



# OP02220 LCOS product brief



## Single-Chip LCOS Solution Brings 1080p HD Video to Head-Mounted Displays



available in  
a lead-free  
package

OmniVision's high-performance OP02220 is a single-chip liquid crystal on silicon (LCOS) panel that brings high-quality 1080p full high definition (FHD) video to next-generation augmented reality, pico projector, and high speed telecommunication applications. Given its compact form factor, industry-leading performance and low power consumption of just 300 mW @ 60 fps, 1080p input with 6 color fields, the OP02220 is ideally suited for wearable application such as head-mounted displays and mobile pico projector.

The single-chip OP02220 LCOS panel features an integrated driver and memory buffer, which facilitates stable video processing with low power consumption and further simplifies system design. Based on a 4.5-micron pixel, the 0.39-inch OP02220 LCOS panel produces crisp, clear HD video in 1080p resolution at 60 frames per second (fps) or 720p HD video at 120 fps. The OP02220 can accept video data input via a 4-lane MIPI DSI.

Find out more at [www.ovt.com](http://www.ovt.com).



## Applications

- AR Glasses
- High Speed Communication
- Pico Projectors
- HUD (Head Up Display)

## Product Features

- 4-channel MIPI DSI receiver, 24-bit packed RGB888
- dual internal PLL clock generation
- outputs enable/disable control signals to external solid state light sources
- supports horizontal and vertical flipping and programmable sync polarities
- standard 100% digital CMOS technology
- no spacers in active area
- digital interface
- high aperture ratio
- insensitive to photo-induced carrier generation
- designed for color field sequential operation
- horizontal alignment  $\pm 8$  pixels
- vertical alignment  $\pm 8$  rows

# OP02220



## Ordering Information

- OP02220-MATA-P1-Z (45-pin PCB)

## Product Specifications

- **power supply:**
  - core: 1.725V  $\pm 5\%$
  - I/O: 1.725V / 3.3V  $\pm 5\%$
  - pixel array: 3.3V  $\pm 5\%$
- **temperature range:** +10°C to +70°C
- **active area:** 8.64 mm x 4.86 mm
- **native resolution:** 1920 x 1080
- **native device diagonal:** 0.39"
- **pixel pitch:** 4.5  $\mu\text{m}$
- **package dimensions:** 23.4 x 9.0 x 3.33 mm

## Functional Block Diagram

