

Photonics for Future Mobility

comfort | interior
safety | green



Comfort

Headlight control
Rain sensor
Sun sensor
Dimming mirror



Interior

Interior lighting
Infotainment
Car connectivity
Human Machine Interface



Safety

LiDAR Scanner / TOF
Occupant detection
Fiber sensing
Steering angle sensor



Green

Fuel quality control
Exhaust gas measurement
CO₂ concentration detection
Particulate sensor

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Comfort



Headlight control



Rain sensor



Sun sensor



Dimming mirror



Ambient Light Sensors and Photo ICs for automatic lighting functions and laser diode control.



Silicon Photodiodes or Photo ICs with Infrared LED to detect water on the windshield.



Silicon Photodiodes or Photo ICs for the detection of solar radiation to adjust the automatic climate control.



Ambient Light Sensors for rear and side view mirrors to reduce glare.

Interior



Interior lighting



Infotainment



Car connectivity



Human Machine Interface



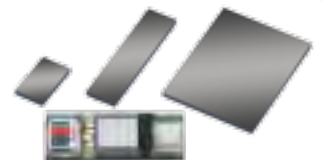
Ambient Light or RGB Sensors for auto brightness and color functions for displays, dashboard and interior lighting.



Fiber Optical Transceivers for optical communication via MOST bus and for Gigabit Ethernet over POF.



IR LED and Si PIN Photodiode Array for optical communication with Car2X systems.



Smart Sensor, Encoders and CMOS TOF Sensor with LEDs or Laser Diodes for optical switches, jog dials and gesture recognition.

Safety



LiDAR Sensor for Direct TOF



Occupant detection



Fiber sensing



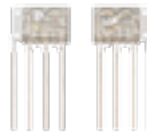
Lasers for LiDAR and MEMS mirror



Si PIN PD, APD Arrays (with integrated TIAs), InGaAs APD or IR enhanced MPPC/SiPM with ASIC solution for distance measurement in active safety systems.



CMOS TOF Sensor with LEDs or Laser Diodes to monitor occupants' positions, or driver's activity or fatigue.



Transmitter and Receiver Photo ICs for ADAS systems as pedestrian or anti-pinch protection.



905 nm Pulsed Lasers and Laser Arrays in customizable designs for LiDAR systems and for steering laser beam.

Green



Fuel quality control



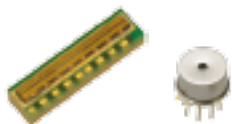
Exhaust gas measurement



CO₂ concentration detection



Particulate sensor



InGaAs Photodiode or MEMS FPI for on-board liquid analysis.



Long wavelength infrared sensors for on-board gas analysis.



Sensors/LEDs for air flow regulation of automatic climate control.



Photodiodes and Laser Diodes for air quality measurement.

Why Hamamatsu?

Hamamatsu Photonics is the world leader in photonics with more than 60 years' experience of exploring light-based technologies to improve life for mankind. We have served the automotive industry since 1978, when we first introduced sun load sensors for HVAC systems and today we are creating photonic devices for vehicle evolution.

Photonic sensors are now widely used in vehicles. In addition, a large proportion of new applications emerging in the automotive sector use light and light sensing technologies from head up displays and infotainment to future systems for autonomous vehicles. Photonics is of high importance for the automotive industry in the coming years.

As a technology company, we invest heavily in R&D to develop improved devices as well as brand new technologies. A particular area

of focus is MOEMS technology, through which the next generation of optosemiconductors are being realized.

We have fully integrated manufacturing within one company; design of all core elements and mass production capability from semiconductor chip to packaged components. We also have extensive capabilities and experience, together with a reputation of high quality and reliability in the automotive sector.

With more than a quarter of a century of proven history in the automotive field, high supplier rankings due to exceptionally low failure rates and more than 100 million optosemiconductor devices built into road vehicles, Hamamatsu Photonics is the one-stop-shop for all your needs.

automotive.hamamatsu.com

Main Products

- Si Photodiodes
- Si Avalanche Photodiodes
- Photo ICs
- Light Emitting Diodes
- Image Sensors
- Optical Communication Devices
- MOST
- CMOS TOF Sensors
- Smart Sensors
- Thermopiles
- MOEMS Devices
- Laser Diodes



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