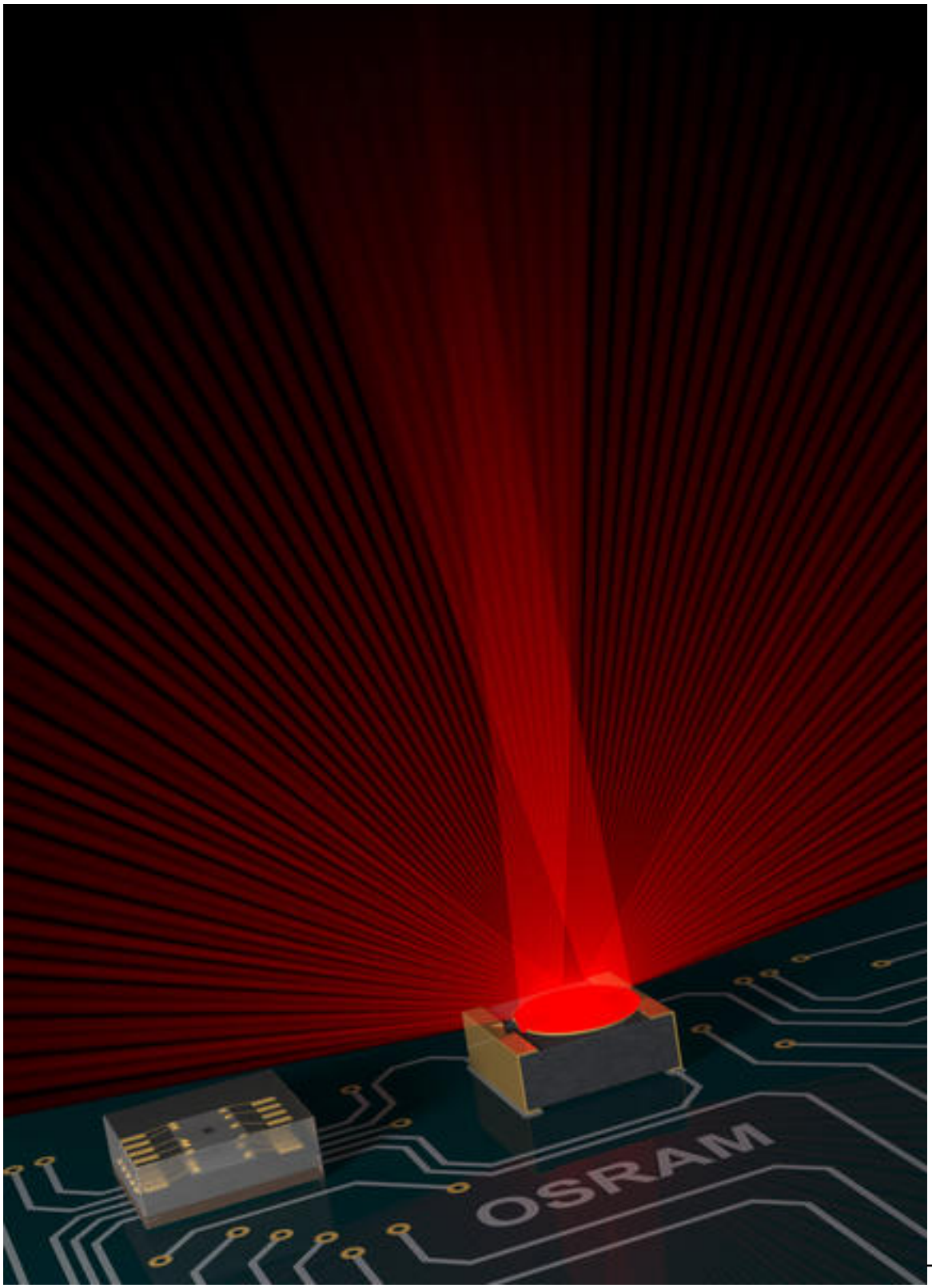
Mini Midled is Low-Profile, Surface-Mountable Infrared Emitter



The new infrared Mini Midled from Osram Opto Semiconductors is only 0.9 millimeters high,

but this tiny device produces a narrow and intense beam of infrared light that provides the highest radiant intensity of its size class. With a radiant intensity of 60 milliwatts per steradian (mW/sr) at 100 milliamperes (mA), it easily outperforms other comparable devices. This low-profile, surface-mountable emitter is ideal for proximity sensors and light barriers in devices where space is limited.

In many sensor applications, it is not only the optical power of an emitter that is important but also whether the available light is widely spread or concentrated in a narrow high-power beam. This is characterized by the half-angle. The radiant intensity (measured in watts per steradian) indicates the optical power within a solid angle and, therefore, defines the intensity of the emitted beam of light.

The key advantage of the new Mini Midled is its half-angle of 17°, producing a narrow light beam with a radiant intensity of 60 mW/sr at 100 mA. This is achieved by focusing the light with a metalized reflector integrated into the device. This new infrared LED offers an extremely high output power despite its exceptionally small dimensions of 2.3 x 1.95 x 0.9 mm.

The Mini Midled is the second SMT device from Osram Opto Semiconductors utilizing MID (Molded Interconnected Device) technology, complementing the existing 1.6 mm high Midled. Thanks to new packaging technologies, Osram has managed to reduce the total height of the new infrared emitter to less than one millimeter while still enabling it to be manufactured in the usual way.

Small and powerful infrared diodes with a wavelength of 850 nm, such as the low-profile narrow-beam Mini Midled, offer major benefits for applications where there is little space but that require high radiant intensity. Typical applications include light barriers, smart phones and optical touch screens.

No crosstalk

Bianka Schnabel, Marketing Manager at Osram Opto Semiconductors, has high expectations for the new mini-emitter. “The low-profile Mini Midled is particularly suitable as an emitter for proximity sensors in smart phones and similar devices because it takes up very little space and yet delivers high power,” she said. “Thanks to its sophisticated design, it also considerably reduces optical crosstalk so no optical shielding is required, which makes life easier for designers.”

Proximity sensors are a combination of an emitter and a detector. The emitter illuminates an approaching object, and the light reflected from the object is received by the detector. For proximity sensors to operate properly, it is crucial that no light from the emitter should reach the detector directly (crosstalk). This is precisely what often happens with devices that are not equipped with a metalized reflector. But with the Mini Midled, there is no need for shielding and the overall design is much simpler.

The non-metalized surfaces are dark colored so the Mini Midled can be mounted inconspicuously behind a smart phone cover.

Technical data:

Dimensions - (2.3 x 1.95 x 0.9) mm
Emission angle - +- 17°
Radiant intensity - 60 mW/sr at 100 mA
Wavelength - 850 nm

For more information go to www.osram-os.com [1].

Posted by Janine E. Mooney, Editor

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[1] http://www.osram-os.com