



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



## Contact us

Tel: +86-755-8981 8866 Fax: +86-755-8427 6832

Email & Skype: info@chipsmall.com Web: www.chipsmall.com

Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China



To request the full datasheet, please visit [www.intersil.com/products/TW8826](http://www.intersil.com/products/TW8826)

# LCD Flat Panel Processor with built-in MCU, NTSC/PAL/SECAM Decoder, T-CON and Analog RGB Support

## TW8826

### General Description

The TW8826 is a highly integrated multi-purpose LCD display solution for both analog panels. To reduce BOM cost, TW8826 integrates an 8-bit MCU and a CCFL or LED controller. Through multiple input ports, TW8826 can directly display video and graphic content from a variety of devices including TV Tuners, DVD players, back-up cameras, DTV/DMB receivers and navigation/GPS receivers.

### Applications

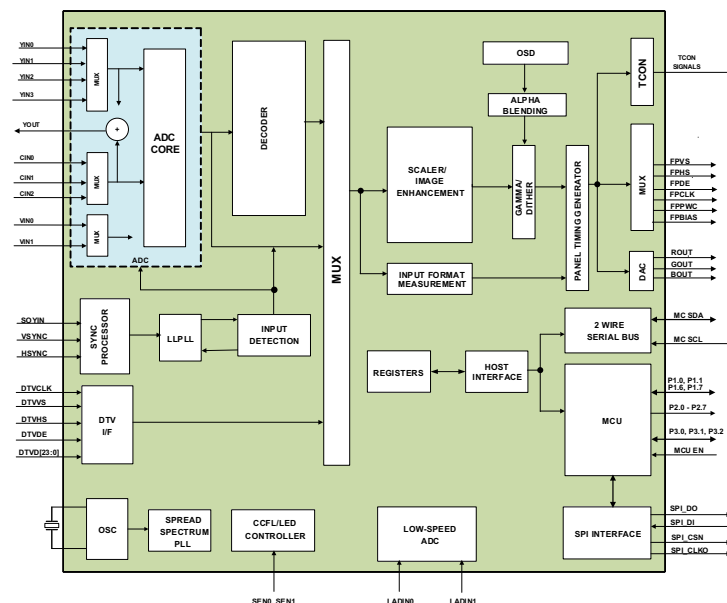
- Navigation + DVD + TV
- Back up Camera
- Rear Seat Entertainment
- Car TV
- Portable DVD
- PMP
- Portable TV
- Door Phone
- Photo Frame
- DMB TV
- Baby Monitor
- Home Audio
- In Flight Entertainment

### Features

- Supports analog inputs including CVBS, S-Video, YPbPr & RGB signals and digital inputs including 24 bit RGB & 8/16/24 bit YCbCr. Interlaced and progressive ITU 656 inputs are supported.
- Supports analog panels up to WQVGA resolutions
- Integrates cost saving features including LED controller, CCFL controller, programmable panel offset control and on-chip 8 bit 8051 MCU with SPI interface
- Embedded Image Enhancement
  - Programmable CTI, hue, brightness, saturation, contrast & sharpness control
  - Black/White Stretch
  - Programmable favorite color enhancement- up to three colors
  - Programmable Gamma Correction tables

### 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
- Three 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



## Features (Continued)

- Programmable white peak control for the Y or CVBS channel
- Software selectable analog inputs allows any of the following:
  - Up to 4 composite video
  - Up to 3 S-Video
  - Up to 2 analog YPbPr and RGB
- 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

## Analog RGB/YPbPr Input

- Built-in sync processor for SOG support
- Built-in Line-locked PLL supporting up to 108MHz
- Built-in input measurement function

## Digital Interface

- Allows connection to 8/16/24-bit RGB/YCbCr
- Supports both interlaced and progressive ITU 656

## TFT Panel Support

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

## Built-in Microcontroller

- Supports external SPI Interface and I2C Master interface with GPIO
- Supports 8 MCU GPIO, 1 UART (up to 9600bps)
- Supports IR or interrupt with GPIO

## CCFL and LED Controller

- Single channel CCFL controller based on push-pull architecture
- Lamp fault monitoring- Lamp Open, Lamp Over-current, Failure to Strike and Over-voltage
- Programmable Lamp Frequency to move EMI spurs out of band
- Analog or digital brightness control. 300:1 dimming range with the digital brightness control.
- Low power stand-by mode
- Fine dimming control step (128 steps)

## OSD

- Built-in OSD controller with integrated character 202 ROM fonts, programmable 227 RAM fonts and 512 characters display RAM.
- Multi-window (4) OSD support with color pallet
- 16 font & window colors available
- Supports OSD overlay with alpha blending

## Image Enhancement

- Programmable hue, brightness, saturation, and contrast controls
- Sharpness control with vertical peaking
- Programmable CTI control
- Built-in de-interlacing engine
- Independent RGB gain and offset controls
- Panorama / Water-glass scaling
- YCbCr hue adjustment
- Programmable Gamma correction tables
- 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)

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

## Miscellaneous

- Supports 2-wire serial bus interface
- pread spectrum PLL
- Low-speed ADC for KEY scan
- Programmable panel VCOM offset control
- 5V tolerant I/O
- Power-down mode
- DFT
- Typical power consumption < 500mW
- Single 27MHz crystal

For additional products, see [www.intersil.com/en/products.html](http://www.intersil.com/en/products.html)

Intersil products are manufactured, assembled and tested utilizing ISO9001 quality systems as noted in the quality certifications found at [www.intersil.com/en/support/qualandreliability.html](http://www.intersil.com/en/support/qualandreliability.html)

*Intersil products are sold by description only. Intersil Corporation reserves the right to make changes in circuit design, software and/or specifications at any time without notice. Accordingly, the reader is cautioned to verify that data sheets are current before placing orders. Information furnished by Intersil is believed to be accurate and reliable. However, no responsibility is assumed by Intersil or its subsidiaries for its use; nor for any infringements of patents or other rights of third parties which may result from its use. No license is granted by implication or otherwise under any patent or patent rights of Intersil or its subsidiaries.*

For information regarding Intersil Corporation and its products, see [www.intersil.com](http://www.intersil.com)