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S1D13704 EMBEDDED MEMORY COLOR LCD CONTROLLER

DESCRIPTION

The S1D13704 is a color/monochrome LCD graphics controller with an embedded 40K Byte SRAM display buffer. The high integration of the S1D13704 provides a low cost, low power, single chip solution to meet the requirements of embedded markets such as Office Automation equipment, Mobile Communications devices, and Palm-size PCs where board size and battery life are major concerns.

Products requiring a “Portrait” display can take advantage of the Hardware Portrait Mode feature of the S1D13704. Virtual and Split Screen are just some of the display modes supported. The above features, combined with the Operating System independence of the S1D13704, make it the ideal solution for a wide variety of applications.

FEATURES

Memory Interface

- Embedded 40K byte SRAM display buffer.

CPU Interface

- Direct support of the following interfaces:
  - Hitachi SH-3.
  - Hitachi SH-4.
  - Motorola M68K.
  - MPU bus interface with programmable READY.
- Direct memory mapping of internal registers.
- CPU write buffer.

Display Support

- 4/8-bit monochrome LCD interface.
- 4/8-bit color LCD interface.
- Single-panel, single-drive passive displays.
- Dual-panel, dual-drive passive displays.
- Active Matrix TFT / TFD interface.
- Register level suport for EL panels.
- Example resolutions:
  - 640x480 at a color depth of 1 bpp
  - 640x240 at a color depth of 2 bpp
  - 320x240 at a color depth of 4 bpp
  - 240x160 at a color depth of 8 bpp

Power Down Modes

- Hardware and software Suspend modes.
- LCD power-down sequencing.

Display Modes

- Hardware Portrait Mode: direct hardware rotation of display image for portrait mode display.
- 1/2/4 bit-per-pixel (bpp), 2/4/16-level grayscale display.
- 1/2/4/8 bit-per-pixel, 2/4/16/256-level color display.
- Up to 16 shades of gray by FRM on monochrome passive LCD panels.
- 256 simultaneous of 4096 colors on color passive and active matrix LCD panels.
- Split screen display for all panel modes allows two different images to be simultaneously displayed.
- Virtual display support (displays images larger than the panel size through the use of panning).

Clock Source

- Single clock input for both pixel and memory clocks.
- The S1D13704 clock source can be internally divided down for a higher frequency clock input.
- Dynamic switching of memory clocks in portrait mode.

General Purpose IO Pins

- Five General Purpose Input / Output pins available.

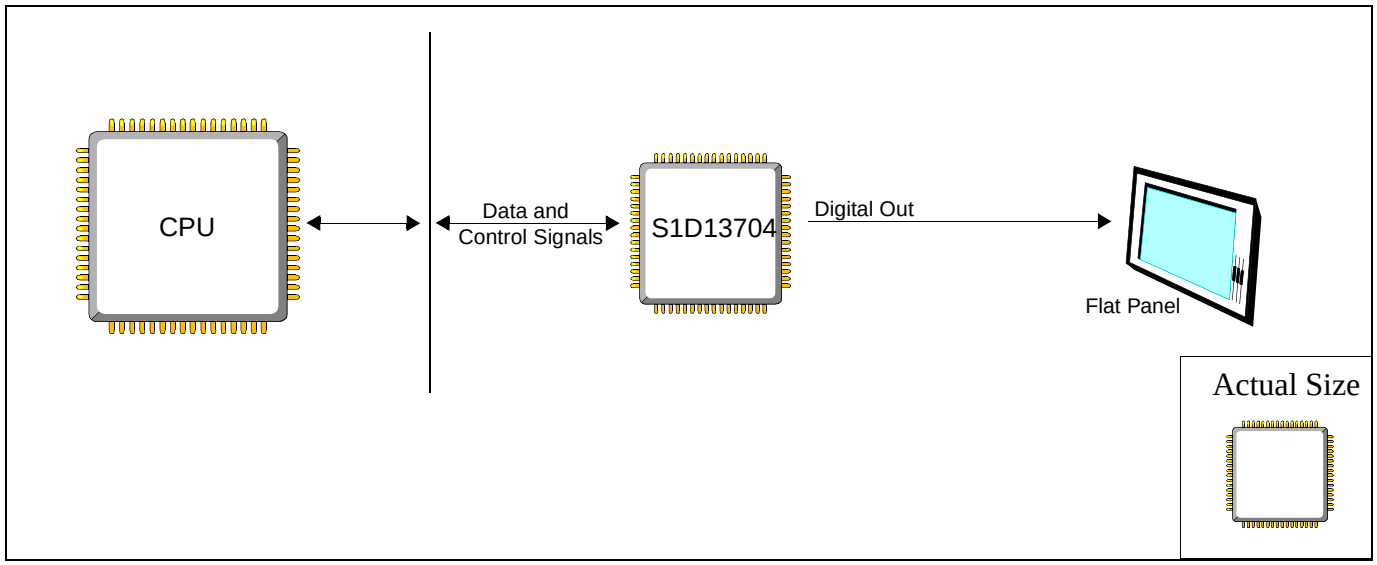
Operating Voltage

- 2.7 volts to 5.5 volts.

Package

- 80-pin QFP14 surface mount package.

■ SYSTEM BLOCK DIAGRAM



CONTACT YOUR SALES REPRESENTATIVE FOR THESE COMPREHENSIVE DESIGN TOOLS:

- S1D13704 Technical Manual
- S5U13704 Evaluation Boards
- Windows® CE Display Driver
- CPU Independent Software Utilities

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