



OX03D4C



3 megapixel product brief

OMNIVISION Launches Industry's First 3MP Resolution SoC for Automotive Cameras with Lowest Power and Smallest Size

OMNIVISION's new OX03D4C is a 3 megapixel (MP) resolution system-on-chip (SoC) for automotive surround-view systems (SVS), rearview systems (RVS) and e-mirrors. The new SoC provides a seamless path for automotive OEMs to upgrade from 1MP to 3MP while retaining high performance, low power and the smallest 2.1 μm pixel size in a 1/4-inch optical format. The OX03D4C has a fully integrated image signal processor (ISP), is capable of 140 dB high dynamic range (HDR), and includes the next-generation tone-mapping algorithm along with the leading LED flicker mitigation (LFM) performance in the industry.

OMNIVISION's OX03D4C includes both the pixel array and ISP within a single package; it is optimized to deliver ideal performance over the complete automotive temperature range. It features 105 dB motion-free HDR with a total range of 140 dB, and provides HDR and LFM simultaneously. It includes the next-generation tone-mapping algorithm for high contrast images, supports a number of

CFA patterns, and can output both YUV and RAW process streams at the same time. The OX03D4C provides four on-screen display overlay layers for driver guidelines, as well as distortion correction to straighten any curved edges from lenses with a wide viewing angle. The OX03D4C consumes less than 500 mW power, enabling the use of a plastic case for lighter weight and lower cost.

All of these features are built into the smallest possible camera module available for automotive viewing applications. The a-CSP™ package size allows smaller cameras that can fit in much tighter spaces. The image sensor is built on OMNIVISION's PureCel®Plus-S stacked die technology.

The OX03D4C SoC complies with ASIL B advanced safety standards.

Find out more at www.ovt.com.



- OX03D4C-E55Y-001A-Z
(RCCB, lead-free) 55-pin a-CSP™, rev 1D,
packed in tray without protective film

Applications

- automotive
 - 360° surround view system
 - rear view camera

Technical Specifications

- active array size:** 1920 x 1536
- maximum image transfer rate:**
 - 30 fps @ 1920 x 1536 in 10-bit
- power supply:**
 - analog: 3.3V
 - digital: 0.95V
 - I/O pins: 1.8V or 3.3V
- power requirements:**
 - active: 410 mW (streaming 1920 x 1536 @ 30 fps YUV+RAW MIPI typical), 350 mW (streaming 1920 x 1536 @ 18 fps YUV DVP typical)
- output formats:** 10-bit RGB RAW
- temperature range:**
 - operating: -40°C to +105°C sensor ambient temperature and -40°C to +125°C junction temperature
- lens size:** 1/3.45" for 1920 x 1536 image size
- lens chief ray angle:** 21°
- scan mode:** progressive
- pixel size:** 2.1 μm x 2.1 μm
- image area:** 4065.6 μm x 3259.2 μm

Product Features

- support for image size: 1920 x 1536 and any cropped size
- high dynamic range
- high sensitivity
- dual conversion gain
- ASIL-B safety compliant
- image signal processing functions:
 - AEC/AGC/AWB
 - lens correction
 - defective pixel correction
 - HDR combination
 - tone mapping
 - automatic black level correction
- supported output formats:
 - YUV
 - RGB888
 - BT656
 - RAW
- supports LED flickering mitigation (LFM) function
- supports aiming function
- SPI master for overlay and loading settings
- distortion correction
- 50/60 Hz flicker cancellation
- SCCB for register access
- programmable GPIOs
- high speed serial data transfer with MIPI CSI-2 or DVP
- external frame synchronization capability
- embedded temperature sensor
- one-time programmable (OTP) memory

Functional Block Diagram

