OV490 companion ISP product brief

High-Quality Image and Video Processing for the Next Generation of Advanced Driver Assistance Systems (ADAS)

lead free

available in a lead-free package

The OV490 is a new powerful companion chip that brings improved high dynamic range (HDR) functionality as well as high-quality image and video processing to next-generation advanced driver assistance systems (ADAS). Working in conjunction with other high-performance image sensors, the OV490 enables extremely flexible system partitioning to support a number of advanced automotive features.

OmniVision's OV490 enables simultaneous output of fully processed YUV or RGB for display-based applications and RAW data for machine-vision downstream processing. It also incorporates unique architecture that is capable of processing two video pipelines, resulting in reduced bill-of-materials.

The OV490 contains a well-defined feature set to fulfill Automotive Safety Integrity Level (ASIL) according to ISO 26262. The companion chip fits into a BGA package, and has completed AEC-Q100 Grade-2 qualifications.

Find out more at www.ovt.com.

OmniVision®

Applications

- Rear View Camera
- Surround View System
- Camera Monitoring System

OV490

Product Features

- AEC-Q100 grade 2 qualified
- feature set optimized for next generation surround view applications
- simultaneous output of fully processed YUV for display based applications and RAW only to enable machine vision downstream processing
- parallel processing of two input streams
- industry leading HDR technology, third generation HDR technology allows capturing of more details in bright and dark environments
- JTAG boundary scan
- high speed serial data transfer with MIPI CSI-2
- embedded information including: frame counter, temperature and register data in each image to enable critical automotive safety applications
- industry's first features to improve image harmonization and synchronization for surround view applications
- SCCB master interface for automatic sensor configuration at power-on

- SCCB slave interface for OV490 configuration by host
- on chip PLL to generate stable internal clock frequency
- on chip voltage regulator 3.3V/1.8V to 1.2V
- brown-out detection circuit and output flag
- embedded 32-bit RISC processor for high performance and great flexibility
- supports 1K bits of one time programmable memory (OTP)
- advanced ISP for high quality image capturing and video streaming
- advanced auto white balance (AWB)
- AEC/AGC with statistical data from hardware engine and algorithm running on RISC
- support of four user-defined ROI windows for statistics
- DNS (RAW de-noise) and CIP (de-mosaic)
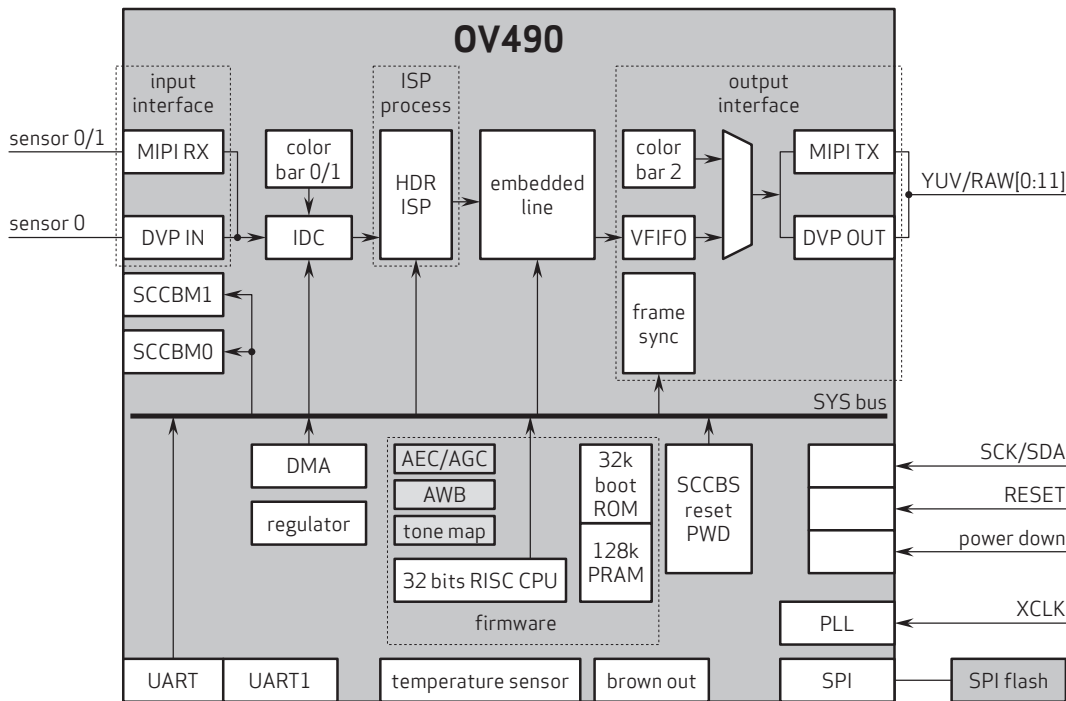- supports power cut mode designed for power saving during system quiescence
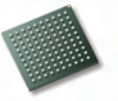
Product Specifications

- **power supply:**
  - **core:** 1.2V ±10%
  - **I/O:** 1.8V ±10% or 3.3V ±10%
- **power requirements:** 250 mA

- **temperature range:**
  - **operating:** -40°C to +105°C ambient temperature and -40°C to +125°C junction temperature
- **package dimensions:** 7 mm x 7 mm

Functional Block Diagram