

S1D13717

S1D13717 QVGA LCD Controller

The S1D13717 is a QVGA LCD Controller designed with support for digital video in embedded products. The S1D13717 contains an integrated camera interface, hardware JPEG encoder/decoder, and an SD memory card interface. Seamlessly connecting to both direct and indirect CPU interfaces, it provides support for RGB interface TFT panels. The S1D13717, with its 224 KB of embedded SRAM and rich feature set, provides a low cost, low power, single chip solution to meet the demands of embedded markets requiring digital video.

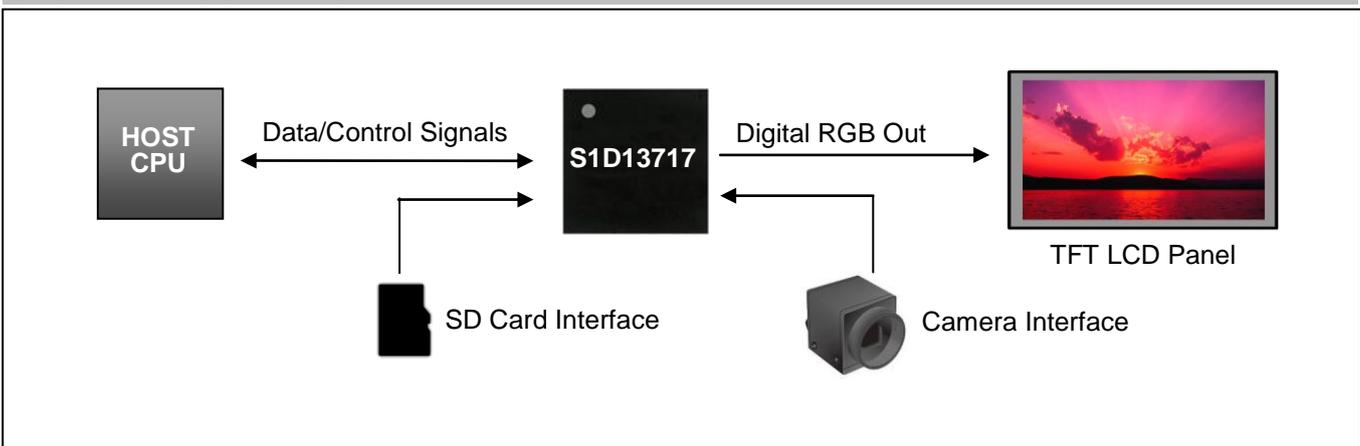
Additionally, products requiring a rotated display can take advantage of the SwivelView™ feature which provides hardware rotation of the display memory transparent to the software application. The S1D13717 also provides support for "Picture-in-Picture" (a variable size window with overlay functions). Higher performance is provided by the hardware acceleration engine which provides 2D BitBLT functions.

The S1D13717 provides impressive support for embedded markets requiring digital video support. It's impartiality to CPU type or operating system makes it an ideal display solution for a wide variety of applications.

FEATURES

- Embedded 224 KB SRAM display buffer
- Low operating voltage
- Direct and indirect CPU interfaces
- Programmable resolutions and color depths
- Support for RGB interface panels
- Support for TFT panels
- Internal PLL or digital clock input
- SD memory card interface
- Single port camera interface with resize function
- Hardware JPEG encoder/decoder
- YUV to RGB converter
- SwivelView™ 90°, 180°, 270° Hardware for rotation of displayed image
- Picture-in-Picture (overlay window)
- 2D hardware acceleration engine
- Software initiated power save mode
- PFBGA and QFP packages

SYSTEM BLOCK DIAGRAM



S1D13717 Features

- 224 KB SRAM
- JPEG encoder/decoder
- View/capture resizer
- 2D hardware acceleration
- SwivelView Rotation



DESCRIPTION

Display Buffer

- 224 KB of embedded SRAM
- Addressable as a single linear address space

Panel Support

- Supports TFT panels
 - 9/12/16/18-bit RGB interface
- Typical resolution of:
 - up to 320x240@16bpp

Display Features

- 8/16 bpp support
- Picture-in-Picture: displays a variable size window overlaid over the background image
- Overlay functions
- Pixel doubling: doubles the effective resolution
- Video invert: inverts display data

Acceleration

- 2D BitBLT engine
- SwivelView: 90°, 180°, 270° hardware rotation of display image
- Mirror display: hardware "mirror" image of display

CPU Interface

- 16-bit generic asynchronous CPU interface
- Direct and indirect addressing

Digital Video

- Single port camera interface (YUV 4:2:2)
- Hardware JPEG encoder (YUV 4:2:2, 4:1:1, 4:2:0)
- Hardware JPEG decoder (YUV 4:4:4, 4:2:2, 4:1:1, 4:2:0)
- YUV display/capture (YUV 4:2:2, 4:2:0)
- Memory image JPEG encode (YUV 4:2:2, 4:1:1, 4:2:0)
- View and capture hardware resizer with trimming and reduction functions
- YUV to RGB and RGB to YUV converters
- Support for external MPEG codec interface

Miscellaneous

- Internal PLL or digital clock input
- Software initiated power save mode
- COREVDD 1.8 volts and IOVDD 3.0 volts
- S1D13717B00B - PFBGA12 180-pin package
- S1D13717F00A - QFP21 176-pin package

JAPAN

SEIKO EPSON CORPORATION

IC Sales & Marketing Department
421-8 Hino, Hino-shi, Tokyo 191-8501, JAPAN
Phone: +81-42-587-5816 FAX: +81-42-587-5117

CHINA

EPSON (CHINA) CO., LTD

4th Floor, Tower 1 of China Central Place, 81 Jianguo Road,
Chaoyang District, Beijing 100025, CHINA
Phone: +86-10-8522-1199 FAX: +86-10-8522-1120

TAIWAN

EPSON TAIWAN TECHNOLOGY & TRADING LTD.

14F, No. 7, Song Ren Road,
Taipei 110, TAIWAN
Phone: +886-2-8786-6688 FAX: +886-2-8786-6660

AMERICA

EPSON ELECTRONICS AMERICA, INC.

214 Devcon Drive, San Jose, CA 95112,
USA
Phone: +1-800-228-3964 FAX: +1-408-922-0238

CHINA

SHANGHAI Branch

Room 01 & 04 17F, Greenland Center II, 562 Dong An Road,
Shanghai 200032, CHINA
Phone: +86-21-5423-5577 FAX: +86-21-5423-4677

SINGAPORE

EPSON SINGAPORE PTE., LTD.

1 HarbourFront Place,
#03-02 HarbourFront Tower One, SINGAPORE 098633
Phone: +65-6586-5500 FAX: +65-6271-3182

EUROPE

EPSON EUROPE ELECTRONICS GmbH

Riesstrasse 15, 80992 Munich,
GERMANY
Phone: +49-89-14005-0 FAX: +49-89-14005-110

CHINA

SHENZHEN Branch

Room 804-805, 8th Floor, Tower 2, Ali Center,
No.3331 Keyuan South RD (Shenzhen bay), Nanshan District,
Shenzhen 518054, CHINA
Phone: +86-10-3299-0588 FAX: +86-10-3299-0560

KOREA

SEIKO EPSON CORP.

19F, KLI 63 Bldg., 60 Yoido-dong,
Youngdeungpo-Ku, Seoul 150-763, KOREA
Phone: +82-2-784-6027 FAX: +82-2-767-3677

<http://global.epson.com/products/semicon>



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