Osram ChipLED SFH 4053 Is Ideal For Small And Medium Size Touch Displays

Touch screens demand infrared components that are super low-profile and extremely powerful. The new ChipLED SFH 4053 infrared emitter (IRED) from OSRAM Opto Semiconductors combines tiny dimensions with high efficiency, making it ideal for low-profile all-in-one computer, tablet PC and laptop displays. And the new IRED is so small that it can be easily integrated into smart phones as well.

Optical touch screens are available in a wide variety of designs, but they share a common principle in that the touch of a finger will either cast a shadow or reflect light. In basic versions, an array of infrared emitters (IREDs) and detectors create a grid of vertical and horizontal beams. The components are housed in a low-profile frame, known as the bezel, measuring a half to one millimeter in depth around the screen. “To make this frame even shallower requires particularly small IREDs and detectors,” said Bianka Schnabel, Product Marketing Manager at Osram Opto Semiconductors. “This is especially important for mobile devices such as tablet PCs and laptops because of the positive effect on the design aspect.” The new ChipLED SFH 4053 measures just 0.5 x 1 mm, so it takes up exceptionally little space. Combined with a height of 0.45 mm in industry standard 0402 (length/width), it is one of the smallest IREDs on the market.

In addition to their miniature size, the high light output of these components plays an important role, particularly for camera-based touch screens. Such a display setup requires considerably fewer IR emitters than the traditional version, but the emitters must have a very high output because they flood the display with infrared light from two corners. Next to the IR emitters are camera chips that detect a change in the signal when a pen or finger touches the display.

Thanks to Osram’s thin-film chip technology, the SFH 4053 high-efficiency IRED provides high output from a very small package for this application, rated at 35 mW from an operating current of 70 mA. In pulse mode, it can achieve as much as 260 mW from 700 mA. “This ChipLED provides enough light to make it easy and cost-

effective to expand camera-based touch screen systems to larger diagonal sizes," Schnabel added.

The new ChipLED SFH 4053 is part of a broad range of components that are being used in more and more touch screen applications – from narrow-angle emitters for light grids to low-profile components for optimum coupling into light guides. Osram ChipLEDs are available in 0603 sizes with lens types from +/- 40° to +/-10° and with different chip technologies, including thin film and nanostack.

The wavelength of the Osram ChipLED is ideal for the requirements of these applications. At 850 nm, the light from the IRED is barely discernible to the human eye but receiver components are highly sensitive to this wavelength.

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