S1D13706

S1D13706 QVGA LCD Controller

The S1D13706 is a color/monochrome LCD graphics controller with an embedded 80 KB SRAM display buffer. While targeting QVGA TFT panels, the S1D13706 supports a wide variety of other panel types and provides a low cost, low power, single chip solution to meet the demands of embedded markets. It is an ideal solution for devices where board size and battery life are major concerns.

The S1D13706 utilizes a guaranteed low-latency CPU architecture thus providing support for microprocessors without READY/WAIT# handshaking signals. The 32-bit internal data path provides high performance bandwidth into display memory allowing for fast screen updates.

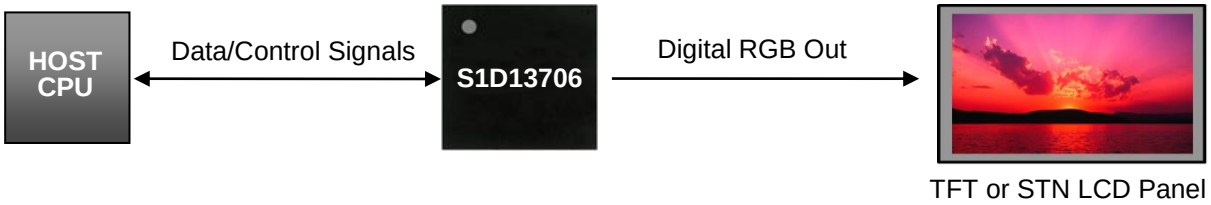
Products requiring a rotated display image can take advantage of the SwivelView™ feature which provides hardware rotation of the display memory transparent to the software application. The S1D13706 also provides support for "Picture-in-Picture " (a variable size overlay window).

The S1D13706's impartiality to CPU type or operating system makes it an ideal display solution for a wide variety of applications.

FEATURES

- Embedded 80KB SRAM display buffer
- Low operating voltage
- Low-latency CPU interface
- Direct support for most popular Host Interfaces
- Programmable resolutions and color depths
- STN LCD support
- TFT LCD support
- Reflective active matrix support
- SwivelView™ (90°, 180°, 270° hardware rotation of displayed image)
- Picture-in-Picture (overlay window)
- Software initiated power save mode
- Hardware or software video invert
- 100-pin TQFP15 package

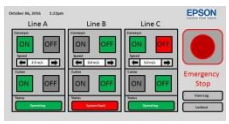
SYSTEM BLOCK DIAGRAM



TFT or STN LCD Panel

S1D13706 Features

- 80 KB SRAM
- SwivelView Hardware Rotation
- Picture-in-Picture Overlay Window
- Double Buffering



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DESCRIPTION

Display Buffer

- Embedded 80 KB SRAM display buffer

CPU Interface

- Fixed low-latency CPU access times
- Direct support for most popular host interfaces

Display Support

- 4/8-bit monochrome LCD interface
- 4/8/16-bit color STN LCD interface
- Single-panel, single-drive passive displays
- 9/12/18-bit TFT panels
- Typical resolutions supported:
  - 320x240@8bpp
  - 160x160@16bpp
  - 160x240@16bpp

Clock Source

- Two clock inputs (single clock possible)
- Clock source can be internally divided down for a higher frequency clock input

Power Down Modes

- Software initated power save mode

Display Modes

- 1/2/4/8 bpp support
- Up to 64 shades of gray using FRM and dithering on monochrome passive LCD panels
- Up to 64K colors on passive STN and active matrix panels
- SwivelView™: direct hardware rotation of display image by 90°, 180°, 270°
- “Picture-in-Picture" displays a variable size window overlaid over background image
- Double buffering/multi-pages: provides smooth animation and instantaneous screen update

Operating Voltage

- COREVDD 1.8 to 2.2 volts and 3.0 to 3.6 volts
- HIOVDD 1.8 to 2.2 volts and 3.0 to 3.6 volts
- NIOVDD 3.0 to 3.6 volts

Package

- 100-pin TQFP15

For more information on the S1D13706 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