

OV10642

1.3-megapixel product brief



Best-In-Class Sensitivity and High Dynamic Range for Advanced Driver Assistance Systems

OMNIVISION's OV10642 is a high performance 1.3-megapixel OmniHDR®-S image sensor that delivers the highest sensitivity and the best high dynamic range (HDR) in its class.

The sensor's benefits enable a host of advanced features, including: pedestrian detection, lane-departure warning, traffic sign recognition, lane keeping assist systems, and high beam assist, among others.

The OV10642 image sensor utilizes OmniBSI™ technology to deliver industry leading sensitivity and extended dynamic range up to 120 dB in a simple, low-power and cost-effective system. The 1/2.56-inch sensor supports an active array of 1280 x 1080 pixels and supports RAW image output up to 60 frames per second. The OV10642 fits into a compact package.

Find out more at www.ovt.com.



OV10642

Ordering Information

- OV10642-N79Y-PF (lead-free) 78-pin a-CSP™, with DAR coating, rev 1F, packed in tray with protective film
- OV10642-N79Y-RF (lead-free) 78-pin a-CSP™, with DAR coating, rev 1F, packed in tape & reel with protective film

Applications

- automotive
 - lane departure warning / lane keep assist
 - blind spot detection
 - pedestrian detection
 - traffic sign recognition
 - occupant sensor
 - autonomous driving
 - high beam assist

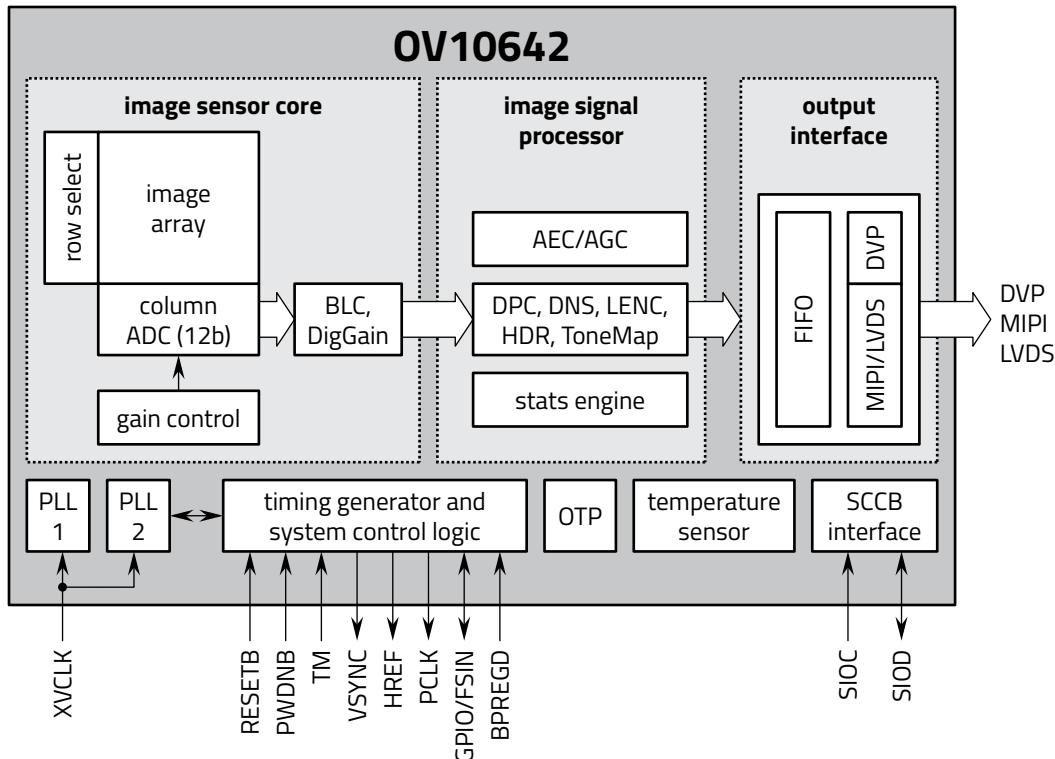
Technical Specifications

- active array size:** 1280 x 1080
- maximum image transfer rate:**
 - full resolution: 60 fps
- power supply:**
 - analog: 3.14V ~ 3.47V
 - digital: 1.425V ~ 1.65V
 - DOVDD: 1.7V ~ 1.9V
 - AVDD: 1.7V ~ 1.9V
- power requirements:**
 - active: 360 mW
 - standby: 100 µW
- temperature range:**
 - operating: -40°C to +105°C sensor ambient temperature and -40°C to +125°C junction temperature
- output interfaces:**
 - 12-bit DVP, MIPI/LVDS CSI-2
- output formats:**
 - 20-bit combined RAW
 - 12-bit compressed combined RAW
 - separated 12-bit RAW
 - 2x12-bit compressed RAW
 - 16-bit log domain combined RAW
 - 3x12-bit uncompressed RAW
- lens size:** 1/2.56"
- lens chief ray angle:** 15°
- scan mode:** progressive
- pixel size:** 4.2 µm x 4.2 µm
- image area:** 5410 µm x 4570 µm

Product Features

- AEC-Q100 grade 2 qualified
- supported output formats: RAW
- support for image size:
 - 1280 x 1080
 - VGA
 - QVGA, and any cropped size
- horizontal and vertical sub-sampling
- serial camera control bus (SCCB) for register programming
- OmniHDR®-S technology
- high speed serial data transfer with MIPI CSI-2, parallel 12-bit DVP output
- high sensitivity
- external frame synchronization capability
- safety features
- embedded temperature sensor
- low power consumption
- one time programmable (OTP) memory
- image sensor processor functions:
 - automatic exposure / gain control
 - lens correction
 - defective pixel cancellation
 - HDR combination and PWL mapping
 - automatic black level correction

Functional Block Diagram



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