

TW9909

5x10-Bit Multi-Standard 3D Comb Filter Video Processor with SCART and RGB Mixing Support

FN7772
 Rev.0.00
 Feb 11, 2011

Techwell's [TW9909](#) is a high performance NTSC/PAL/SECAM multi-standard 10-bit video decoder plus SCART/YCbCr component inputs and analog RGB overlay support designed for multimedia applications.

TW9909 uses the mixed-signal 2.5V/3.3V CMOS technology to provide a low-cost and low-power integrated solution. Minimum external components are required due to its integrated analog front-end containing anti-aliasing filter, AGC, clamping, and five 10-bit high speed ADCs. For composite inputs, an adaptive comb filter and luma/chroma processing produce exceptionally high quality pictures using proprietary techniques. A high quality internal scaling engine offers arbitrarily filtered down scaling of the output video. Its VBI capability is enhanced with built-in VBI slicer, filter, FIFO and VBI data pass-through function to support common data services.

Features

The main features of the TW9909 are

- NTSC (M, 4.43) and PAL (B, D, G, H, I, M, N, N combination), PAL (60), SECAM support with automatic format detection
- Advanced synchronization processing for VCR trick mode and weak signal
- Software selectable 14 analog input terminals allow maximum flexibility:
- Up to five composite, or two S-Video or two YCbCr inputs
- Up to two SCART RGB inputs with FB.
- Five 10-bit ADCs with clamping circuit and anti-aliasing filter built-in
- Fully programmable static or automatic gain control for the Y and G(Y) channel
- Programmable white peak control for the Y channel
- High quality analog RGB/YCbCr mixing by Fast Blanking signal
- Adaptive 4H comb filter for the best image quality
- PAL delay line for color phase error correction
- Digital sub-carrier PLL for accurate color decoding
- Digital Horizontal PLL and advanced synchronization processing for non-standard video signals
- Programmable hue, brightness, saturation, contrast, and sharpness
- Blue stretch function
- Image enhancement with 2D peaking and CTI.
- Automatic color control and color killer
- IF compensation filter
- Detection of level of copy protection according to Macrovision standard
- YCbCr input supports 480i/576i and sub-sampled 480p/576p with auto-detection.

Video Output

- Support both free-running and line-locked clock outputs
- Programmable output cropping
- High quality horizontal filtered scaling with arbitrary scale down ratio
- 10-bit or 20-bit output interface
- ITU-R 601 or ITU-R 656 compatible output YCbCr(4:2:2) output format
- VBI slicer supporting industrial standard data services with data packet filter capability
- Built-in VBI FIFO for convenient access through host interface
- VBI data pass through, raw ADC data for InterCast™
- Field locked audio clock generator

Miscellaneous

- Two wire MPU serial bus interface
- Power-down mode
- Typical power consumption 0.4W
- Single 27MHz crystal for all standards
- Supports 24.54MHz and 29.5MHz crystal for high quality square pixel format
- 3.3V / 5V tolerant I/O
- 2.5V / 3.3V Power Supply
- 80 pin TQFP package

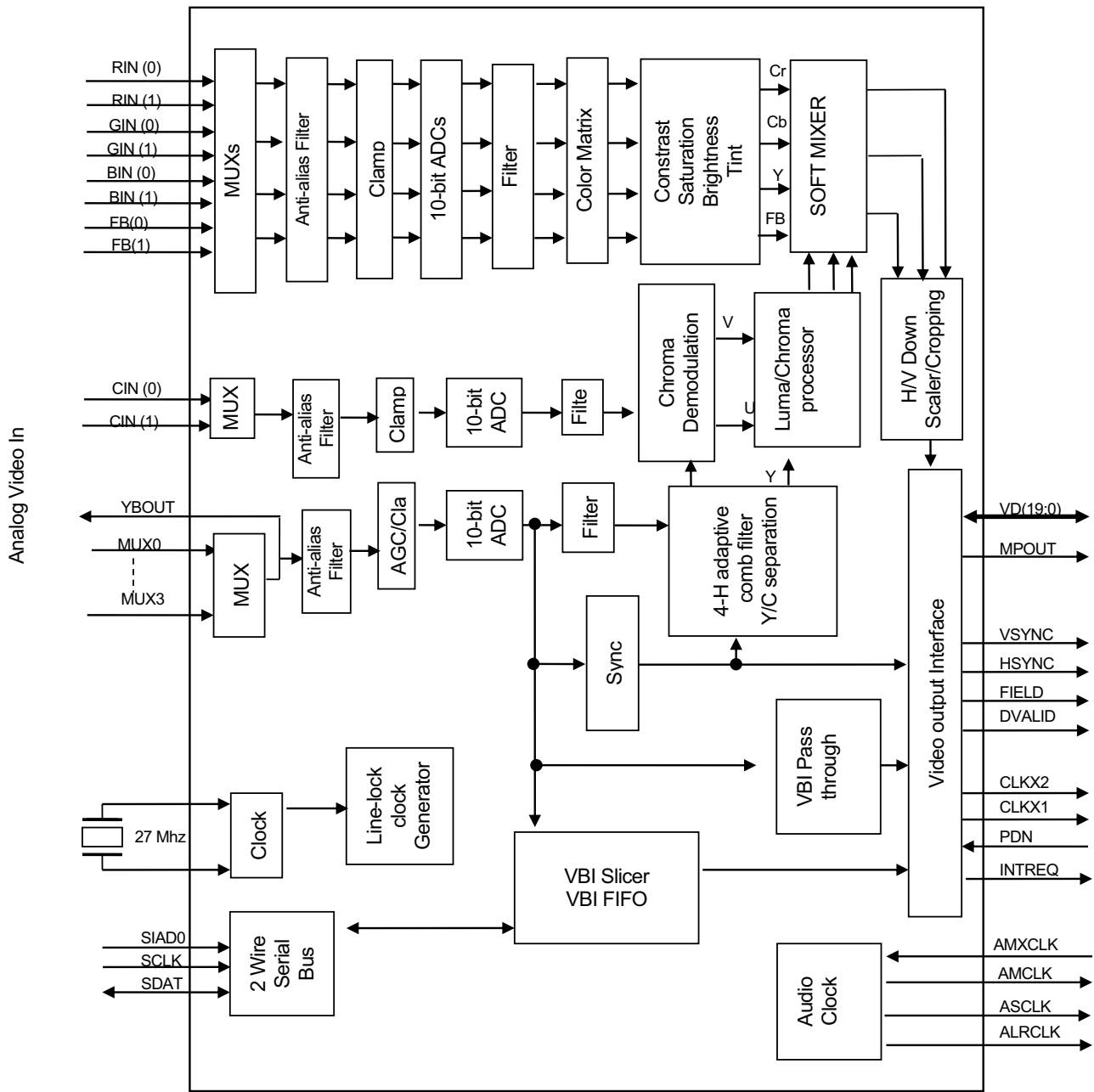


FIGURE 1. TW9909 BLOCK DIAGRAM

© Copyright Intersil Americas LLC 2011. All Rights Reserved.

All trademarks and registered trademarks are the property of their respective owners.

For additional products, see 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

Intersil products are sold by description only. Intersil may modify the circuit design and/or specifications of products at any time without notice, provided that such modification does not, in Intersil's sole judgment, affect the form, fit or function of the product. Accordingly, the reader is cautioned to verify that datasheets 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