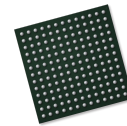# OV494

ASIC product brief

Industry-Leading Distortion and Perspective Correction for Backup Camera Automotive Imaging Systems

OMNIVISION's OV494 is a compact image signal processor (ISP) that enables best-in-class electronic distortion and perspective correction for a wide range of rear view camera architectures in automotive applications. The OV494 can output on a wide range of interfaces including DVP, MIPI, BT1120 or NTSC, performing distortion correction on high-quality video with up to 190 degrees of pixel-mapping flexibility. The OV494 also offers eight independent overlays with a 32-color palette for each image, without requiring additional processing support.

The OV494 is ideally suited to work with OMNIVISION's portfolio of high-performance image sensors, including the OV9716 and OV10640 automotive image sensors. The OV494 can process image and video input of up to 1.4-megapixels at 60 frames per second (fps), with support for high dynamic range (HDR) up to 120 dB.

The OV494 comes in a compact 7 mm x 7 mm, 169-pin ball grid array (BGA) package.

Find out more at www.ovt.com.

OV494

Ordering Information

- **OV00494-B69G-1B** (lead-free)
  169-pin BGA, packed in tray

- **OV00494-B69G-TB** (lead-free)
  169-pin BGA, packed in tape and reel

Applications

- rear view cameras
- surround view systems
- e-mirrors
- camera monitoring systems (CMS)

Technical Specifications

- **power supply:**
  - core: 1.1V ±5%
  - I/O: 1.8V ±5% or 3.3V ±5%

- **power requirements:** 175 mW, measured at room temperature with 1280 x 720 @ 30 fps, MIPI in and DVP out (12-bit, 1.8V I/O)

- **temperature range:**
  - operating: -40°C to +105°C ambient temperature

- **sensor interface:**
  MIPI RX (1x4 lane, 1 Gbps/lane) or DVP (12-bit, up to 100 MHz)

- **input clock:** 6 ~ 36 MHz

- **output interface:** NTSC analog composite (720x480), DVP (up to 24-bit, 150 MHz with 3.3V I/O, 100 MHz with 1.8V I/O), MIPI TX (1x4 lane, 1.2 Gbps/lane)

- **sensor data format:** 3x12-bit RAW, 16-bit DCG (only MIPI input) + 12-bit RAW, 12-bit DCG + 12-bit RAW, 2x12-bit RAW

- **output data format:** YUV422 8/10/12-bit, RGB888 24-bit, RGB656 16-bit, BT1120 16-bit, BT656 8-bit

- **package dimensions:** 7 mm x 7 mm (0.5 mm pitch)

Product Features

- up to 1.3MP sensor (1392 x 976 or 1280 x 1080) 60 fps with MIPI output (MIPI), 45 fps with DVP output (3.3V I/O)
- up to three capture HDR combination
- support for local and global tone mapping
- automatic white balance (AWB), automatic exposure control (AEC) / automatic gain control (AGC), 50/60 Hz auto flicker detection and elimination
- statistics data for up to four user programmable ROIs
- distortion/perspective correction (DC/PC), up to 190° HFOV
- 8 independent overlay layers, 32 color/palette per image, line, and global transparency control for each layer
- up to 8 GPIOs

- embedded information including frame counter, temperature, and register data for each image to enable critical automotive safety applications
- 1K bits of one-time programmable memory (OTP)
- brown-out detection circuit and output flag
- JTAG boundary scan
- serial camera control bus (SCCB) master/slave interface for sensor and ASIC configuration
- up to four-wire SPI flash interface to retrieve stored firmware and data from external SPI flash memory
- internal NTSC video encoder and NTSC output interface
- on-chip voltage regulator from 1.8V to 1.1V and one DCDC from 3.3V/1.8V to 1.1V

Functional Block Diagram

OMNIVISION®