intersil Techwell™

TECHWELL DISPLAY

Automotive Display ICs

TW8810

3D Decoder based on LCD controller for Sharp™ dual-view digital panel

The TW8810 is a highly integrated LCD TFT flat panel controller for Sharp™ dual-view LCD panel primarily targeting front console and rear-seat automotive infotainment applications. The TW8810 integrates a high quality NTSC/PAL/SECAM 3D video decoder and a 2D de-interlacer with low angle compensation. In addition, built-in dual-view mixer enables direct support for Sharp™ dual-view panel.

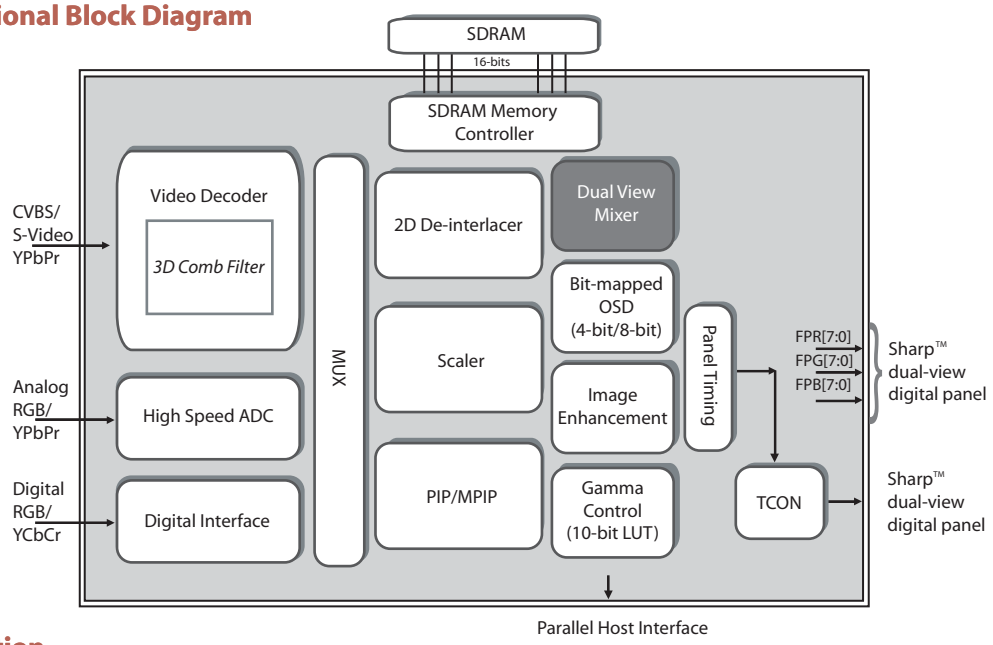
Target Applications

- **Sharp™ Dual View Display based applications only**
- Navigation + DVD + TV
- Back up Camera
- Rear Seat Entertainment
- Car TV
- Portable DVD player
- Portable TV
- In Flight Entertainment

Key Features

- Supports analog inputs including CVBS, S-Video, YPbPr & RGB signals and digital inputs including 8/16/24 bit RGB/YCbCr. Interlaced and progressive ITU 656 inputs are supported
- Supports Sharp™ dual-view digital panel with resolutions up to WVGA
- Integrated low cost 16-bit SDRAM memory controller supporting up to 8MB SDRAM external memory
- Supports PIP/MPIP
- Built-in dual-view mixer block to support Sharp™ dual-view digital panel
- Built-in dual window bit-mapped (4/8-bits) OSD
- Supports external 18-bit OSD with alpha blending control
- PIP Overlay
- Embedded Image Enhancement
  - Programmable CTI, hue, brightness, saturation, contrast & sharpness control
  - Black/White Stretch
  - Programmable favorite color enhancement- up to three colors (Skin, Grass & Sky)
  - Programmable Gamma Correction tables

TW8810 Functional Block Diagram



Order Information

Part #	Name	Description	Pin Count	Body Size
TW8810	PQFP 208	Plastic Quad Flat Package	208	28 x 28 mm^2

TW8810

3D Decoder based on LCD controller for Sharp™ dual-view digital panel

3D 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
- Three 10-bit ADCs 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
- Software selectable analog inputs allows any of the following combinations:
  - Up to 4 composite video
  - Up to 2 S-Video
  - Up to 1 YPbPr
- High quality motion adaptive 3D comb filter for both NTSC and PAL with concurrent 3D noise reduction
- 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, sharpness
- High quality horizontal and vertical filtered down scaling with arbitrary scale down ratio
- Detection of level of copy protection according to Macrovision standard
- Supports YPbPr input up to 1080i with sub-sampled resolution
- Support automatic standard detection for YPbPr input

Analog RGB Inputs

- Triple high speed 8-bit ADCs with clamping and programmable gain amplifier.
- Up to two independent RGB / YPbPr channels with corresponding SOG
- Built-in line locked PLL with sync separator
- Allows high resolution components inputs like DTV 480i, 480p, 576i, 576p,720p & 1080i
- Supports PC inputs up to SXGA

8/16/24-bit YCbCr Inputs

- Allows connection with alternative Video and PC Graphics inputs
- Support both 656 and 601 video formats
- Allows connection to HDMI receiver

TFT Panel Support

- Supports Sharp™ dual-view panel up to WVGA
- Supports 3, 4, 6 or 8 bits per pixel up to 16.8 million colors with built-in dithering engine
- Support single channel TTL panel
- Built-in programmable timing controller

Miscellaneous

- Power-down mode
- Temperature rating: -40 C to +85 C
- Single 27MHz crystal
- 208-pin PQFP package

Font OSD

- Dual window 4-bit/8-bit bitmapped OSD
- Built-in OSD controller with BitBlit Engine
- Supports variety functions included like blinking, transparency and blending
- Supports External 18-bit OSD with external alpha blending control
- Support OSD compression

PIP Function

- PIP with variable sub window size
- Support PIP alpha blending
- POP and Multiple PIP support
- Built-in high quality down scaling

Image Processing & Enhancement

- Built-in 2D de-interlacing engine with proprietary low angle compensation circuit for smooth video rendering
- Built-in high quality scaler with nonlinear scaling support- Panorama & Water-glass
- Programmable hue, brightness, saturation, contrast
- Sharpness control with vertical peaking
- Programmable color transient improvement control
- Supports programmable cropping of input video and graphics
- Independent RGB gain and offset controls
- DTV hue adjustment
- Programmable Gamma correction for each color
- Operated in Frame Sync mode only
- Black/White Stretch
- Programmable favorite color enhancement

SDRAM (up to 8MB)

- Support 16-bit bus width SDRAM

Host Interface

- Supports 2-wire serial bus interface
- Supports 8Bits Parallel Host Interface

Clock Generation

- Frequency synthesizer with spread spectrum generate memory and display clocks
- Spread spectrum profile based on triangular modulation with center spread
- Modulation frequency and spread width can be selectable

Power Management

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

About Techwell

Techwell is a fabless semiconductor company that designs, markets and sells mixed signal integrated circuits for multiple digital video applications in the consumer, security surveillance and automotive markets, including advanced TVs, multifunction LCD monitors, DVD Recorders, security surveillance systems and in-car LCD displays. Founded in 1997, we currently have over 125 employees and are headquartered in San Jose, California, with additional R&D and sales activities in South Korea, Japan, Taiwan and China. NASDAQ:TWLL

For more information on Techwell, please contact us at 1-408-435-3888

intersil | Techwell™

TECHWELL INC. TEL 1-408-435-3888 www.techwellinc.com