



Elmos Semiconductor SE ESG/Sustainability strategy

Section: ESG product matrix and product contribution

Coverage: Elmos Group

Supported UN SDGs:



Addressed GRI Standards: 2-1, 2-6

ESG product matrix

Elmos products make a major contribution to greater environmental protection and efficiency, health and safety, as well as comfort and well-being. As the Elmos ESG product matrix shows, the majority of Elmos products can be used for multiple purposes simultaneously. An analysis of our product applications shows that more than 72% of Group sales make a substantial contribution to increased **environmental protection and higher efficiency**. More than 76% enhance **safety and health** in road traffic, at home, or in industrial processes. In addition, more than 56% of sales increase the **comfort and well-being** of end consumers. For the purposes of this sales analysis, all applications with a high or medium impact are considered to make a significant contribution, while applications with a low or no impact are not considered.

		Contribution to increased		
		environmental protection and efficiency	safety and health	comfort and well-being
Automotive				
Application	Airbag	low	high	low
	Ambient lighting	medium	low	high
	Exterior lighting	medium	high	low
	Motor control and thermal management	high	medium	medium
	Optical ICs (including gesture control)	-	medium	high
	Power management (including eFuses)	medium	low	low
	Sensor ICs (including battery management)	medium	medium	low
	Ultrasonic sensors for environment detection	low	high	high
Non-automotive				
	Industrial automation	medium	medium	-
	Smart home	high	medium	high

In other words, Elmos semiconductor solutions are already making our world greener, safer, and more comfortable. In future, we plan to align our product portfolio and the development of new semiconductor applications even more closely with sustainability and climate protection so that we can provide additional innovative solutions that substantially reduce greenhouse gas emissions – up to climate neutrality – in our product segments.

Product contribution: Environmental protection, safety, comfort

Elmos has been developing semiconductor solutions that improve people's lives for 40 years. As one of the world's most experienced analog mixed-signal semiconductor companies, we have gained a leading role in many application fields and continuously develop smart innovations that deliver added value to our customers and end consumers.

With our innovative products we are shaping the mobility of the future and make the world safer, more comfortable, and more sustainable.

Automotive applications (percentage of sales in FY 2022: 89%)

As a specialist for forward-looking vehicle applications, our ICs (integrated circuits) offer outstanding solutions to the challenges arising from the global automotive megatrends and enable the use of intelligent electronics in modern vehicle architecture. Elmos' innovative product portfolio supports autonomous driving, is an important component of modern advanced driver assistance systems (ADAS), improves environmental protection through lowconsumption or emission-free drive concepts, and increases the safety, comfort, and well-being of drivers and passengers.

Ultrasonic sensors for detection of surroundings

For maximum comfort and safety in advanced driver assistance systems (ADAS) and in autonomous or semi-autonomous driving, Elmos ICs for ultrasonic sensors are indispensable because they enable the precise detection of the vehicle's environment.

Measuring distances and detecting the environment using ultrasonic sensor ICs is a long-time proven, reliable, and highly efficient key technology. As a market leader, Elmos has already delivered more than 1 billion ultrasonic ICs worldwide.



Elmos ultrasonic ICs support advanced driver assistance systems through precise detection of the environment at close range of up to six meters and at low speeds, for example in urban areas or in slowmoving traffic on the highway. Ultrasonic systems are exceptionally reliable and work in any light or weather conditions. They are also highly versatile thanks to their compact design, as well as costeffective. Sensors using Elmos ultrasonic ICs can detect obstacles, pedestrians, cyclists, or animals. In emergency situations, automated systems often react far more rapidly than humans and can therefore prevent accidents or at least reduce the impact, for example with emergency brake assistants. What's more, the potential of this widely sed, tried-and-tested sensor technology is far from exhausted, as the systems will have to perform at an even higher level as autonomous driving becomes more widespread. One example of our work in this area is the development of the latest generation of ultrasound sensors with AI-based support. This pioneering technology enables even more precise detection of vehicle surroundings practically in real time, while at the same time minimizing interference signals from objects such as cobblestones. This allows obstacles to be identified even earlier and more accurately than before.

Parking systems equipped with Elmos ICs allow drivers to park without stress or additional assistance in almost any parking space, thus helping to prevent damage to vehicles and infrastructure. Advanced systems featuring ultrasonic technology detect parking spaces and take over parking and exiting operations fully automatically, even in the smallest of parking spaces, regardless of whether the space is perpendicular or parallel. This allows parking spaces to be used efficiently and significantly reduces urban parking traffic.

Ambient lighting

Up to now, interior lighting has only served to illuminate the interior of a car in a functional way. New dynamic ambient lighting concepts with the help of Elmos ICs develop the lighting experience further, create emotions, increase the comfort and well-being of the occupants, and warn in time of potential dangerous situations.

Ambient lighting concepts with Elmos LED controllers make it possible to illuminate the interior, dashboard, center console, doors, or headliner in almost any shape, color, and color temperature completely individually. Using LEDs can significantly increase energy- and cost-efficiency.

LEDs save up to 80% in energy compared to traditional light bulbs and have a significantly longer life. They also contain no toxic chemicals, can be recycled, and are therefore considered very environmentally friendly.



Ambient lighting

Exterior lighting

Elmos semiconductors for vehicle rear lights set new standards for very bright and consistent light intensity combined with simultaneous low energy consumption.

Compared to conventional light bulbs, LED rear lights reach maximum brightness far more quickly, which can reduce the reaction time for the following traffic, especially when braking, which, in turn, reduces the braking distance.

In addition to higher safety standards, Elmos LED rear light drivers also open up a wide range of possibilities for vehicle makers to design a striking and dynamic vehicle rear section. Advanced LED rear light concepts combine extensive design freedom with high levels of functionality and energy efficiency. Elmos LED rear light controllers therefore increase traffic safety and reduce greenhouse gas emissions.



Exterior lighting

Airbags

In addition to active assistance and safety systems, passive safety systems such as airbags also significantly increase the safety of vehicle occupants. Elmos airbag ICs enable the airbag control unit to inflate airbags in a fraction of a second in the event of a front, rear, or side-impact collision, or to activate restraint systems such as the seatbelt tensioner.

Vehicles have been fitted with airbags since the 1980s and since then they have prevented serious injuries and saved the lives of countless people. Some modern vehicles are fitted with up to 30 different airbags to provide occupants with the best possible protection in the event of an accident.



Airbag

In fully autonomous driving, the possible applications and number of airbags will continue to grow in the future because the different postures and adjustable seat angles in a self-driving car would mean that conventional restraint systems such as the three-point safety belt would only provide insufficient occupant protection in the event of an accident.

Elmos ICs do more than provide better protection for vehicle occupants. Special pedestrian airbags soften the impact that a pedestrian or cyclist has on a vehicle and significantly reduce the effects of an accident.

And from an environmental point of view, airbags also contribute positively in a way that should not be overlooked. Installing airbag systems means that lightweight materials can be used, thus considerably reducing the weight of the vehicle chassis without compromising the safety of its occupants.

Motor control

The range of applications for small motors in vehicles is growing steadily. In modern vehicles especially, several dozen of these little helpers make it possible to adjust a wide range of systems electrically and automatically, ranging from interior and exterior comfort features to safety and assistance systems to ensuring optimum control of drive management.

Elmos is a leading global specialist in reliable IC solutions for DC, BLDC, and stepper motors. Elmos motor control ICs stand out thanks to their high performance combined with low power consumption, a long service life, and precise and virtually noiseless operation.



Thermal management

In the field of electromobility, thermal management plays a crucial role in optimizing the efficiency, charging times, and ranges of hybrid and electric vehicles. Our portfolio in this area is constantly growing. Elmos' thermal management products cover the three core elements – engine, battery, and interior – and enable intelligent cooling and thermal management in modern vehicles.

To ensure perfect interaction between the coolant and refrigerant circuits, Elmos motor control ICs regulate a large number of pumps, valves, and flaps throughout the vehicle, thus maintaining an optimal operating temperature for all mechanical and electronic components. This increases the efficiency of the drive system and reduces energy and fuel consumption.



Unlike in vehicles with internal combustion engines, the heat for heating the interior of battery-powered vehicles must be generated by the battery alone. Optimum and highly efficient temperature control is therefore very important, especially in winter, in order to use as little energy as possible from the battery. Elmos motor control ICs also help in this area, too. Smart air-conditioning shutters and vents allow the airflow in the interior to be regulated with great precision. Individual climate zones allow each occupant to select their own personal temperature preferences without having to air-condition the entire interior of the vehicle cabin and thereby consume energy unnecessarily.

Elmos' innovative applications in the area of thermal management support the expansion of electromobility, enable a reduction in vehicle emissions, and thus make a significant contribution to protecting the environment.

Sensor ICs (including battery management)

Elmos sensor ICs act as an interface between the digital and analog worlds. Elmos sensor ICs have been setting standards for the measurement of pressure and temperature in vehicles for more than 25 years. In electric vehicles, Elmos semiconductors for battery management systems (BMS) monitor the operating and charging status of the battery system, regulate the charging and discharging cycle as well as power output to the various loads, and maintain the voltage and operating temperature of the battery within an optimal range. This increases the safety, performance, and service life of the battery.

Power management (including eFuses)

Modern vehicle designs require a high and reliable supply of energy, especially in the case of electric and hybrid vehicles. Nowadays, conventional fuses are still mainly used for protection reasons, despite the expanding electrification of vehicle functions. This type of fuse can already be replaced thanks to the new eFuse product family from Elmos. Unlike conventional fuses, electronic fuses respond extremely quickly and reliably. In addition, eFuses are also more sustainable because, unlike conventional fuses, they do not need to be replaced after actuation. Electronic fuse systems also facilitate the construction of flexible vehicle structures and therefore help to cut down on weight by reducing the number of cable harnesses inside the vehicle.

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Optical ICs (including gesture control)

As one of the pioneers in gesture recognition in vehicles, Elmos gesture control ICs facilitate intuitive, contactless, and precise cockpit operation. This means that the driver is less distracted when operating the display or other functions and can therefore concentrate better on the traffic, which significantly increases road safety. Gesture control ICs by Elmos have been used by wellknown car manufacturers worldwide for more than ten years now, providing enhanced safety and comfort and ensuring a better driving experience in millions of cars.

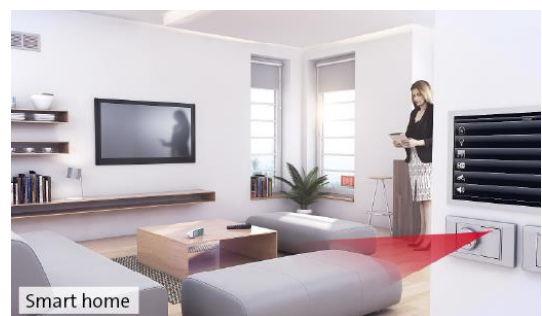


Non-automotive applications (percentage of sales in FY 2022: 11%)

Elmos ICs contribute to greater environmental protection, safety, and comfort beyond the automotive sector, too.

Smart home

With its semiconductor applications for smart installation and building technology, Elmos makes homes safer and more energyefficient. Advanced semiconductor technology makes it possible to connect a wide variety of functions in homes or buildings and control them centrally and easily using a smartphone or tablet.



Advanced motion and presence detection using the Elmos PIR (passive infra red) smart sensor helps reduce electricity consumption in buildings or sends alerts about unwelcome intruders. Elmos semiconductors are used in HVAC systems in buildings in order to regulate room temperatures in the most efficient and energy-saving way possible, for example.

Industrial automation

Elmos semiconductors facilitate the transformation of industrial automation into Industry 4.0. Digital solutions and the connectivity of machines have made industrial processes increasingly efficient and flexible,

while also enhancing productivity and quality. Costs, energy consumption, and emissions can be reduced simultaneously. Elmos semiconductors are used in a number of different areas of application, such as in temperature and pressure monitoring, power supply, or the connection of machinery with industrial processes.

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Additional documents	Company profile ESG targets ESG policies ESG KPIs Sustainability and non-financial report Certificates Accompanying documents
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