

Brickcom

Sensor Introduction

FAE Team
2011.8

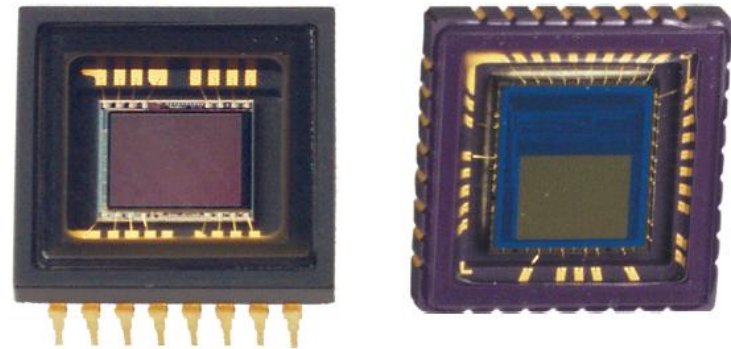
Image Sensor

An **image sensor** is a device that converts an optical image to an electric signal. It is used mostly in digital cameras and other imaging devices. An image sensor is typically a charge-coupled device (CCD) or a complementary metal-oxide-semiconductor (CMOS) active-pixel sensor.

Sensor Introduction

❖ Imaging sensor

- CCD
- CMOS



- **CCD** and **CMOS** image sensors are two different technologies for capturing images digitally.
- Both types of imagers convert light into electric charge and process it into electronic signals.

CCD

❖ CCD, Charge Coupled Device

- **CCD** is a device for the movement of electrical charge, usually from within the device to an area where the charge can be manipulated.
- To integrate with a sensor, such as a photoelectric device to produce the charge that is being read, thus making the CCD a major technology where the conversion of images into a digital signal is required.



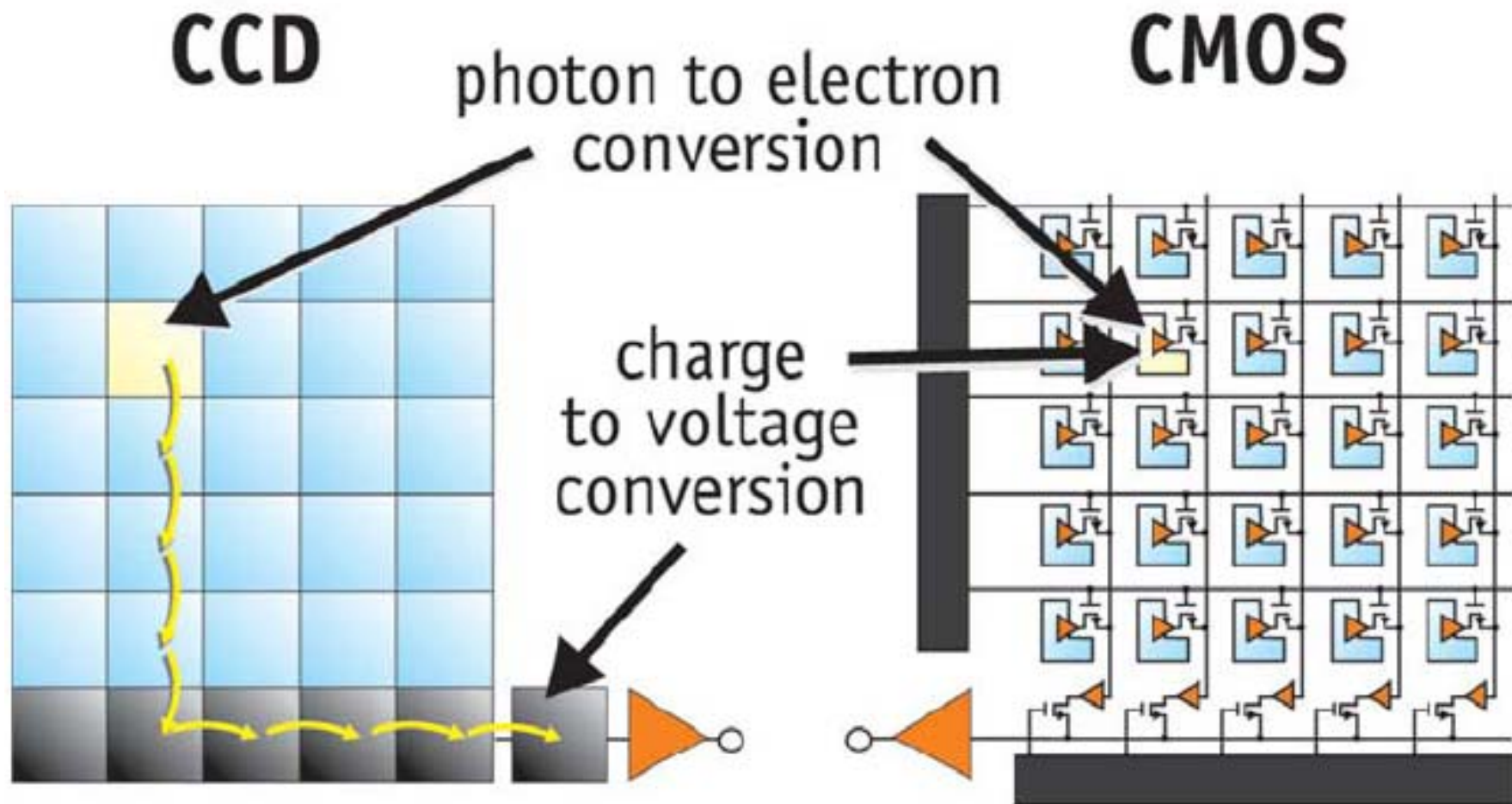
CMOS

❖ CMOS, Complementary Metal-Oxide Semiconductor

- Known as active-pixels sensors
- CMOS sensor descends from the MOS active-pixel image sensor which was invented in the 1960s.
- Contains integrated circuitry, arrays of pixel sensors.



CCD and CMOS



CCD & CMOS Comparison

Feature	CCD	CMOS
Signal out of pixel	Electron packet	Voltage
Signal out of chip	Voltage (analog)	Bits (digital)
Signal out of camera	Bits (digital)	Bits (digital)
System Noise	Low	Moderate

Performance	CCD	CMOS
Responsivity	Moderate	Slightly better
Power Consumption	High	Low
Sensitivity	High	Moderate
Resolution	High	High
Cost	High	Low

Wide Dynamic Range Sensor

- ❖ The **Wide Dynamic Range** (WDR) enables the capture and display of both bright areas and dark areas in the same frame, in a way that there are details in both areas, i.e. bright areas are not saturated, and dark areas are not too dark.



Contact Us

Brickcom Corporation Headquarters

Address	No.1 Jen Ai Rd, Hsinchu Industrial Park, Hukou, Hsinchu, Taiwan, R.O.C. 303
Tel	+886-3-5982022
Fax	+886-3-5982023
Website	http://www.brickcom.com
Sales & Marketing	info@brickcom.com
Support	support@brickcom.com

Brickcom, your best partner.

Thank You

