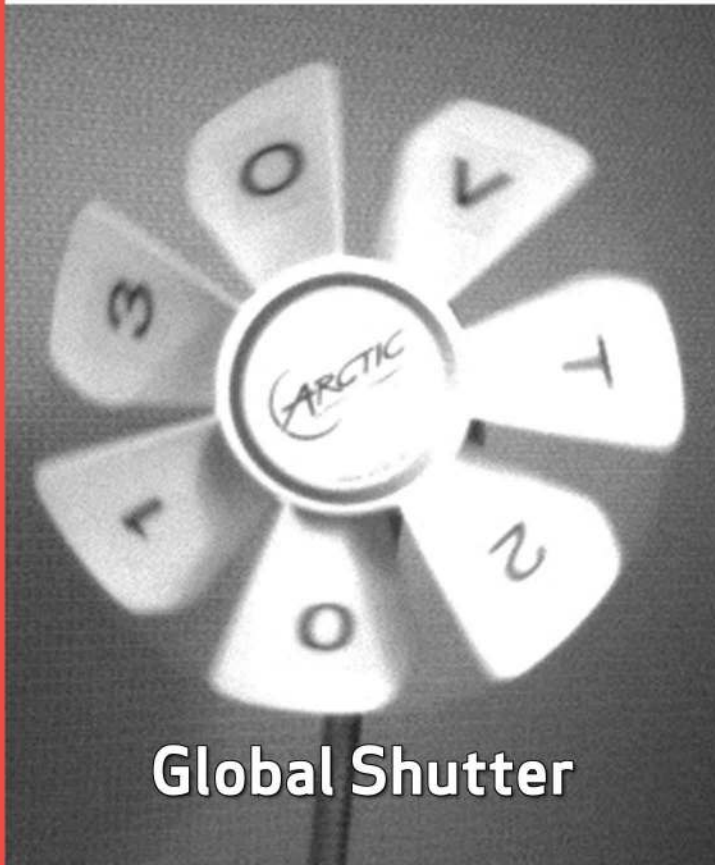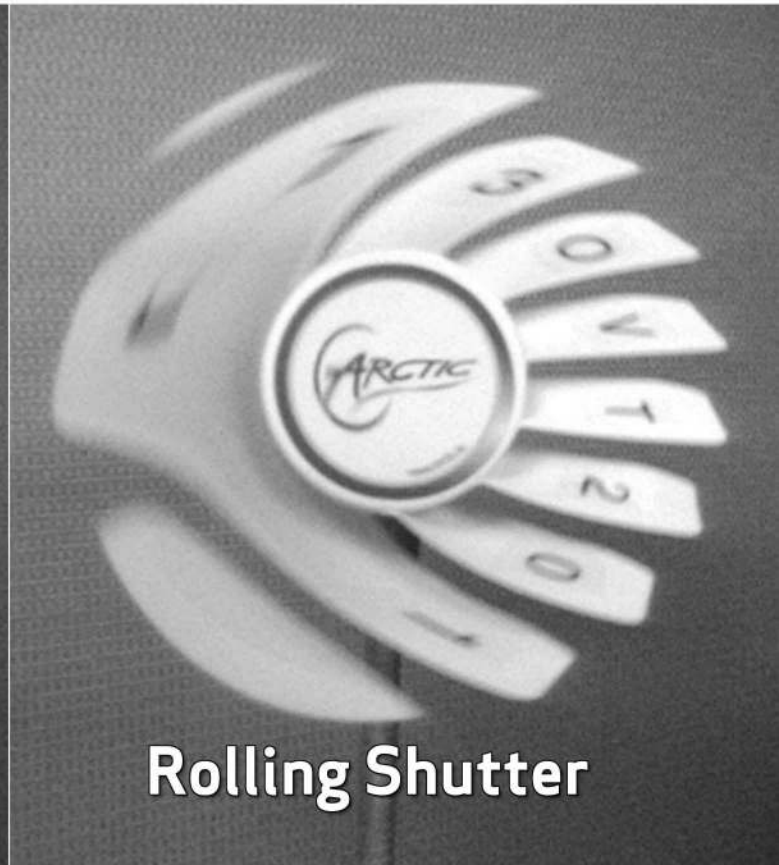# OV6211 400x400 product brief

Global Shutter

Rolling Shutter

Low-Power, Ultra-Compact Global Shutter Sensor for Computer Vision Applications

lead free

available in a lead-free package

The OV6211 is an ultra-compact, low-power global shutter sensor that enables computer vision for a broad range of applications, including notebooks, ultrabooks, tablets, smartphones, gaming devices and security systems. The OV6211 global shutter sensor captures 400 x 400 square resolution video at 120 frames per second (fps).

Utilizing a 3-micron OmniPixel3-GS™ global shutter pixel, the sensor enables a host of features, including gesture recognition, eye tracking, biometrics, as well as depth and motion detection. The sensor's ultra-compact form factor make it an ideal machine and computer vision solution for devices with narrow bezels such as notebooks, tablets and smartphones.

The OV6211 features two low-power modes: light sensing mode and ultra-low power mode. In light sensing mode, the OV6211 wakes up from "sleep mode" only when a change in light has been detected. In ultra-low power mode, the sensor reduces resolution and frame rates to conserve additional power. These two features allow the sensor to be used in "always on" mode while consuming very little power.

Find out more at www.ovt.com.

OmniVision.

Applications

- Cellular Phones
- Digital Video Camcorders (DVC)
- PC Multimedia
- Tablets
- Security/Surveillance
- Gaming

OV6211

Product Features

- 3 µm global shutter pixel
- automatic black level calibration (ABLC)
- programmable controls for frame rate, mirror and flip, cropping and windowing
- supports output formats: 8/10-bit RAW
- supports images sizes: 400x400, 200x200, 100x100
- fast mode switching
- supports horizontal and vertical 2:1 and 4:1 monochrome subsampling
- supports 2x2 monochrome binning
- standard serial SCCB interface
- programmable SCCB device ID
- one-lane MIPI serial output interface
- embedded 128 bits of one-time programmable (OTP) memory for part identification, etc.
- two on-chip phase lock loop (PLL)
- programmable I/O drive capability
- built-in 1.5V regulator for core
- PWM
- built-in strobe control
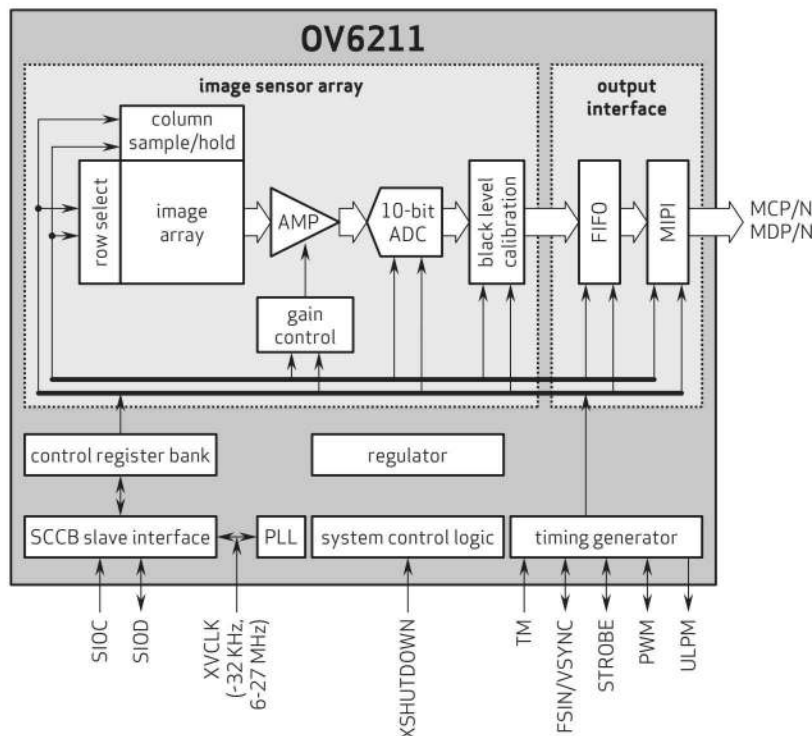- ultra low power mode for ambient light sensor
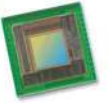
Product Specifications

- active array size: 400 x 400
- power supply:
  - analog: 2.6 - 3.0V
  - core: 1.5 VDC ±5%
  - I/O: 1.7 - 3.0V
- power requirements:
  - active: 85 mW @ 120 fps
  - standby: 15 µA for AVDD, 40/700 µA for DOVDD with/without input clock
  - XSHUTDOWN: 5 µA for AVDD, 5 µA for DOVDD
- temperature range:
  - operating: -30°C to +70°C junction temperature
  - stable image: 0°C to +50°C junction temperature
- output formats: 8/10-bit RAW RGB data
- lens size: 1/10.5"
- lens chief ray angle: 29.9° non-linear
- input clock frequency: 6 - 27 MHz
- scan mode: progressive
- maximum image transfer rate:
  - 400x400: 120 fps
  - 200x200: 220 fps
  - 100x100: 380 fps
- sensitivity: 2800 mV/lux-sec @ 530 nm
  7190 mV/(µW.cm^{-2}.sec) @ 850 nm
- max S/N ratio: 37.5 dB
- dynamic range: 66.5 dB @ 8x gain
- maximum exposure interval: 434 x t_{ROW}
- pixel size: 3 µm x 3 µm
- dark current: 2000 e$^-$/s @ 50°C junction temperature
- image area: 1248 µm x 1248 µm
- package dimensions: 3175 µm x 3175 µm

Functional Block Diagram

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