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Bright “eyes”

New LED prototypes add dynamism to LED lighting for headlights

At ISAL in Darmstadt (September 26 to 28, 2011) OSRAM Opto Semiconductors will be showcasing two new LED prototypes for headlights in the shape of the OSOLON Black Flat and the OSRAM OSTAR Headlamp Pro. Both combine new chip and package technologies and are equipped with a ceramic converter. Their strengths include high light output even at high currents, a uniform light pattern, thermal stability and a particularly good contrast ratio.

More and more flexibility is needed for the light sources used in headlights, the “eyes” of any vehicle. Not only do they have to be reliable and provide the appropriate amount of light in all visibility and driving conditions, they have to perform various functions and cope with changing ambient conditions, including the high temperatures in the headlight itself. To meet all these requirements OSRAM has developed the new LED prototypes OSOLON Black Flat and OSRAM OSTAR Headlamp Pro.

OSOLON Black Flat is the latest addition to the OSOLON Black Series and is equipped with a ceramic converter and a QFN package (Quad Flat No Leads). With a typical thermal resistance of 5 K/W is it 20% better than the other member of the Black Series. The black package stands for high stability because the thermal coefficient of expansion of the special material matches the coefficient of expansion of the metal core board. The new LED does not require a lens so its light can be injected very close to the light guide for example. The solder pad is identical to the ones used in the entire range so the light output can be significantly increased from a largely identical board design. With a power draw of 2.3 W and an operating current of 700 mA, the new product achieves a typical luminous flux of 190 lm.

The OSRAM OSTAR Headlamp Pro is able to meet a wide range of requirements in terms of output and adaptability to ambient conditions. It offers a more uniform light pattern, better thermal stability and greater brightness than its predecessor. The 20 x 20 mm high-flux LED is available with two to five chips.

Headlight manufacturers have much lower costs with the new OSTAR solutions. There is more output for less money. AFS functionality (Adaptive Frontlighting System) can be achieved with chips that can be controlled individually or in series. This leads to configurations that allow matrix chip solutions. Typical

luminous flux values are around 250 lm for the single chip (1 A operating current) – and therefore 1250 lm for the 5-chip version. The thermal resistance of the 5-chip version is 2.1 K and is therefore 0.5 K less than for the predecessor model.

Peter Knittl, Director of Automotive LED is confident: “The two prototypes combine new technologies with new functionality and are perfectly matched to the requirements of headlight systems. This makes them particularly attractive for widespread use in all vehicle classes.” All the prototypes are based on UX:3 chip technology and produce high light output at high currents. Their ceramic converter is responsible for a uniform light pattern. Encapsulation of the chips directly in the reflector produces a defined light/dark boundary in the light pattern and a particularly good contrast ratio in conjunction with advanced package technology. All these properties make the LEDs ideal for efficient use in headlights. Initial samples are already available. Market launch is scheduled for the 3rd quarter of 2012.

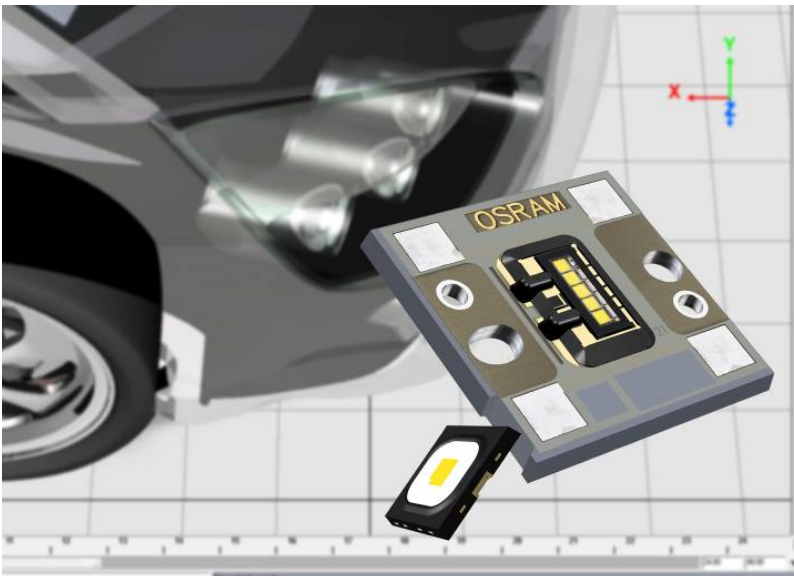


Photo: OSRAM

<http://www.osram-os.com/press>

OSLON Black Flat (left) and OSRAM OSTAR Headlamp Pro (right) combine new technologies with new functionality and are perfectly matched to the requirements of headlight systems.

ABOUT OSRAM OPTO SEMICONDUCTORS

OSRAM is part of the Industry sector of Siemens and one of the two leading lighting manufacturers in the world. Its subsidiary, OSRAM Opto Semiconductors GmbH in Regensburg (Germany), offers its customers solutions based on semiconductor technology for lighting, sensor and visualization applications. OSRAM Opto Semiconductors has production sites in Regensburg (Germany) and Penang (Malaysia). Its headquarters for North America is in Sunnyvale (USA), and for Asia in Hong Kong. OSRAM Opto Semiconductors also has sales offices throughout the world. For more information go to www.osram-os.com.

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