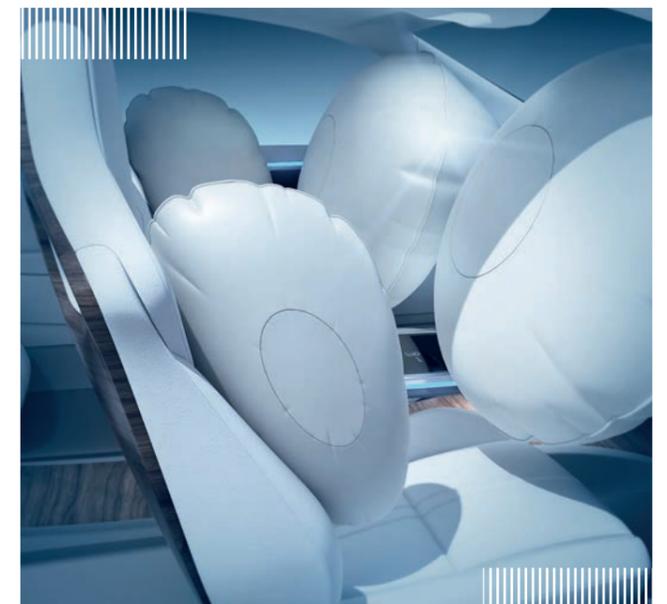
- #1 in ambient light control
 - >200 mio. LIN RGB controller ICs in the field
 - Auto-addressing easing module integration
 - Delivering homogeneous light output of any color over lifetime across temperature
- Elmos rear lighting solutions setting benchmark
 - Highest flexibility for dynamic individual LED control using multichannel operation
 - Brightest LED lighting by best-in-class thermal management technique
 - Constant light intensity at high temperatures
 - Interface scalability and diagnosis for functional safety



PRODUCT SEGMENT SAFETY, POWER, CUSTOM ICs

RELIABLE IC SOLUTIONS FOR DEMANDING APPLICATIONS

- >20 years experience in developing passive safety system ICs (up to ASIL-D)
 - Highly integrated companion chips enabling reliable airbag control units
 - Multi-channel PSI5 transceivers to connect peripheral sensors to the ACU
- Application specific power supplies
 - Automotive USB power supplies
 - Power supply for antenna modules
- Comprehensive in-vehicle network portfolio
- Smart power solutions enabling vehicle electrification (e.g. e-fuse driver)



RUTRONIK INITIATIVES

RUTRONIK AUTOMOTIVE

Body & Convenience

Drive Train

Chassis & Safety

Connected Car

eMobility

Consulting

Discover Innovation in Motion
AUTOMOTIVE Products

RUTRONIK **AUTOMOTIVE** offers innovative products of leading manufacturers for the automotive industry. RUTRONIK **AUTOMOTIVE** brings together entire solutions for the following topics:

- Body & Convenience
- Drive Train
- Chassis & Safety
- Connected Car
- eMobility
- Consulting

More information:
www.rutronik.com/automotive

RUTRONIK EMBEDDED

Wireless

Boards & Systems

Displays

Storage

Combine Technologies
Realize **EMBEDDED** Designs

RUTRONIK **EMBEDDED** will provide specific support to manufacturers of machines with focus on professional and robust applications:

- Digital Signage
- Industrial Control
- Medical
- Transportation

More information:
www.rutronik.com/embedded

RUTRONIK POWER

Industrial

eMobility

Home Appliance

Efficient. Robust. Scalable.
Design your Ideas

RUTRONIK **POWER** brings the latest knowledge, scalable solutions and efficient support for innovative power electronic components together – not only in the focus markets:

- Industrial
- eMobility
- Home Appliance

More information:
www.rutronik.com/power

RUTRONIK SMART

Sensors

Wireless

Security

Cloud

Discover the Internet of Things
Design **SMART** Products

RUTRONIK **SMART** offers a new range of bundled hardware, software and services. RUTRONIK **SMART** brings together entire solutions to build applications for:

- Health
- Home
- Retail
- Tracking

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