

To request the full datasheet, please visit [www.intersil.com/products/TW8819](http://www.intersil.com/products/TW8819)

# Ultra Low Cost LCD Controller

## TW8819

### Description

The TW8819 is an ultra low cost highly integrated LCD controller. It combines a high quality 2D comb NTSC/PAL/SECAM video decoder, high quality scaler, Font based OSD engine, and image enhancement functions. It also supports panoramic scaling for conversion to wide screen display. The TW8819 supports analog composite video inputs and the output supports a wide variety of digital LCD panel types.

### Applications

- Rear camera display
- Video door phone

### Features

#### 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
- 10-bit ADC and analog clamping circuit
- Fully programmable static gain or automatic gain control for the Y or CVBS channel
- Programmable white peak control for the Y or CVBS channel
- High quality adaptive 2D comb filter for both NTSC and PAL inputs
- PAL delay line for color phase error correction
- Image enhancement with 2D dynamic peaking and CTI
- Digital sub-carrier PLL for accurate color decoding
- Digital horizontal PLL and advanced synchronization processing for VCR playback and weak signal performance
- Programmable hue, brightness, saturation, contrast and sharpness

#### TFT Panel Support

- Built-in programmable timing controller
- Supports 3, 4, 6 or 8 bits per pixel up to 16.8 million colors with built-in dithering engine

- Supports digital panels up to WXGA+ (1366x768) resolution
- Supports serial (8-bit) RGB panels

#### Timing Controller (TCON)

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

#### On Screen Display

- 256 Font RAM and 512 Display RAM
- Four windows font OSD with bordering/shadowing
- 1/2/3/4 bits/pixel
- Supports variable width (12/16), height (2~32)

#### Image Processing

- High quality scaler with both up/down and nonlinear scaling support
- Panorama/water-glass scaling
- Built-in 2D de-interlacing function
- Programmable hue, brightness, saturation, contrast and sharpness
- Programmable cropping of input video and graphics
- Independent RGB gain and offset controls
- Programmable 8-bit Gamma correction for each color
- Operates in Frame Sync mode
- Black/White Stretch

#### Clock Generation

- Spread spectrum clock
- Selectable modulation frequency and spread width

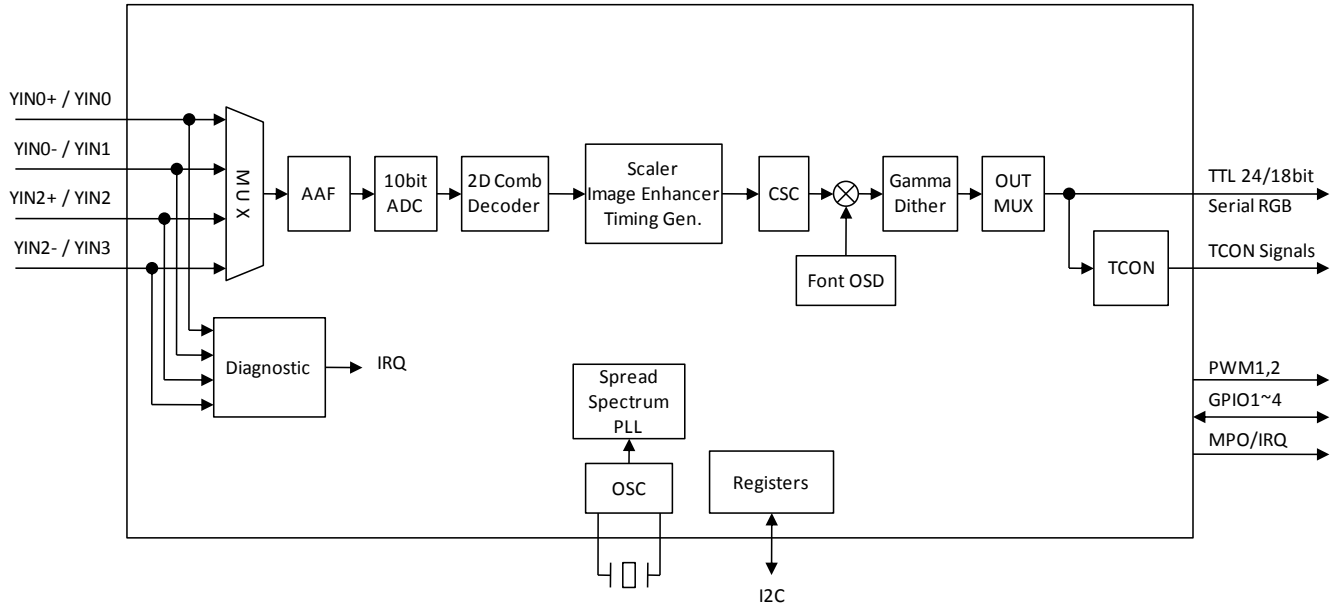
#### Power Management

- Supports functional based independent power down
- 1.8/3.3 V operation

#### Miscellaneous

- Short to Battery Detection Test
- Short to Ground Detection Test
- Supports 2-wire serial bus interface
- Single 27MHz crystal
- 48 pin WFQFN package (Wettable Flank QFN available)

## TW8819 Functional Block Diagram



For additional products, see [www.intersil.com/product\\_tree](http://www.intersil.com/product_tree)

Intersil products are manufactured, assembled and tested utilizing ISO9001 or TS16949 quality systems as applicable noted in the quality certifications found at <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 <http://www.intersil.com>