



# OX01B40



## 1.3-megapixel product brief

### OX01B40 SiP Combines Image Sensor and Processor in Single Package with 120 dB High Dynamic Range for Automotive Viewing Cameras

The OX01B40 is OMNIVISION's first high-performance color CMOS image sensor to be combined with an image-sensor processor (ISP) in a single, 8.5 mm x 8.5 mm system-in-package (SiP). The sensor delivers 120 dB high dynamic range (HDR).

The OX01B40 SiP provides three interface options: digital video port (DVP), MIPI serial interface and NTSC analog interface, allowing a single design to address different applications, thus saving time and money. Resolution is 1392 x 976 with a 2.8-micron pixel size, streaming at 30 frames per second (fps) for MIPI or DVP interfaces, or 60 fps for NTSC.

Built on OMNIVISION's 2.8-micron OmniBSI-2™ Deep Well™ pixel technology, the OX01B40 delivers best-in-class low-light sensitivity and HDR performance, even in challenging lighting conditions. Power consumption is very low, below 400 mW, allowing efficient thermal management even though the ISP is stacked under the sensor.

The advanced ISP delivers 110 Mp/s throughput for high-quality image capturing and video streaming. Special features include local and global tone-mapping support; distortion and perspective correction for undistorted images at up to a 190-degree angle; and support for static and dynamic overlays of up to eight independent layers with a 32-color palette.

Find out more at [www.ovt.com](http://www.ovt.com).



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## Ordering Information

- OX01B40-U21Y-GC (lead-free) 120-pin SIP multi-chip package, packed in tray with protective film (8.1 mm)
- OX01B40-U21Y-KC (lead-free) 120-pin SIP multi-chip package, packed in tape and reel with protective film (8.1 mm)

## Applications

- automotive
  - rear view cameras
  - surround view systems (SVS)

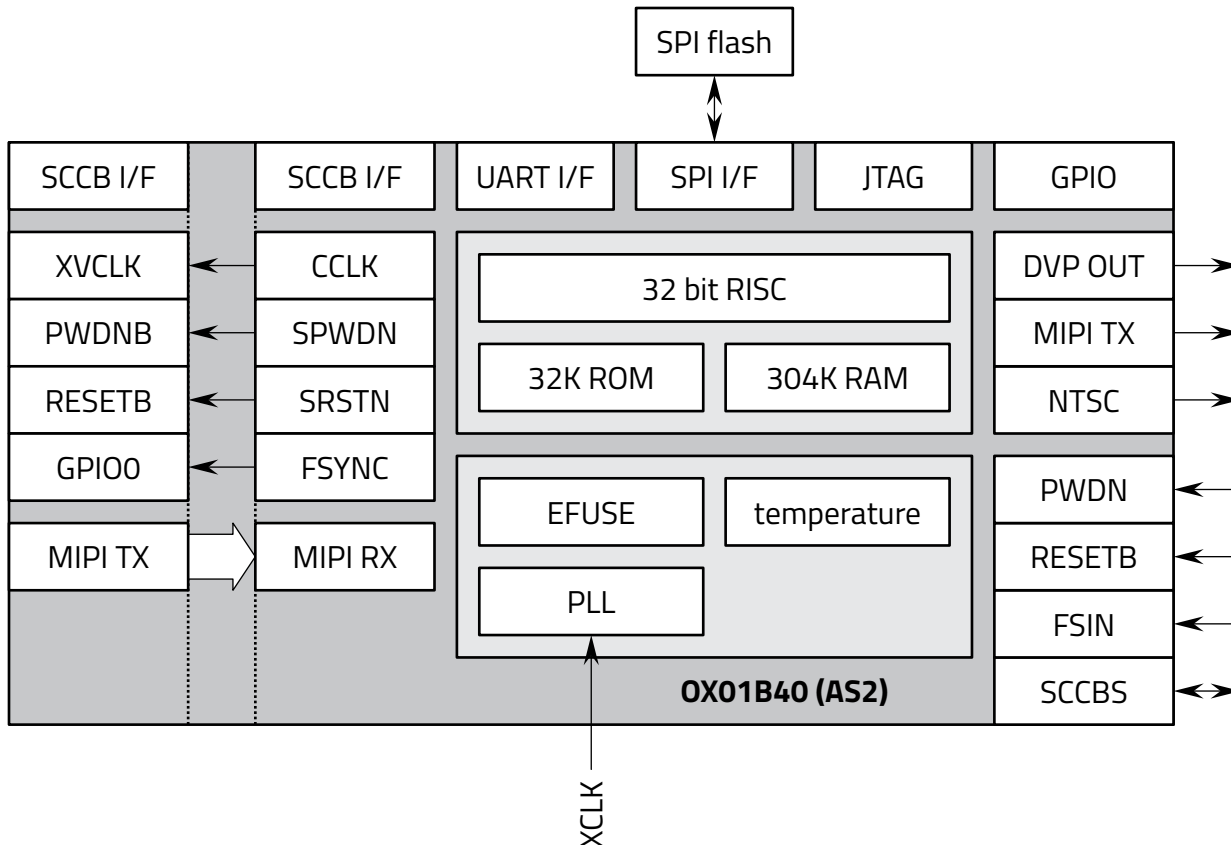
## Technical Specifications

- active array size:** 1392 x 976
- maximum image transfer rate:** 30 fps with full
- power supply:**
  - core: 1.2V ±5%
  - analog: 1.8V ±5% and 3.3V ±5%
  - I/O: 1.8V ±5% or 3.3V ±5%
- power requirements:**
  - 350 mW, measured at room temperature with 1280 x 720 @ 30 fps MIPI output,
  - 360 mW, measured at room temperature with 1280 x 720 @ 30 fps DVP 1.8V I/O output
- temperature range:**
  - operating: -40°C to +105°C ambient temperature
- scan mode:** progressive
- shutter:** rolling shutter
- pixel size:** 2.8 μm x 2.8 μm

## Product Features

- advanced 110 Mp/s throughput ISP for high quality image capturing and video streaming
- local and global tone mapping support
- up to three-capture HDR combination
- supports distortion correction (DC) / perspective correction (PC), pixel mapping flexibility is up to 190° HFOV
- supports eight independent layers, line and global transparency control for each layer, 32 color / palette per image and sizes up to 1392 x 976 overlay
- embedded information including frame counter, temperature, and register data for each image to enable critical automotive safety applications
- automatic exposure control (AEC) / automatic gain control (AGC)
- automatic white balance (AWB)
- supports statistics data of up to four user programmable ROIs
- supports four-wire or two-wire serial interface to retrieve stored firmware from external memory devices
- on-chip PLL to generate internal clocks
- supports 1x4 lane MIPI TX (TX data rate 1.2 Gbps/lane)
- supports 1x12-bit DVP output, speed up to 150 MHz
- embedded 32-bit RISC processor for high performance and flexibility
- supports 1K bits of one-time programmable memory (OTP)
- JTAG boundary scan
- embedded temperature sensor

## Functional Block Diagram



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