Dual-Channel, 14-Bit HD Image Signal Processor with Precision Timing Core

FEATURES

- Dual AFE channels
- 1.8 V analog and digital core supply voltage
- Serial data output with reduced range LVDS outputs
- Differential analog inputs
- CDS or SHA configuration (CDS bypass) with −3 dB, 0 dB, +3 dB, and +6 dB gain
- 6 dB to 42 dB, 10-bit variable gain amplifier (VGA)
- 14-bit, 75 MHz analog-to-digital converter (ADC)
- Black level clamp with variable level control
- *Precision Timing* core with 210 ps resolution @ 75 MHz

APPLICATIONS

- Digital video cameras
- Digital still cameras
- Digital copiers
- Multifunction printers
- High speed industrial cameras

GENERAL DESCRIPTION

The AD9978A is a highly integrated, dual-channel, charge-coupled device (CCD) signal processor for high speed digital video camera applications. Each channel is specified at pixel rates of up to 75 MHz and consists of a complete analog front end (AFE) with ADC conversion. The *Precision Timing*™ core allows adjustment of the correlated double sampler (CDS) and sample-and-hold amplifier (SHA) clocks with 210 ps resolution at 75 MHz operation. The AD9978A also contains a reduced range low voltage differential signaling (LVDS) interface for the dual-channel data outputs.

Each analog front end includes black level clamping, a CDS, a VGA, and a 75 MHz, 14-bit analog-to-digital converter (ADC). Operation is programmed using a 3-wire serial interface.

Packaged in a space-saving, 6 mm × 6 mm, 40-lead LFCSP, the AD9978A is specified over an operating temperature range of −25°C to +85°C.

FUNCTIONAL BLOCK DIAGRAM

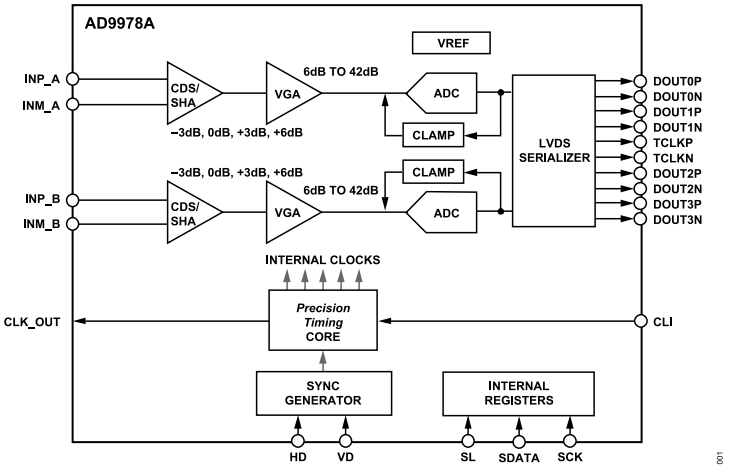

Figure 1.

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