

HM2160 UltraSense™ BSI

1920 x 1080 ▪ 60fps ▪ 1/6" ▪ Color CIS
FHD Video ▪ MIPI-CSI2



Overview

The HM2160 is an ultra-compact, low power Full High Definition (FHD) CMOS Image Sensor designed for slim profile portable devices. The sensor has an active array of 1920 x 1080 and operates up to 60 frames per second while consuming only 180mW.

The HM2160 employs advanced 1.4µm UltraSense™ BSI pixel that delivers excellent low light sensitivity, uniformity and crosstalk performance designed for low-profile, wide aperture lens. The sensor is available in an extremely small Chip Scale Package (CSP) option allowing camera modules to be designed as small as 5 x 5 x 3.1mm³.

The sensor operates up to 60 frames per second over 2-lane MIPI CSI2 interface, or 30 frames per second over 1-lane MIPI interface. All sensor parameters can be programmed and accessed through standard serial interface.

Applications



Features

- ▶ Ultra-compact 1/6" optical format 1080p FHD sensor
- ▶ High sensitivity 1.4µ UltraSense™ BSI pixel
- ▶ Operates up to 60 frame per second at full resolution and up to 120fps in sub-sample or bin mode
- ▶ Design for low power consumption of <180mW at 60FPS, and 150mW for 30FPS operation
- ▶ Global analog gain up to 16x, digital gain to 2x
- ▶ Multi-camera function support with synchronous frame trigger control
- ▶ Dual-lane MIPI CSI2 supports RAW10 format up to 60FPS, and single lane MIPI for 30FPS operation
- ▶ Integrated 1Kb OTP memory for module tracking and calibration information
- ▶ On-chip temperature sensor
- ▶ Available in CSP package
- ▶ Ultra-compact 5 x 5 x 3.1mm³ CSP module

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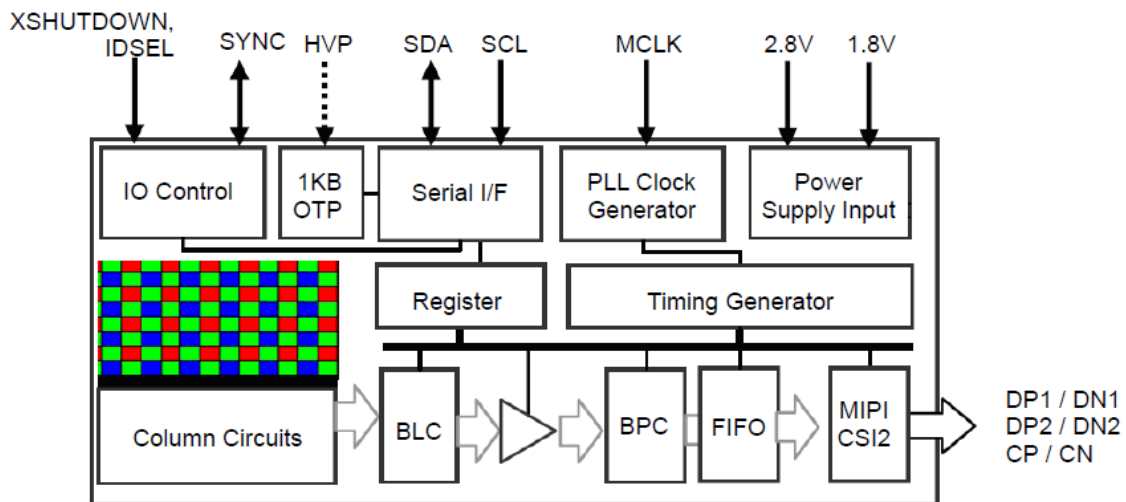
Sensor Parameters

Active Pixel Array	1920 x 1080
Pixel Size	1.4µm x 1.4µm
Sensor Diagonal (optical format)	3.08mm (1/6")
Shutter Type	Electronic Rolling Shutter
Frame Rate	60 fps @ 1080p
SNR _{max}	37 dB
PRNU	<1%
Sensitivity (Color)	720 mV / Lux – sec
Dynamic Range (8x gain)	69dB
Chief Ray Angle _{max}	30°

General Specifications

Serial Interface	2-wire, 400kHz max.	
Output Format	8 or 10 bit Raw RGB	
Data Interface	2-lane MIPI-CSI2, 60FPS; 1-lane MIPI-CSI2, 30FPS	
Input Reference Frequency	6 – 27MHz	
Digital Input	1.7V – 3.0V	
Supply Voltage	AVDD	2.8V (typ.)
	DVDD	1.8V (typ.)
Power Consumption	Active	127.6 mW
	Sleep	968.4 µW
PWDN	10 µW	

Block Diagram



Order Information

Part Number	Color Option	Operating / Storage Temperature	Package
HM2160-AWA	RGB	-20C to 85C / -40C to 85C	CSP

About Himax Imaging

Himax Imaging designs CMOS sensors for a wide range of camera applications. Our vision is to provide cost competitive CMOS sensors that are designed for performance and simplicity. The company is based in Hsinchu, Taiwan, with offices in United States, China and Korea. Please contact our experienced Sales team for additional information about the company and our products. Visit us at www.himaximaging.com.

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