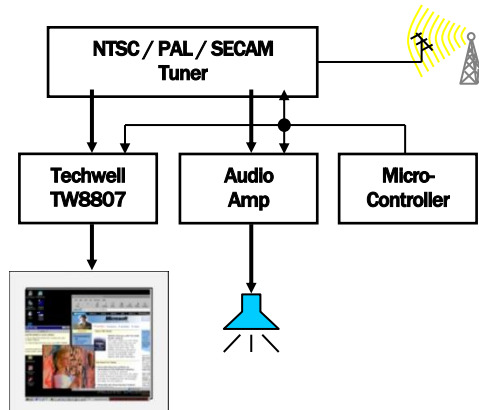


## TW8807

# LCD Flat Panel Controller with Built-in NTSC/PAL/SECAM Decoder and Analog T-CON

FN7758  
 Rev. 1.00  
 July 12, 2011

## Introduction



## Applications

- LCD TVs for home and mobile use
- Rear seat entertainment
- Portable DVD, PMP and HMD (Head Mount Display)

## Features

The TW8807 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 LCD TV systems in a single package. It contains all the circuits required to adapt standard NTSC/PAL/SECAM analog TV input signals for display on various TFT LCD panel types. An integrated timing controller and three DACs allows direct interface with analog LCD panels. Its versatile 5 analog inputs allow CVBS, S-video signal to be connected simultaneously.

Other features include: high quality adaptive 4H Comb Filter, downscaling to QVGA output resolution, 2D de-interlacer and panoramic 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 features like charge pump booster and programmable panel offset control.

## Analog Video Decoder

NTSC (M, 4.43) 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:
  - Up to 4 composite video
  - UP to 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

## TFT PANEL SUPPORT

- Supports a wide variety of Analog active matrix TFT panels
- Supports delta RGB 8 bits digital pixel format

## ON SCREEN DISPLAY

- Built-in OSD controller with integrated character ROM and programmable RAM font
- Multi-window OSD support with color palette
- Supports 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

**POWER MANAGEMENT**

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

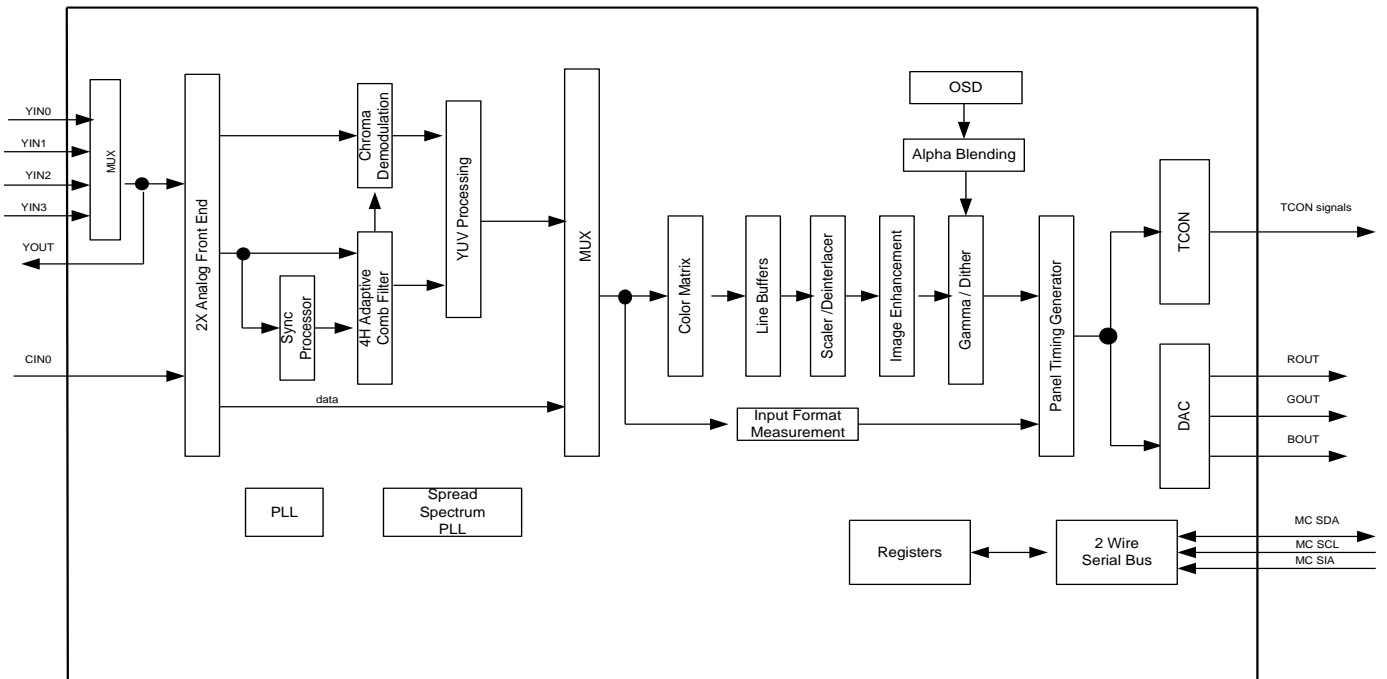
**TIMING CONTROLLER (TCON)**

- Support programmable interface signals for control

column (source) driver / row (gate) driver

**MISCELLANEOUS**

- Supports 2-wire serial bus interface
- Spread spectrum PLL
- Programmable panel VCOM offset control
- Dual charge pumping circuit with feedback sensing
- 5V tolerant I/O
- Power-down mode
- Typical power consumption less than 500mW
- Single 27MHz crystal
- 64-pin LQFP package



**FIGURE 1. TW8807 FLAT PANEL TV/MONITOR CONTROLLER FUNCTIONAL BLOCK DIAGRAM**

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