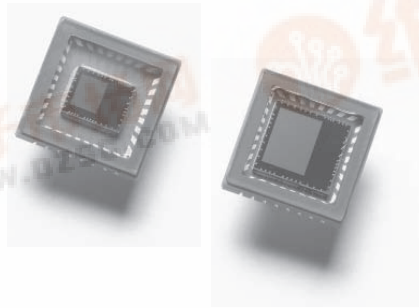


# Agilent Technologies CMOS Monochrome Image Sensors ADCS-1121 (CIF), ADCS-2121 (VGA) Product Overview



## 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

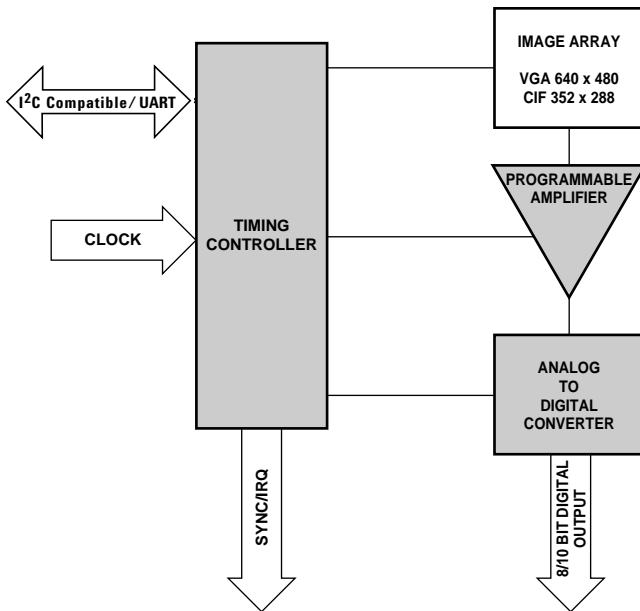
## Image Sensor Specifications

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 $\mu\text{m}$	7.4 x 7.4 $\mu\text{m}$
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 <sup>[1,3]</sup>	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 <sup>[2]</sup>	17 $\mu\text{V}/\text{e-}$	17 $\mu\text{V}/\text{e-}$
Programmable Gain Range	1–40 (8 bit resolution)	1–40 (8 bit resolution)
Fill Factor	42%	42%
Exposure Control	0.5 $\mu\text{sec}$ minimum, 0.5 $\mu\text{sec}$ increments	0.5 $\mu\text{sec}$ minimum, 0.5 $\mu\text{sec}$ 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 $\mu\text{W}$ standby	150 mW operating, 150 $\mu\text{W}$ 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



For product information and a complete list of Agilent contacts and distributors, please go to our web site.

[www.agilent.com/semiconductors](http://www.agilent.com/semiconductors)

E-mail: SemiconductorSupport@agilent.com

Data subject to change.

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