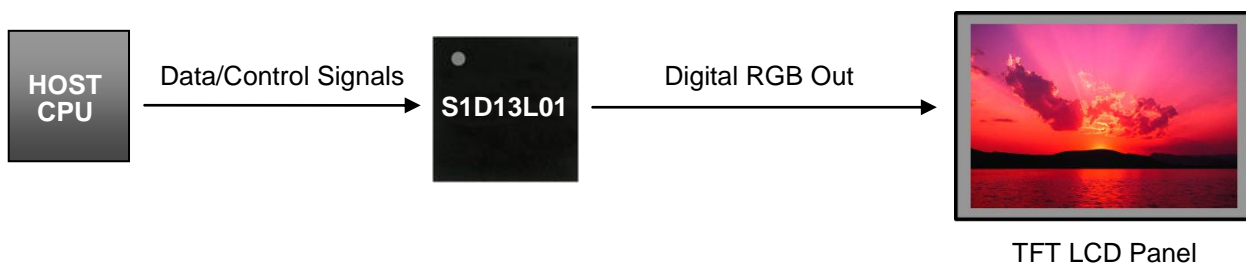# S1D13L01

S1D13L01 WQVGA Simple LCD Controller

The S1D13L01 is a simple, multi-purpose graphics LCD controller with 384 KB embedded SRAM display buffer which supports TFT panels. The S1D13L01 supports most popular CPU interfaces in both 8/16-bit and direct/indirect variations. The embedded display buffer allows WQVGA up to 480x272 at 24bpp or 800x480 8bpp for single layer display, or 480x272 at 16bpp (Main layer) and 480x272 at 8bpp (PIP layer) for two layer display.

The S1D13L01's combination of multiple CPU interfaces and display interface types offers a versatile, yet easy to develop display system. Additionally, it offers multiple window support, transparency and alpha blending functions. It is a flexible, low cost, low power, single chip solution designed to meet the demands of embedded markets, such as office automation, medical instruments and factory automation, where total system cost and battery life are major concerns. It's impartiality to CPU type or operating system also makes it an ideal display solution for a wide variety of other applications.

FEATURES

- Embedded 384 KB display buffer
- Direct and indirect CPU interfaces
- 8/16-bit data bus width
- SPI CPU interface
- Support for RGB interface TFT panels
- Programmable resolutions up to 800x480@8bpp
- Programmable color depth up to 24 bpp
- Supports Main and PIP windows
- SwivelView™ 90°, 180°, 270° rotation
- General purpose input/output pins

- LUT 256x24bitx 3pcs for both main and PIP layer
- Alpha blending, transparency, flashing
- Software initiated power save mode
- Clocks can be selected from two embedded PLLs or digital clock inputs
- HIOVDD/PIOVDD: 3.3 or 1.8V CORE/PLLVDD: 1.5V
- Temperature range: -40° ~ 85°
- Package: QFP15 128-pin, 0.4mm pin pitch

SYSTEM BLOCK DIAGRAM

HOST CPU — Data/Control Signals → S1D13L01 — Digital RGB Out → TFT LCD Panel

S1D13L01 Features

- 384 KB SRAM
- 2 layer support
- Alpha blending and transparency
- PIP layer flashing
- Programmable PLL

S1D13L01

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DESCRIPTION

CPU Interface

- Support for most popular CPU interfaces
- Direct and indirect addressing
- 8/16-bit interface support
- SPI

Display Support

- Supports RGB interface TFT panels
- Programmable resolutions up to 800x480@8bpp
- Programmable color depths up to 24 bpp

Display Features

- Multiple Layer support for Main and PIP windows
- Alpha blending and transparency
- PIP flashing
- LUT 256x24bitx3pcs for both main and PIP layer
- SwivelView^{TM} 90°, 180°, 270° display image rotation

Display Memory

- 384 KB of embedded SRAM
- Maximum resolution for WQVGA:
  - 1 layer: 480x272 @ 24 bpp
        or 800x480 @ 8 bpp
  - 2 layer: Main 480x272 @ 16 bpp
        and PIP 480x272 @ 8 bpp

Miscellaneous

- Internal system clock: 66MHz
- Software initiated power save mode
- Multiple general purpose input/output pins
- Flexible clock structure:
  - Embedded PLL
  - Digital clock inputs
- Low operating voltage:
  - PLL/COREVDD 1.5 volts
  - PIO/HIOVDD 3.3 or 1.8 volts
- Operating temperature range: -40°~ 85°C
- Package: QFP15 128-pin, 0.4mm pin pitch

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NOTICE: