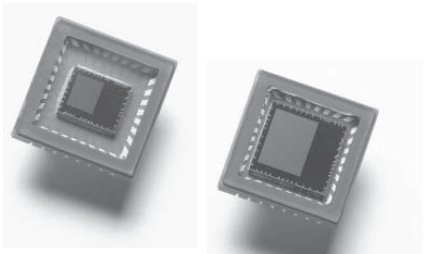
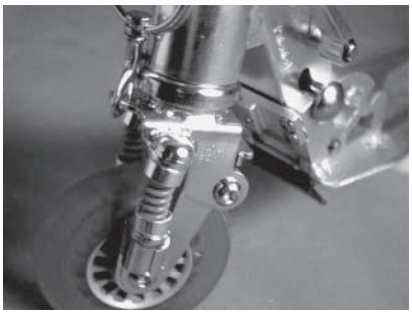
Agilent Technologies
CMOS Monochrome Image Sensors
ADCS-1121 (CIF), ADCS-2121 (VGA)
Product Overview



Description

The ADCS-1121 and ADCS-2121 CMOS Monochrome Image Sensors capture high quality, low noise images while consuming very low power. Housed in a new industry-standard Ceramic Leadless Chip Carrier (CLCC) packaging, these parts integrate a highly sensitive active pixel photodiode array with timing control and onboard A/D conversion. Available in either VGA (640x480) or CIF (352x288) resolution image arrays, the devices are ideally suited for a wide variety of applications.

The ADCS-2121 and ADCS-1121, when coupled with compatible image processors from either Agilent or selected Agilent partners, provide a complete imaging system to enable rapid end-product development. Designed for low-cost consumer electronic applications, the ADCS-1121 and ADCS-2121 image sensors deliver unparalleled performance for mainstream imaging applications.



Features

- **High quality, low cost CMOS image sensors**
- **Industry-standard 32-pin CLCC package**
- **VGA resolution (640H x 480V)– ADCS-2121**
- **CIF resolution (352H x 288V)– ADCS-1121**
- **High frame rates for digital video**
  VGA: 15 frames/second
  CIF: 30 frames/second
- **High sensitivity, low noise design ideal for capturing high-quality images in a variety of lighting conditions**
- **Integrated analog-to-digital converters:**
  VGA (ADCS-2121): 10 bit, programmable
  CIF (ADCS-1121): 8 bit, fixed
- **Parallel and serial output**
- **Automated, dark response compensation**
- **Automatic subtraction of column fixed pattern noise**
- **Still image capability**
- **Synchronous serial or UART interface**
- **Integrated voltage references**

Typical Applications

- **Bar code scanner**
- **Biometrics**
- **Machine vision**
- **Optical character recognition**
- **Surveillance**

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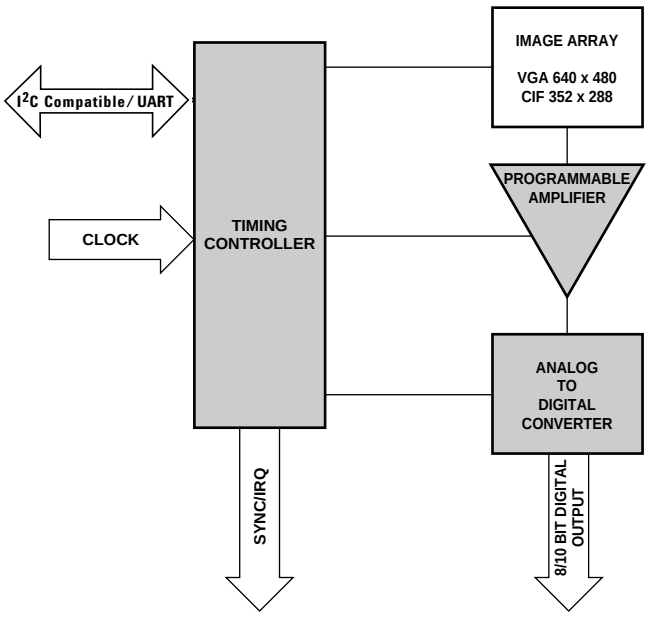
Image Sensor Specifications

Part Number	ADCS-2121 (VGA)	ADCS-1121 (CIF)
Active Pixel Array Resolution	640 x 480	352 x 288
Pixel size	7.4 x 7.4 µm	7.4 x 7.4 µm
Maximum Clock Rate	25 MHz (VGA)	32 MHz (CIF)
Effective Sensor Dynamic Range	65 dB (VGA)	61 dB (CIF)
Effective Noise Floor	43 e-	43 e-
Dark Signal [1,3]	240 e-/sec (@ 22°C)	240 e-/sec (@ 22°C)
Saturation Voltage	1.22V	1.22V
Full Well Capacity	68,000 e-	68,000 e-
Conversion Gain [2]	17 µV/e-	17 µV/e-
Programmable Gain Range	1– 40 (8 bit resolution)	1– 40 (8 bit resolution)
Fill Factor	42%	42%
Exposure Control	0.5 µsec minimum, 0.5 µsec increments	0.5 µsec minimum, 0.5 µsec increments
Supply Voltage	3.3V, -5%/+10%	3.3V, -5%/+10%
Absolute Max. Power Supply Voltage	3.6V	3.6V
Absolute Max. DC Input Voltage (any pin)	3.6V	3.6V
Power Consumption (typical)	150 mW operating, 150 µW standby	150 mW operating, 150 µW standby
Power Consumption (max)	200 mW operating, 3.3 mW standby	200 mW operating, 3.3 mW standby
Optical Format	1/3"	1/4"
Operating Temperature	-5° to +65°C	-5° to +65°C
Storage Temperature	-40° to +125°C	-40° to +125°C
Package Type	32-pin CLCC	32-pin CLCC

Notes:
1. Specified over complete pixel area
2. Measured at unity gain
3. Excludes dark current shot noise

ADCS Sensor Top Level Block Diagram



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Obsoletes 5988-6483EN
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