ISL79985, ISL79986

4-Channel Differential Input Video Decoder with MIPI-CSI2/BT.656 Output for Around View Applications

The ISL79985, ISL79986 integrates four high quality NTSC/PAL/SECAM video decoders that convert the analog composite video signal to digital component YCbCr data for automotive applications. Each channel contains a 10-bit ADC that supports single-ended, differential, and pseudo differential composite video inputs, proprietary clamp and gain controllers, thus, utilizes a 4H-comb filter for separating luminance and chrominance to reduce cross noise artifacts. 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/ITU-R BT.656 output interface make the ISL79985, ISL79986 an ideal solution for demanding automotive around view applications.

Applications

- Automotive surround view

Features

Analog Video Decoder

- Software selectable analog input control allows for combinations of single-ended CVBS and differential CVBS
- Integrated four video analog anti-aliasing filters and 10-bit CMOS ADCs with differential and single-ended inputs
- 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 non-standard and weak signal
- Automatic color control and color killer
- Chroma IF compensation
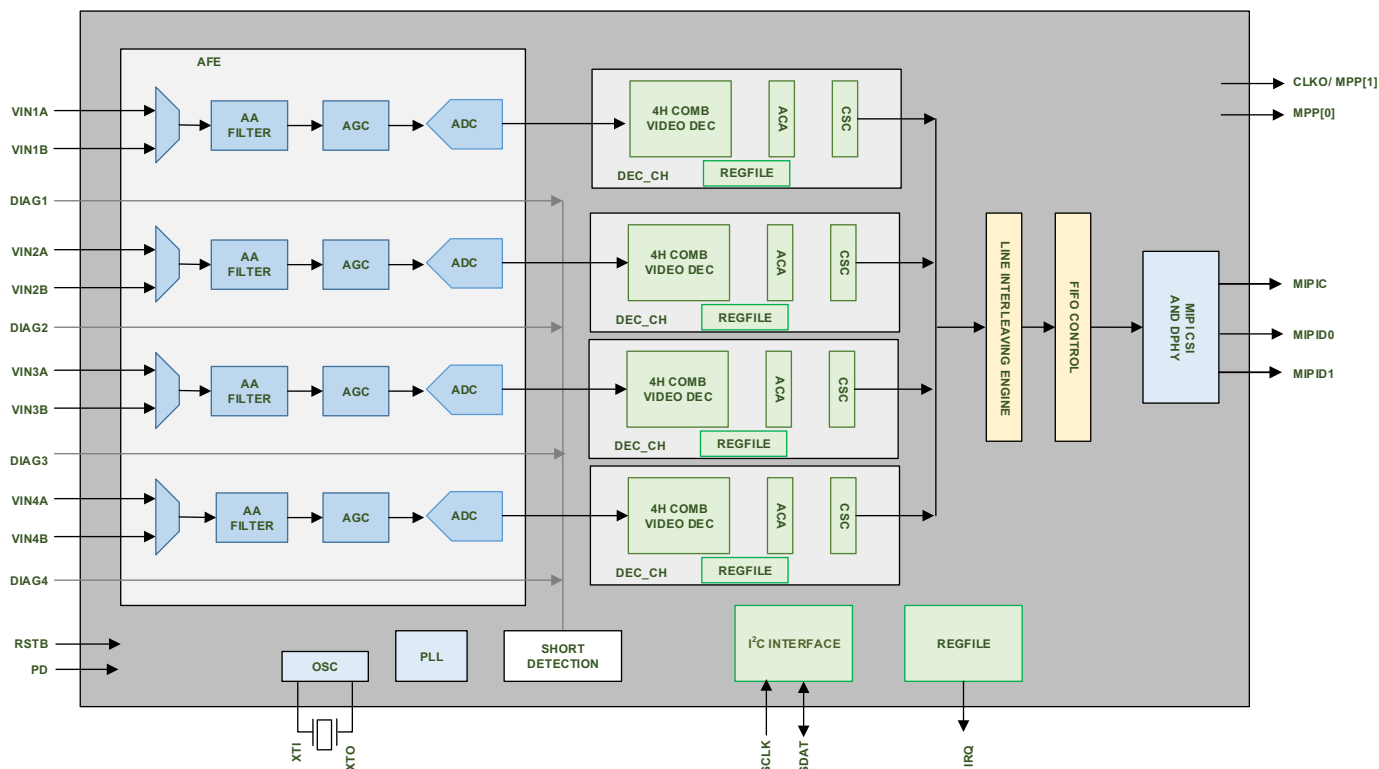- Programmable output cropping

FIGURE 1. ISL79985 BLOCK DIAGRAM

Features (Continued)

Video Processing

- Automatic Contrast Adjustment (ACA)
- Programmable hue, brightness, saturation, contrast and sharpness.
- Image enhancement with peaking and CTI

MIPI Output (ISL79985)

- MIPI CSI-2 Version 1.1 compliant unidirectional output format
- Standard virtual channel support
- One or two data lanes
- YUV422 or RGB565 output format

Digital Output (ISL79986)

- Supports standard ITU-R BT.656 format or time multiplexed output with 27/54/108MHz
- Output voltage 1.8V to 3.3V

Miscellaneous

- Low power consumption
- Power save and power-down mode
- Short-to-battery detection
- Short-to-ground detection
- 2-wire MPU serial bus interface
- Single 27MHz crystal for all operations
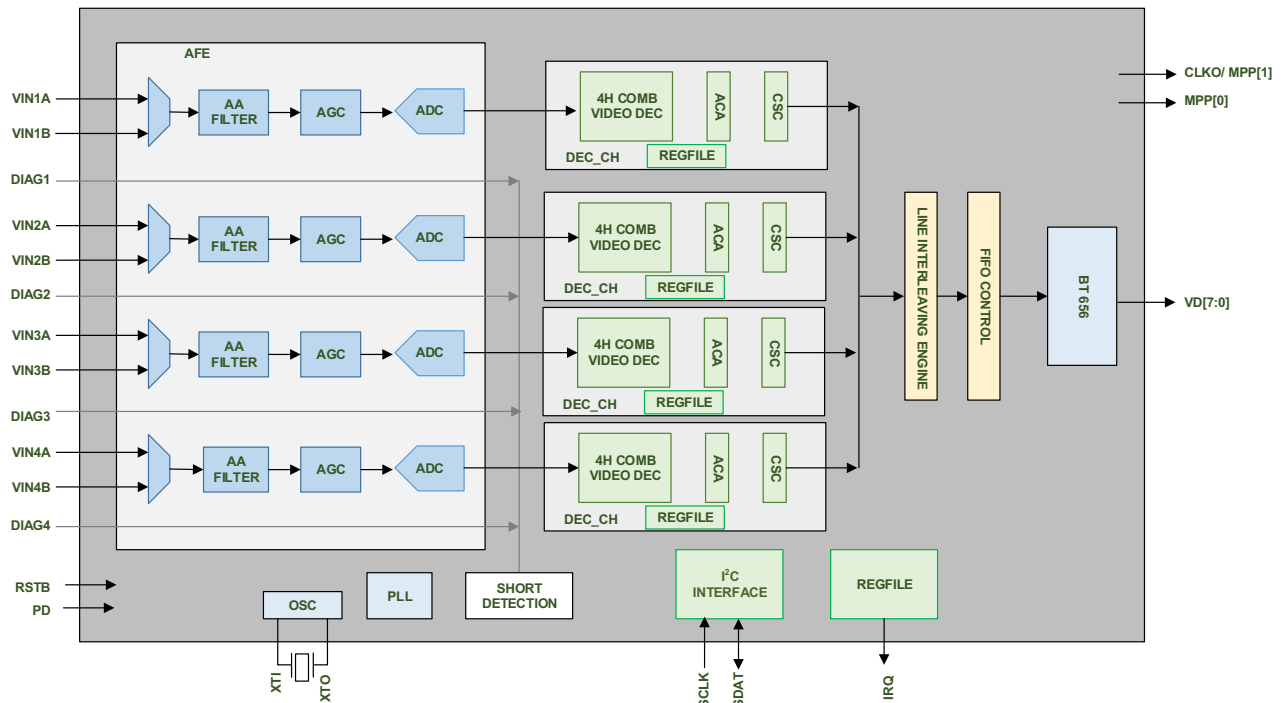- 1.2V/3.3 V power supply
- 48 Ld QFN package
- AEC-Q100 qualified

FIGURE 2. ISL79986 BLOCK DIAGRAM

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