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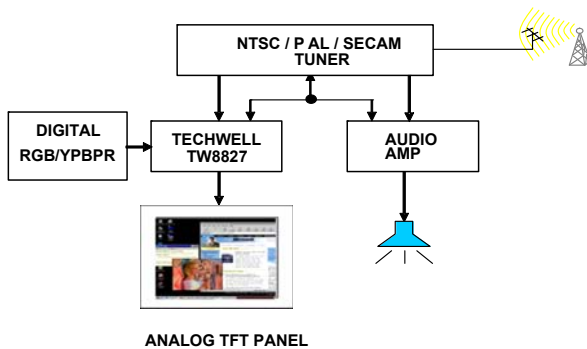
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Analog LCD Panel Processor with built-in MCU NTSC/PAL./SECAM Decoder and TCON

TW8827



Applications

- Mobil LCD TVs
- Rear seat entertainment
- Portable DVD, PMP and HMD (Head Mount Display)

Features

The TW8827 is a low cost high quality TFT panel controller with embedded NTSC/PAL/SECAM TV decoder. It incorporates all the features required to create multi-purpose low cost LCD TV systems in a single package. It contains all the circuits required to adapt standard NTSC/PAL/SECAM analog TV input signals as well as digital RGB signals for display on various TFT LCD panel types. An integrated timing controller and triple DACs allows direct interface with analog LCD panels. Its versatile analog inputs allow CVBS, S-video and RGB signal to be connected simultaneously.

Other features include: high quality adaptive 4H Comb Filter, interlaced and progressive ITU601, interlaced ITU656 and RGB656 inputs support, 2D de-interlacer and panoromic scaler, and multi-window programmable OSD. It also includes image enhancement functions such as black and white stretch, 2D peaking, CTI, and favorite color enhancement to further improve picture quality. To support analog panel, it also includes cost saving feature like CCFL and LED controller, charge pump booster and programmable panel offset control. In addition, TW8827 has built-in microcontroller with external SPI interface.

Analog Video Decoder

NTSC (M, 4.34) and PAL (B, D, G, H, I, M, N, N combination), PAL (60), SECAM with automatic format detection

- Advanced synchronization processing for VCR trick play signal
- Two 10-bit ADCs and analog clamping circuit.
- Built-in analog anti-aliasing filter
- Fully programmable static gain or automatic gain control for the Y or CVBS channel
- Programmable white peak control for the Y or CVBS channel
- Software selectable analog inputs allows any of the following combinations:
 - 3 composite video
 - 1 S-Video
 - 4-H adaptive comb filter Y/C separation
 - PAL delay line for color phase error correction
- Digital PLL for both color and horizontal locking
- Programmable hue, brightness, saturation, contrast, sharpness, Gamma control, and noise suppression
- Automatic color control and color killer
- Detection of level of copy protection according to Macrovision standard

Digital interface

- Support both interlaced and progressive ITU 656 source.
- Support 16bit RGB source

Built-in Microcontroller

- Support external SPI Interface
- Support I2C Master interface with GPIO
- Support Up to 8 MCU GPIO
- Support UART interface with GPIO
- Support IR or interrupt with GPIO

TFT Panel Support

- Supports a wide variety of Analog active matrix TFT panels up to WQVGA (480 x 234), 20 MHz

On Screen Display

- Built-in OSD controller with integrated character ROM and programmable RAM font.
- Multi-window OSD support with color pallet
- Support OSD overlay with alpha blending

Image Control

- Programmable hue, brightness, saturation, contrast
- Sharpness control with vertical peaking
- Programmable color transient improvement control
- Built-in de-interlacing engine
- Independent RGB gain and offset controls
- Panorama / Water-glass scaling
- YCbCr hue adjustment
- Programmable Gamma correction tables
- Built-in YCbCr to RGB color space converter
- Black/White Stretch
- Programmable favorite color enhancement

Power Management

- Supports Panel power sequencing.
- Supports DPMS for monitor power management.
- 1.8 / 3.3 V operation

Timing Controller (TCON)

- Support programmable interface signals for control
Column (source) driver / row (gate) driver

Miscellaneous

- Supports 2-wire serial bus interface
- Spread spectrum PLL
- CCFL controller
- LED controller
- Low-speed ADC for KEY scan
- 5V tolerant I/O
- Power-down mode
- Typical power consumption
- less than 250mW
- Single 27MHz crystal
- 80-pinTQFP package

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