

Presse Press

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Sights set right! Augmented and virtual reality systems use infrared LEDs to “know” where the user is looking

Osram’s compact IREDs provide the illumination needed by eye-tracking systems in headsets

Osram Opto Semiconductors is launching its smallest sideloading infrared LED to date. The new SFH 4055 is based on the proven Firefly platform, used widely for LEDs in the visible spectrum. The new transmitter, which has a wavelength of 850 nm, is primarily targeted at eye-tracking systems in augmented and virtual reality headsets.

Eye-tracking systems use multiple infrared LEDs to illuminate users’ eyes and capture the light reflected back with camera sensors. This allows these systems to compute the position of the user’s pupil and work out what direction the user is looking in. Incorporating this technology into virtual reality (VR) or augmented reality (AR) headsets calls for extremely compact infrared LEDs, tiny enough to fit into glasses around eyepieces. With a footprint of just 1.0 x 0.325 x 0.55 millimeters, the new Firefly fits the bill perfectly. The LED is a sideloader with an impressively low height of just 0.325 mm.

Intuitive interaction, less computing power

Eye tracking supports entirely new, highly intuitive forms of interaction in VR and AR applications and enables users to control software programs by directing their gaze. For instance, AR glasses can display information that relates specifically to an object that a user has selected.

There is an added benefit for VR systems: They can exploit eye tracking to reduce the amount of computing power they require – a useful capability given the need to render images extremely quickly so as to offer users a realistic experience. Image rendering calls for computers that can deliver a lot of processing and graphics power. With eye tracking,

these systems can focus on rendering images at a high resolution in the line of sight and maintain a lower resolution in the periphery.

Benefits for optical touchscreens too

Infrared transmitters, lasers and photodetectors from Osram are already in use in VR and AR solutions, and the company's first infrared Firefly will enable it to support new use cases in this fast-growing market.

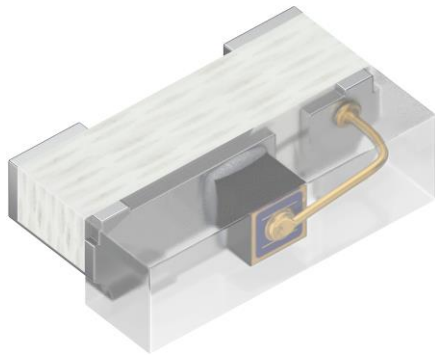
The SFH 4055 is generally aimed at applications that require exceptionally compact infrared transmitters. Optical touchscreens, for instance, rely on very low-profile, side-emitting infrared LEDs to create a grid of infrared light used for detecting finger positions.

Press contact:

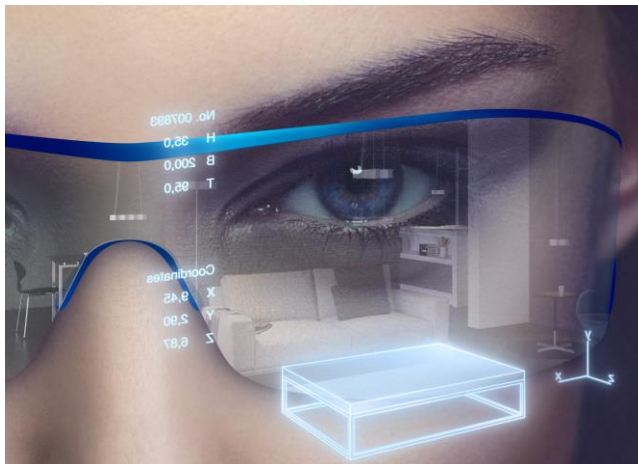
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SFH 4055, Osram's smallest sidelooking infrared LED to date, serves as a source of illumination for the eye-tracking systems used in augmented and virtual reality headsets.
Source: Osram



Enabling augmented reality glasses to display exactly the right information at the right time: Thanks to the tiny SFH 4055 infrared LED, eye-tracking systems can also be fitted to headsets to establish the line of sight.
Source: Osram

ABOUT OSRAM

OSRAM, based in Munich, is a globally leading lighting manufacturer with a history dating back about 100 years. The product portfolio includes high-tech applications based on semiconductor technology such as infrared or laser lighting. The products are used in highly diverse applications ranging from virtual reality, autonomous driving or mobile phones to smart and connected lighting solutions in buildings and cities. In automotive lighting, the company is the global market and technology leader. Based on continuing operations (excluding Ledvance), OSRAM had around 24,600 employees worldwide at the end of fiscal 2016 (September 30) and generated revenue of almost €3.8 billion in that fiscal year. The company is listed on the stock exchanges in Frankfurt and Munich (ISIN: DE000LED4000; WKN: LED400; trading symbol: OSR). Additional information can be found at www.osram.com.