

Ultra-low power light-guiding module



Overview

In our design of the backlight module—without any brightness enhancement film (BEF, Diffuser)—a new type of light guide plate, integrating the functions of light guide plate, diffuser plate, and prismatic glass into one, has been developed by use of reflecting surfaces and the. In our design of the backlight module—without any brightness enhancement film (BEF, Diffuser)—a new type of light guide plate, integrating the functions of light guide plate, diffuser plate, and prismatic glass into one, has been developed by use of reflecting surfaces and the. SunLED's ultra-low current LEDs support engineering demands. A low current operation of $I_F = 2 \text{ mA}$ paired with low forward voltages allow these LEDs to provide engineers with over 90% power reduction compared to traditional LEDs. SunLED has carefully rated this series of LEDs to ensure the highest. This paper presents a zero-optical-distance mini-LED backlight with cone-shaped light coupling microstructures to achieve an ultra-thin backlight architecture ($\sim 0.1 \text{ mm}$ thickness) by combining the characteristics of direct-lit and edge-lit backlights. There is no gap between the light guide plate. ED gen-eral lighting applications is presented. We implement these materials through template guided self-assembly and investigate their fundamental electromagnetic working principles through combination of electromagnetic. * is a registered and/or unregistered trademark of STMicroelectronics International NV or its affiliates in the EU and/or elsewhere. Mastering end-to-end supply chain Which product to select?

To go along with STM32F401 Nucleo board. At the core of this evolution is Light Guide Plate (LGP) technology, which transforms directional LED light into uniform illumination, enabling sleek designs without compromising performance.

Article Content

Apr 15, 2026

Full article: Advanced zero-optical-distance Mini-LEDs ...

By incorporating a light guide with microstructure designs on both the light-incident and light-emitting surfaces, the prototype module achieved a ...

Nov 07, 2025

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1 Introduction This paper explores the application of mini-LED technology , which has primarily been developed for LCD back-light unit , to general lighting for the first time. Mini-LED technology offers ...

Feb 03, 2026

Study on the optical performance of light guide plate with pyramid ...

The module frame with 85% gauss scattering and 15% absorptivity surrounds the sides and bottom of LGP to prevent the escape of light and plays a fixed role. A receiving screen is located ...

Dec 03, 2025

LED Backlight Module of Ultra-thin High Brightness System ...

Abstract: Liquid crystal displays have many good qualities, such as ultrathinness, light weight, high brightness, and so forth. It is very important to improve the display properties of backlight module ...

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VL53L1CX ultra-low power (ULP) Package size : 4.9 x 2.5 x 1.56 mm FoV : 27° Single zone

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Full article: Advanced zero-optical-distance Mini-LEDs technology with ...

By incorporating a light guide with microstructure designs on both the light-incident and light-emitting surfaces, the prototype module achieved a uniformity of 90.79% and a luminance of ...

Sep 20, 2025

Zero-optical-distance mini-LED backlight with light-guiding ...

We proposed a design combining edge-light mini-LEDs and light-guiding microstructure lenses to reduce the number of light sources required in displays considerably.

Aug 20, 2025

Light Guide Plates (LGP)

By transmitting light with minimal loss, LGPs support lower power consumption and reduce operational costs over time. Their long lifespan and reliability contribute to long-term savings in both commercial ...

Aug 01, 2025

Zero-Optical-Distance Mini-LED Backlight with Cone-Shaped Light ...

This paper presents a zero-optical-distance mini-LED backlight with cone-shaped light coupling microstructures to achieve an ultra-thin backlight architecture (~ 0.1 mm thickness) by ...

Jan 22, 2026

Low-Power Light Guiding and Localization in Optoplasmonic ...

In this manuscript we combine electromagnetic simulations and fluorescence spectroscopy to characterize light guiding, localization, and energy transfer in optoplasmonic chains.

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