High Resolution LCOS Light Modulation Panel

Features

SYL2271 LCOS Panel

- Single panel field sequential color Liquid Crystal On Silicon (LCOS) with digital drive
- 0.37" active display diagonal
- Programmable on-the-fly, nHD to 720p (1280x720) array of 6.4 µm mirrors
- Displays sequential colors up to 9 Color Fields per Frame (CF/F) with programmable color field duration
- Second generation Syndiant architecture for improved power and optical efficiency
- Panel illumination times greater than 95%
- White field support (RGBW) for brightness improvements
- Low Power: <30mW for certain resolutions and color depth; 160 mW average power for 720p @ 6 CF/F
- No high voltage supply required (only 3.3V)
- Fully compatible with SYA1231 controller

SYA1231 LCOS Controller

- Second generation Syndiant controller for Embedded and Stand-Alone Applications
- Embedded frame buffer
- Accepts up to WXGA (1366x768) resolution
- SYA1231 video input formats:
  - 24-bit RGB
  - YCbCr 422 or 444
  - BT.656
- Keystone correction
- GPIO
- I2C interface
- Direct SPI Flash interface
- Power management

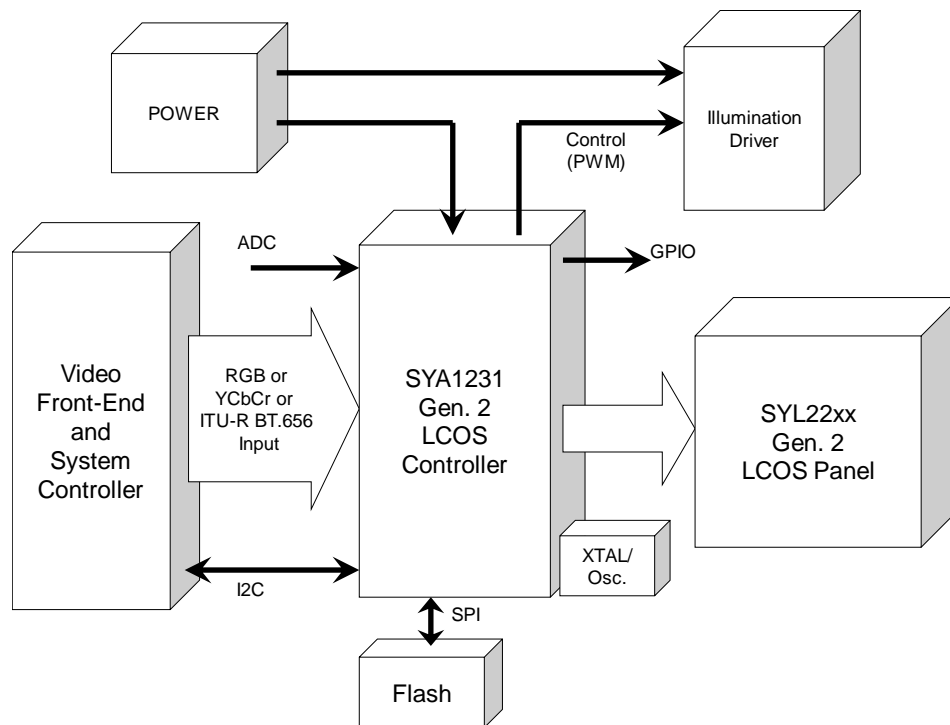
42-2271-xx panel shown
Dimensions in mm
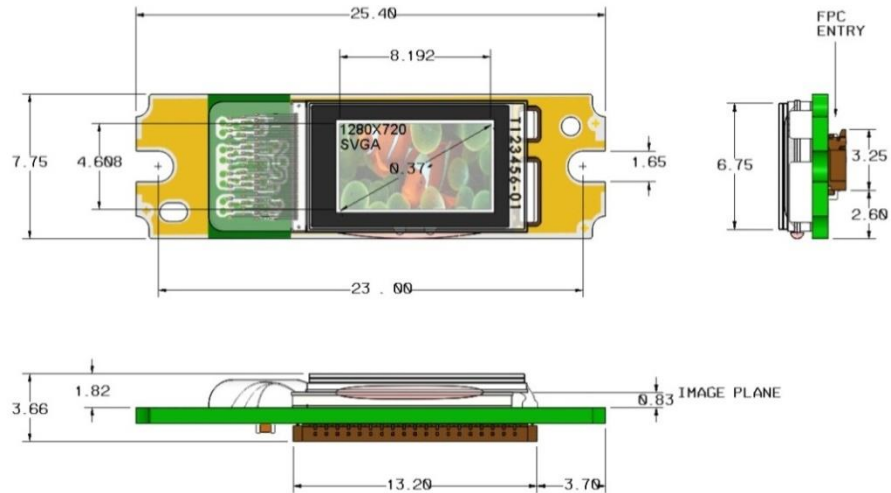
Specifications

Resolution	720p (1280x720)	**Reflectivity**	70%
Display Diagonal	0.37"	**Package Height**	7.75 mm
Contrast Ratio	500:1 QWP Compensated	**Package Type**	Panel on mini PCB
Pixel Pitch	6.4 µm	**Operating Temperature**	-10˚C to 70˚C
Fill Factor	93.8%	**Storage Temperature**	-40˚C to 80˚C

Overview

The Syndiant SYL2271 provides 720p resolution in a highly compact 0.37" diagonal panel, enabling ultra-portable applications to deliver high definition resolution and high brightness in a small form-factor. The SYL2271 provides excellent image quality with vivid colors while meeting the cost and power requirements of battery operated devices.

Syndiant's patented LCOS microdisplay 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. This efficient methodology enables high bit depth liquid crystal drive while requiring minimal data bandwidth to the panel.

With Syndiant, it is unnecessary to sacrifice image quality in your embedded and pico projector applications.

POWER

Illumination Driver

Control (PWM)

ADC

GPIO

Video Front-End and System Controller

RGB or YCbCr or ITU-R BT.656 Input

SYA1231 Gen. 2 LCOS Controller

SYL22xx Gen. 2 LCOS Panel

XTAL/ Osc.

I2C

SPI

Flash

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