TW9992

Low Power NTSC/PAL Video Decoder with Differential CVBS Inputs and MIPI-CSI2 Output Interface

The TW9992 is a low power NTSC/PAL analog video decoder that is designed for automotive applications. It supports single-ended, differential and pseudo differential composite video inputs. Integrated short-to-battery and short-to-ground detection, advanced image enhancement capabilities such as the programmable Automatic Contrast Adjustment (ACA) and the MIPI-CSI2 output interface make the TW9992 an ideal solution for demanding automotive camera applications.

Features

- **Analog Video Decoder**
  - Software selectable analog input control allows for combinations of single-ended CVBS, and differential CVBS
  - Built-in analog anti-alias filter
  - Two 10-bit ADCs and analog clamping circuit
  - Fully programmable static gain or automatic gain control for the Y channel
  - Programmable white peak control for the Y channel
  - 4-H adaptive comb filter Y/C separation
  - PAL delay line for color phase error correction
  - Digital subcarrier PLL for accurate color decoding
  - Digital horizontal PLL for synchronization processing and pixel sampling
  - Advanced synchronization processing and sync detection for handling nonstandard and weak signal
  - Automatic color control and color killer
  - Chroma IF compensation
  - Programmable output cropping
- **Video Processing**
  - Automatic Contrast Adjustment (ACA)
  - RGB565
  - Programmable hue, brightness, saturation, contrast and sharpness.
  - Image enhancement with peaking and CTI
- **MIPI Output**
  - MIPI 1.1 compliant unidirectional output format
  - YUV 422 or RGB565 output format
- **Digital Output**
  - Output voltage 1.8V to 3.3V with 3.3V tolerance
- **Miscellaneous**
  - Low power consumption: 100mW typical
  - Power save and Power-down mode
  - Short-to-battery detection test
  - Short-to-ground detection test
  - Two-wire MPU serial bus interface
  - Supports real time control interface
  - Single 27MHz crystal for all operations
  - Supports 24.54MHz and 29.5MHz crystal for high resolution square pixel format decoding
  - 3.3V tolerant I/O
  - 1.8V/3.3V power supply
  - 32 Ld QFN (WQFN with wettable flanks)
  - TW9992AT-NA1-GE is AEC-Q100 qualified

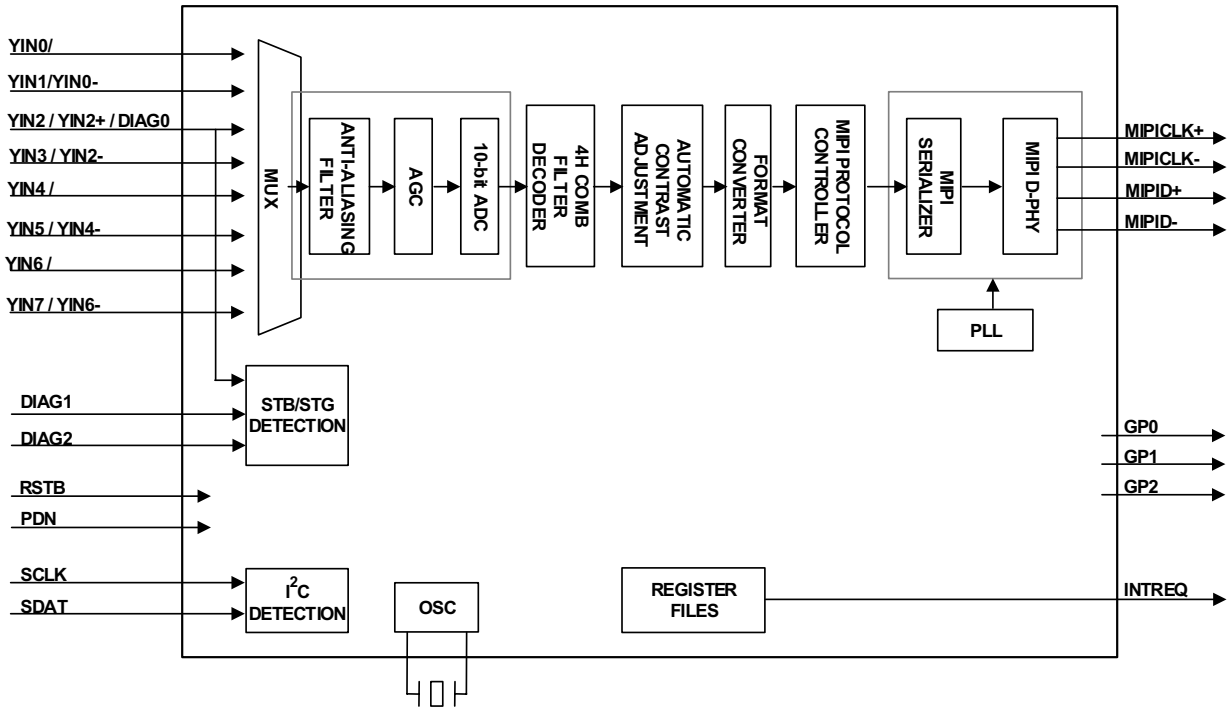

Figure 1. TW9992 Functional Block Diagram

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