

SED1373F0A

Embedded Memory LCD Controller

Preliminary

■ DESCRIPTION

The SED1373F0A is a color / monochrome LCD controller with an embedded 40K Byte SRAM frame buffer. The high integration of the SED1373F0A 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 Hand-Held PCs where board size and battery life are major concerns.

The SED1373F0A supports LCD interfaces with data widths up to 16 bits. Using Frame Rate Modulation, the SED1373F0A can display 16 shades of gray on monochrome LCD panels, and 256 of a possible 4096 colors on passive color LCDs. The SED1373F0A has a configurable 8-bit or 16-bit system data bus and interfaces to a wide range of CPU's. Operating voltages ranging from 2.7V to 3.6V for Core and from 2.7V to 5.5V for I/O, combined with a variety of power down modes offer the system designer a very low power yet highly flexible LCD solution.

■ FEATURES

Memory Interface

- Embedded 40K byte SRAM frame buffer.

CPU Interface

- Supports the following interfaces:
 - 8/16-bit SH-3 bus interface
 - 8/16-bit M68K local bus interface
 - 8/16-bit ISA bus interface
 - 8/16-bit MPU bus interface with programmable READY line
 - 16-bit i386/486 bus interface
- One-stage buffer for minimum wait-state CPU memory writes
- 32-bit CPU interfaces (e.g. i386/i486, etc.) can be supported using external logic

Clock Source

- Single clock input for both pixel and memory clocks.
- Clock source can be internally divided down for a higher frequency clock input.

Display Support

- 4/8-bit monochrome LCD interface.
- 4/8/16-bit color LCD interface.
- Single-panel, single-drive displays.
- Dual-panel, dual-drive displays.

Display Modes

- 1/2/4-bits per pixel, 2/4/16-level gray-scale display.
- 2/4/8-bits per pixel, 4/16/256-level color display.
- Up to 16 shades of gray by FRM on monochrome passive LCD panels; a 16x4 Look-Up-Table is used to map 1/2/4-bpp modes into these shades
- 256 simultaneous of 4096 colors on color passive LCD panels; three 16x4 Look-Up-Tables are used to map 1/2/4/8-bpp modes into these colors
- 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).

Power Down Modes

- Sleep mode for low-power support of LCD panels utilizing LCD drivers with internal display RAM.
- Two software power-save modes.
- LCD power-down sequencing.

Package

- 80-pin QFP14 surface mount package.

■ SYSTEM BLOCK DIAGRAM

