SLAS320 − MAY 2001

CCD SIGNAL PROCESSOR FOR DIGITAL CAMERAS

FEATURES

- **CCD Signal Processing**
  - **Correlated Double Sampling (CDS)**
  - **Programmable Black Level Clamping**
- **Programmable Gain Amplifier (PGA)**
  - **−6-dB to 42-dB Gain Ranging**
- **10-Bit Digital Data Output**
  - **Up to 36-MHz Conversion Rate**
  - **No Missing Codes**
- **76-dB Signal-to-Noise Ratio**
- **Portable Operation**
  - **Low Voltage: 2.7 V to 3.6 V**
  - **Low Power: 130 mW (typ) at 3.0 V**
  - **Standby Mode: 6 mW**

DESCRIPTION

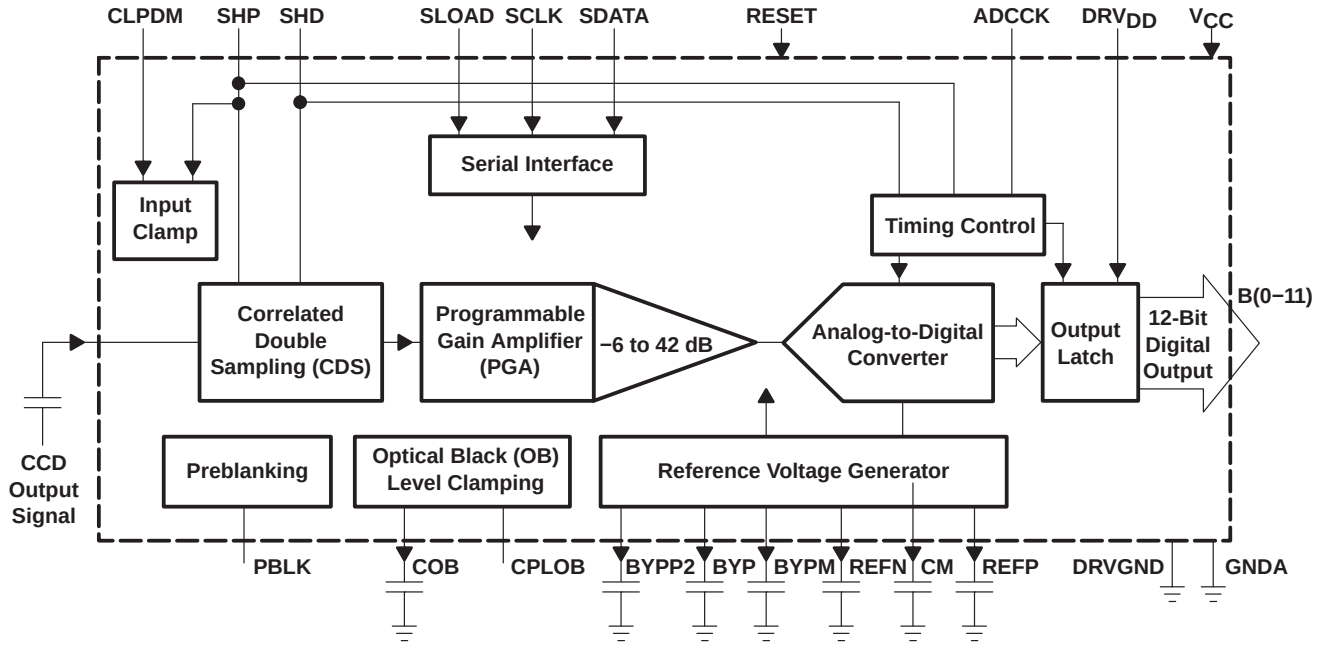
The VSP2232 is a complete mixed-signal processing IC for digital cameras that provides signal conditioning and analog-to-digital conversion for the output of a CCD array. The primary CCD channel provides correlated double sampling (CDS) to extract the video information from the pixels, a −6-dB to 42-dB gain with digital control for varying illumination conditions, and black level clamping for an accurate black level reference.

Input signal clamping and offset correction of the input CDS is also performed. The stable gain control is linear in dB. Additionally, the black level is quickly recovered after gain change.

The VSP2232Y is pin-to-pin compatible with the VSP2262Y (12-bit 20 MHz) one-chip product.

The VSP2232Y is available in a 48-pin LQFP package and operates from a single 3-V/3.3-V supply.

VSP2232 block diagram



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PACKAGING INFORMATION

Orderable Device	Status (1)	Package Type	Package Drawing	Pins	Package Qty	Eco Plan (2)	Lead finish/ Ball material (6)	MSL Peak Temp (3)	Op Temp (°C)	Device Marking (4/5)	Samples
VSP2232Y	OBSOLETE	LQFP	PT	48		TBD	Call TI	Call TI	0 to 85	VSP2232Y	

(1) The marketing status values are defined as follows:
ACTIVE: Product device recommended for new designs.
LIFEBUY: TI has announced that the device will be discontinued, and a lifetime-buy period is in effect.
NRND: Not recommended for new designs. Device is in production to support existing customers, but TI does not recommend using this part in a new design.
PREVIEW: Device has been announced but is not in production. Samples may or may not be available.
OBSOLETE: TI has discontinued the production of the device.

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(3) MSL, Peak Temp. - The Moisture Sensitivity Level rating according to the JEDEC industry standard classifications, and peak solder temperature.

(4) There may be additional marking, which relates to the logo, the lot trace code information, or the environmental category on the device.

(5) Multiple Device Markings will be inside parentheses. Only one Device Marking contained in parentheses and separated by a "~" will appear on a device. If a line is indented then it is a continuation of the previous line and the two combined represent the entire Device Marking for that device.

(6) Lead finish/Ball material - Orderable Devices may have multiple material finish options. Finish options are separated by a vertical ruled line. Lead finish/Ball material values may wrap to two lines if the finish value exceeds the maximum column width.

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Mailing Address: Texas Instruments, Post Office Box 655303, Dallas, Texas 75265