



OP03011

LCOS product brief



Fully Integrated, Low-Power, Single-Chip LCOS Panel for Next-Generation AR/XR/MR Glasses

The OP03011 is a 648p single-chip liquid crystal on silicon (LCOS) panel that integrates the array and frame buffer into an ultra-compact solution that is lightweight and low-power for next-generation augmented reality (AR), extended reality (XR) and mixed reality (MR) glasses and head-mounted displays. The OP03011 LCOS panel features 3.8 μm pixels in one of the world's smallest 0.14-inch optical formats (OF).

The OP03011 is the only single-chip solution that is designed in an ultra-compact format for applications requiring a smaller field of view and lower resolution, making it well suited for some of the sleekest, most innovatively

designed AR glasses that can be worn 24/7. The OP03011 supports applications of next-generation smart glasses, like displaying notifications in the user's field of view and access to GPS for maps and directions directly from the glasses, so the user never needs to pull out their smartphone.

The OP03011 features 648 x 648 resolution at 120 Hz and comes in a small FPCA package. It supports a single-lane MIPI-DSI interface.

Find out more at www.ovt.com.



Applications

- AR/XR/MR glasses
- head mount display
- pico projectors

Technical Specifications

- power supply:**
 - core: 1.5V ± 5%
 - MIPI: 1.5V ± 5%
 - I/O: 1.8V/3.3V ± 10%
 - pixel array: 3.3V~4.0V ± 5%
 - DRAM: 3.3V ± 10%
- LCOS operation temperature range:** +10°C to +70°C
- active native area:** 2.462 mm x 2.462 mm
- native resolution:** 648 x 648
- native device diagonal:** 0.137"
- pixel pitch:** 3.8 μm
- package dimensions:** 6.85 x 20.0 x 1.99 mm

Product Features

- 1-channel MIPI DSI receiver, supporting both 24-bit packed or color sequential RGB888
- internal PLL for clock generation
- outputs enable/disable control signals to external solid state light sources
- standard 100% digital CMOS technology
- no spacers in active area
- digital interface
- high aperture ratio
- supports horizontal and vertical flipping
- insensitive to photo-induced carrier generation
- designed for color field sequential operation

Functional Block Diagram

