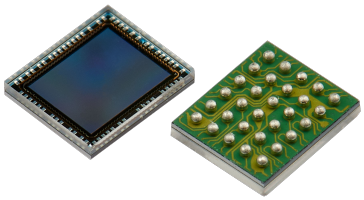
VD56GA

Data brief

Automotive grade 1.1 MP global shutter sensor with leading spatial resolution and sensitivity in near-infrared



Reference	Description
Order code	VD56GA
Package	CSP 3.7 x 3.1 mm

Features

Automotive compliancy

- AEC-Q100 grade 2 under qualification
- Operating junction temperature: -40°C to 125°C
- ISO26262 compliant to support ASILB system integration
- ISO21434 compliant with exhaustive cybersecurity features

Ultracompact and high MTF 1.1 megapixel image sensor

- Global shutter architecture, 3D BGS stacked sensor 40 nm/65 nm
- 2.43 µm x 2.43 µm BSI pixel with ST DeepNIR technology
- 1.1 megapixel monochrome sensor (1152 x 920) operating at 60 frames per second
- Package: CSP
  - Size: 3.7 mm x 3.1 mm
  - Matrix: 6 x 5 balls
  - Ball pitch: 550 µm
- Optical format < 1/5” (3.58 mm diag)
- µlens shift to match 20° linear CRA

Unique imaging performance for virtual 2-megapixel performance

- Absolute quantum efficiency 41% @ 940 nm
- Outstanding MTF performance

Easy and up-to-date integration

- Embedded autoexposure with tunable ROI
- 8- and 10-bit output (PWL 10 bit to 8 bit), YUV (monochrome) 422 8-bit
- Dual lane transmitter MIPI CSE FSED up to 1.5 Gbps per lane
- Three programmable GPIOs:
  - Output synchronized with sensor integration periods
  - PWM (pulse-width modulation) control
- Region of interest, two image context management
- Automatic dark calibration and defective pixel correction
- Image cropping
- Mirror/flip readout
- Analog binning 2 x 2 and analog subsampling ½

Description

The VD56GA is a 1.1 megapixel global shutter image sensor with superhigh performance 2.43 µm pixels, allowing virtual 2-megapixels compliancy for automotive driver monitoring applications.

The virtual 2-megapixel performance is enabled by the ST DeepNIR technology featuring unrivaled MTF performance.

This ST DeepNIR technology offers excellent sensitivity with 43% QE at 940 nm enabling the VD56GA to operate with only one low-power LED.

The small CSP package footprint, more than three times smaller than the previous generation, combined with the ISO26262 and ISO21434 compliancy, makes VD56GA the optimal image sensor for driver monitoring systems.

Revision history

Table 1. **Document revision history**

Date	Version	Changes
4-Sep-2026	4	First public release

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