

High Resolution 4K UHD LCOS Light Modulation Panel

Features

LCOS Panel

- Single panel field sequential color Liquid Crystal On Silicon (LCOS) with digital drive
- 0.55" active display diagonal
- 4Kx2K (3840x2160) array of mirrors (3.2 μm pitch)
- Displays sequential colors up to 6 Color Fields per Frame (CF/F) with programmable color field duration
- Syndiant architecture for improved power and optical efficiency
- No high voltage supply required (highest supply 3.3V/3.8)

SYA1311 LCOS Controller

- External frame buffer
- Accepts up to 4K (UHD) resolution
- Video input formats:
 - MIPI – 4 lanes (2.5Gbps/lane max)
 - LVDS – 4 lanes (2.5Gbps/lane max)
- Keystone correction
- GPIO (8)
- I2C interface
- Direct SPI Flash interface
- Power management

Overview

The Syndiant SYL2341 provides 4Kx2K resolution in a highly compact 0.55" diagonal panel, enabling ultra-portable applications to deliver UHD resolution and high brightness in a small form-factor. The SYL2341 provides excellent image quality with vivid colors while meeting the cost and power requirements of portable applications.

Syndiant's patented LCOS micro display architecture integrates all-digital smart electronics onto the display panel. An application specific SIMD processor performs bit serial data manipulation to control each pixel. The intelligence is divided between the controller and the panel. The controller formats and arbitrates data flow to the panel, and the panel logic computes new pixel values and updates the pixels. Pixel values are separated into base and sharpener bits which maintains sharpness while reducing data bandwidth to the panel.

Moreover, our Q-view architecture further enhances power reduction at UHD resolutions. The sharpness of UHD resolution is offered at the power of a FHD panel.



Specifications

Resolution	4K (3840 x 2160)	Reflectivity	70%
Display Diagonal	0.55"	Package Height	25 mm
Contrast Ratio	500:1	Package Types	Chip on metal
Pixel Pitch	3.2 μ m	Operating Temperature	-10°C to 70°C
Fill Factor	87.9%	Storage Temperature	-40°C to 80°C

Syndiant Advantages

- High resolution: Offers a rich user experience by supporting a full range of content including reading email attachments, web browsing, text, graphics, multimedia, and full-motion video
- Low power: Great for mobile, battery powered products
- Ultra-small: Form factor meets requirements for embedded applications
- High brightness: Fast LC enables saturated colors and high illumination on time
- Smooth gray scale at all brightness levels, matching the visual response of the eye

System Block Diagram

