

OV2775 full HD (1080p) product brief



High Performance 2-Megapixel OmniBSI™-2 Sensor for Advanced Automotive Applications



available in
a lead-free
package

OmniVision's OV2775 is a 2.8 μm OmniBSI™-2 image sensor designed for a wide range of automotive imaging applications. The OV2775 features 1920 x 1080 resolution and Deep Well™ pixel technology, delivering 16-bit linear output to achieve 94 dB of dynamic range from a single exposure for best-in-class low-light performance. The OV2775's advanced high dynamic range (HDR) capabilities make it ideally suited for automotive applications such as front-view machine vision advanced driver assistance systems (ADAS), rear video mirrors, camera monitor systems (CMS), and dash cameras.

Built on OmniVision's OmniBSI™-2 Deep Well™ pixel technology, the OV2775 enables 94 dB of dynamic range from a single exposure without any drop in

signal-to-noise ratio or HDR combination artifacts. The OV2775 also features a dual exposure mode that can expand the sensor's dynamic range to more than 120 dB, using a second "very short" exposure to minimize motion artifacts.

The OV2775 comes in an AEC-Q100 Grade 2 qualified 6.5 x 5.7 mm chip scale package and contains an advanced set of safety mechanisms.

Find out more at www.ovt.com.



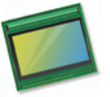
Applications

- Automotive
 - 360° surround view system
 - lane departure warning/ lane keep assist
 - blind spot detection
 - pedestrian detection
- traffic sign recognition
- occupant sensor
- camera monitoring system
- autonomous driving

Product Features

- support for image size:
 - 1920 x 1080
 - VGA
 - QVGA, any cropped size
- supported output formats: RAW
- high dynamic range
- high sensitivity
- low power consumption
- image sensor processor functions:
 - lens correction
 - defective pixel cancelation
 - HDR combination
 - automatic black level correction
- horizontal and vertical sub-sampling
- SCCB for register programming
- high speed serial data transfer with MIPI CSI-2/LVDS
- parallel 12-bit DVP output
- external frame synchronization capability
- embedded temperature sensor
- one time programmable (OTP) memory

OV2775



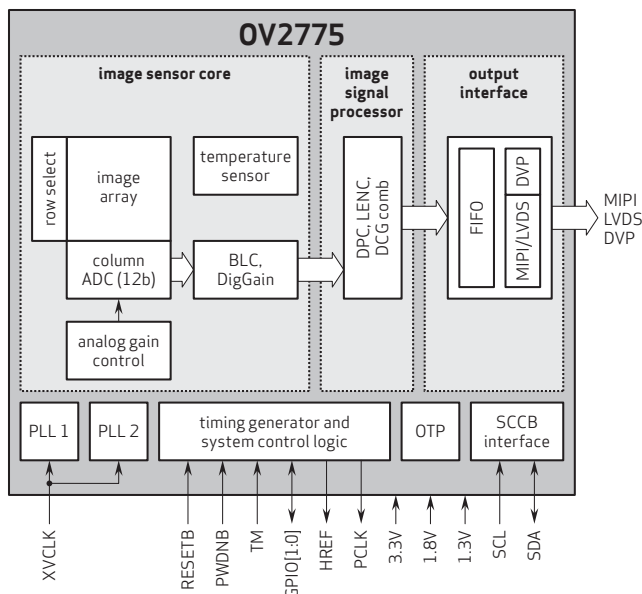
Ordering Information

- **OV2775-E77Y-1E** (color, lead-free)
77-pin a-CSP™, with DAR coating, packed in tray without protective film
- **OV2775-E77Y-LE** (color, lead-free)
77-pin a-CSP™, with DAR coating, packed in tray with protective film
- **OV2775-E77Y-OE** (color, lead-free)
77-pin a-CSP™, with DAR coating, packed in tape & reel with protective film

Product Specifications

- **active array size:** 1920 x 1080
- **power supply:**
 - analog: 3.14 - 3.47V
 - digital: 1.2 - 1.4V
 - DVDD: 1.7 - 1.9V
 - AVDD: 1.7 - 1.9V
- **power requirements:**
 - active: 395 mW
 - software standby: 10 mW
- **temperature range:**
 - operating: -40°C to +105°C sensor ambient temperature and -40°C to +125°C junction temperature
- **output formats:** linear - 12-bit RAW, 10-bit compressed RAW; single exposure HDR - 16-bit combined RAW, 12-bit compressed combined RAW, 2x12 bit RAW; dual exposure HDR - 16-bit combined RAW + 12-bit VS RAW, 12-bit compressed combined RAW + 12-bit VS RAW, 3x12 bit RAW, 3x10 bit combined RAW, 12-bit (10-bit) RAW (HCG or LCG) + 12-bit (10-bit) VS
- **output interfaces:** up to 4-lane MIPI CSI-2/LVDS, 12-bit DVP
- **input clock frequency:** 6 - 36 MHz
- **lens size:** 1/2.9°
- **lens chief ray angle:** 15°
- **scan mode:** progressive
- **shutter:** rolling shutter
- **output formats:** linear - 12-bit RAW, 10-bit compressed RAW; single exposure HDR - 16-bit combined RAW, 12-bit compressed combined RAW, 2x12 bit RAW; dual exposure HDR - 16-bit combined RAW + 12-bit VS RAW, 12-bit compressed combined RAW + 12-bit VS RAW, 3x12 bit RAW, 3x10 bit combined RAW, 12-bit (10-bit) RAW (HCG or LCG) + 12-bit (10-bit) VS
- **maximum image transfer rate:**
 - full resolution: 30 fps
- **sensitivity:** 26,200 e⁻/lux.sec @ 530 nm
- **max S/N ratio:** 42.6 dB
- **dynamic range:** 120 dB
- **pixel size:** 2.8 μm x 2.8 μm
- **image area:** 5482.35 μm x 3202 μm
- **package dimensions:**
 - a-CSP™: 6544 μm x 5734 μm

Functional Block Diagram



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