S1D13L03

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S1D13L03 WVGA Simple LCD Controller

The S1D13L03 is a simple color LCD graphics controller with an embedded 768 KB display buffer. Targeting WVGA designs using 18-bit TFT panels, the S1D13L03 can support many applications in embedded markets such as office automation, factory automation, and medical instruments.

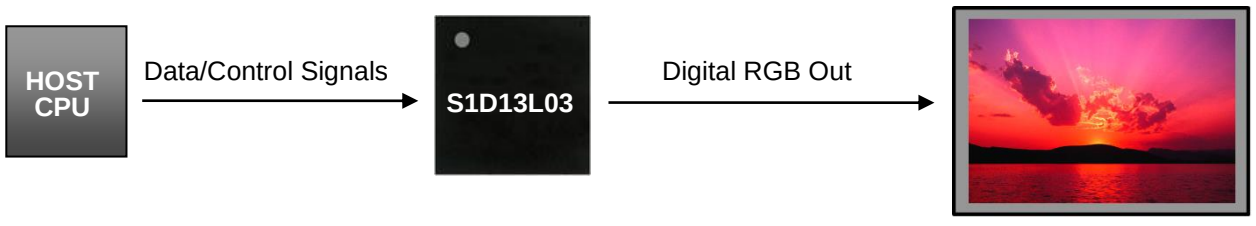
The S1D13L03 supports a 8/16-bit Intel 80 CPU architecture while providing high performance bandwidth into display memory allowing for fast screen updates. Resolutions supported include 800x480 single buffered and 352x416 double buffered. The S1D13L03 can implement a double-buffer architecture to prevent any visual tearing during streaming video screen updates.

While the S1D13L03 targets embedded markets, it's impartiality to CPU type or operating system makes it an ideal display solution for a wide variety of other applications.

FEATURES

- Embedded 768 KB SRAM display buffer
- 8/16-bit Intel 80 interface (used for display or register data)
- RGB: 8:8:8, 6:6:6, 5:6:5 (8:8:8 will be truncated to 16 or 18 bpp)
- Supports TFT panels
- Supports 18-bit RGB interface
- Supports resolutions up to 800x480
- General purpose input/output pins
- QFP21 176-pin package
- 16/18 bit-per-pixel (bpp) color depths
- Double-buffer available to prevent image tearing during streaming input
- Gamma Correction LUT
- Internal programmable PLL
- Single MHz clock input: CLKI
- Hardware and software power save mode
- Low operating voltage
  - $CORE_{VDD}$ 1.5 volts
  - IO_{VDD} 1.65 ~ 3.6 volts

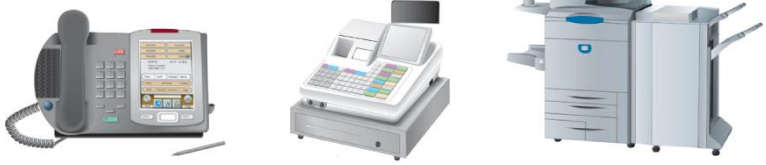
SYSTEM BLOCK DIAGRAM



TFT LCD Panel

S1D13L03 Features

- 768 KB SRAM
- 18-bit TFT interface
- Gamma LUT
- Double Buffering



S1D13L03

DESCRIPTION

Display Memory

- Embedded 768 KB SRAM

Display Features

- 16/18 bpp color depths
- 16 bpp to 18 bpp input data conversion
- All display writes handled by window apertures/position for complete or partial display updates
  - Window coordinates referenced to top left corner of the displayed image
- Double-buffer available to prevent image tearing during streaming input
  - Resolutions inside 384k bytes (1/2 of total available display buffer)
  - Typical resolution of 352x416

Display Support

- Supports TFT panels
- 18-bit RGB interface
- Supports resolutions up to 800x480
- Gamma correction

CPU Interface

- 8/16-bit Intel 80 interface (used for display or register data)
- Chip select is used to select device. When inactive, any input data/command will be ignored.

Input Data Formats

- RGB: 8:8:8, 6:6:6, 5:6:5
  - 8:8:8 truncated to 16 or 18bpp

Miscellaneous

- Internal programmable PLL
- Single MHz clock input: CLKI
- CLKI available as CLKOUT (separate CLKOUTEN pin associated with output)
- Hardware and software power save mode
- Input pin to enable/disable power save mode
- General purpose input/output pins available (GPIO[7:0])
- COREVDD 1.5 volts and IOVDD 1.65 ~ 3.6 volts
- QFP21 176-pin package

For more information on the S1D13L03 and other Epson Display Controllers, visit the Epson Global website.

https://global.epson.com/products_and_drivers/semicon/products/display_controllers/

For Sales and Technical Support, contact the Epson representative for your region.

https://global.epson.com/products_and_drivers/semicon/information/support.html

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