

Powerful Little Light: LED With 1,000 Lumens

March 15 2007



Osram has developed a small light-emitting diode spotlight that achieves an output of more than 1,000 lumens for the first time. That's brighter than a 50-watt halogen lamp, thereby making the device suitable for a broad range of general lighting applications. The Ostar Lighting LED, which will be launched on the market this summer, can provide sufficient light for a desk from a height of two meters, for example. Its small size also enables the creation of completely new lamp shapes. Source: Siemens

Osram has developed a small light-emitting diode spotlight that achieves an output of more than 1,000 lumens for the first time. That's brighter

than a 50-watt halogen lamp, thereby making the device suitable for a broad range of general lighting applications.

The Ostar Lighting LED, which will be launched on the market this summer, can provide sufficient light for a desk from a height of two meters, for example. Its small size also enables the creation of completely new lamp shapes.

A lumen (lm) is the unit of measurement for the amount of light emitted by a light source. A 60-watt light bulb emits 730 lm, while a 50-watt halogen lamp has an output of approximately 900 lm. To achieve the 1,000 lm output for the tiny Ostar Lighting LED, the experts at Siemens' Osram subsidiary employed a sophisticated system for high chip-packing density, whereby the researchers managed to integrate six high-performance LED lighting chips into the unit's small housing. Each chip has an area of only one square millimeter, which makes for very concentrated overall luminosity.

Different types of LEDs are used today in various areas, for example as background lighting in cell phone displays, as well as in car turn-signal lights, brake lights, and daytime running lights. The benefits are obvious: The diodes are extremely small and consume little energy because they efficiently convert electricity into light. The Ostar Lighting LED, for example, produces 75 lumens per watt at 350 milli-amperes of operating current — much more than an incandescent lamp, which only converts a fraction of the electricity supplied into light, with the rest lost as heat energy. In addition, LEDs contain no lead or mercury, which makes them very environmentally friendly. They also last around ten times longer than halogen lamps and 50 times longer than incandescent lamps, thereby helping to significantly reduce maintenance costs.

For many years, however, LEDs were unsuited for room lighting applications because they weren't bright enough. The Ostar Lighting

LED marks a further step toward suitability for such applications. Osram has already supplied a Migros supermarket in the Swiss canton of St. Gallen with 18,000 Golden Dragon LEDs, which have a lower output than the Ostar Lighting units. These LEDs emit neither UV rays nor heat, which means they have virtually no negative impact on delicate grocery items such as milk, meat, fruit and vegetables.

Source: Siemens

Citation: Powerful Little Light: LED With 1,000 Lumens (2007, March 15) retrieved 25 April 2024 from <https://phys.org/news/2007-03-powerful-lumens.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.