OG0TC1B

400 x 400 product brief

World's Smallest, Lowest-Power Global Shutter Image Sensor for AR/VR/MR Tracking Cameras

The OG0TC1B BSI global shutter (GS) image sensor for eye and face tracking in AR/VR/MR consumer headsets and glasses features on-chip single exposure DCG™ technology for ghost-free HDR imaging. It consumes less than 40% of the power at 30 fps compared with the previous-generation sensor and is pin-to-pin compatible for easy upgrades.

With a package size of just 1.64 mm x 1.64 mm, the OG0TC1B is an ultra-small, low-power image sensor for optimizing primarily inward-facing tracking cameras. It features a 2.2 µm pixel built on PureCel®Plus-S stacked-die technology. Nyxel® technology enables the best QE at the 940 nm NIR wavelength for sharp, accurate images of moving objects and the sensor's high MTF enables sharper images with greater contrast and more detail.

The 400 x 400 resolution GS sensor supports a flexible interface, including MIPI with multi-drop and CPHY.

Find out more at www.ovt.com.

OG0TC
1.64 mm x 1.64 mm

OMNIVISION®

OG0TC1B

Applications

- eye/face tracking
- gesture tracking
- machine vision

Technical Specifications

- **active array size:** 400 x 400

- **maximum image transfer rate:**
  - 400 x 400: 240 fps
  - 200 x 200: 480 fps

- **power supply:**
  - analog: 2.8V (nominal)
  - core: 1.0V (nominal C-PHY),
    1.1V (nominal D-PHY)

- **power requirements:**
  - active: 37 mW
  - XSHUTDN: 50 µA

- **output interface:** 1-lane MIPI D-PHY
  @ 1 Gbps / 1-trio C-PHY @ 1 Gsps

- **temperature range:**
  - operating: -30°C to +85°C
    junction temperature
  - stable image: 0°C to +60°C
    junction temperature

- **output formats:**
  8-bit/10-bit/12-bit/14-bit RAW

- **lens size:** 1/14.46"

- **lens chief ray angle:** 30.84° non-linear

- **pixel size:** 2.2 µm x 2.2 µm

- **image area:** 915.2 µm x 915.2 µm

Product Features

- 2.2 µm x 2.2 µm pixel with
  PureCel®Plus-S, Global Shutter,
  and Nyxel® technologies

- automatic black level calibration
  (ABLC)

- programmable controls for:
  - frame rate
  - mirror and flip
  - cropping

- linear mode supports output formats:
  8-bit/10-bit RAW

- DCG™ mode supports output formats:
  12-bit/14-bit RAW

- fast mode switching

- supports horizontal and
  vertical 2:1 subsampling

- supports 2x2 binning and skipping

- supports 4x4 skipping and
  8x8 skipping

- 1-lane MIPI D-PHY / 1-trio C-PHY

- support for image sizes:
  - 400 x 400
  - 200 x 200
  - 100 x 100
  - 50 x 50

- embedded 22 bytes of one-time
  programmable (OTP) memory
  for customer use

- two on-chip phase lock loops (PLLs),
  including SSCG-PLL supporting MIPI
  interface

- built-in strobe control

- support for multi-sensor mode
  operation

- internal 1.8V LDO for GPIO,
  serial interface I/Os

Functional Block Diagram

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