

VD56GA

Enabling in-cabin cost saving with 2.5 Mp class performance



Cost-effective 2.5Mp performance with monochrome global shutter for advanced designs and reduced BOM

VD56GA is a versatile, automotive-grade, monochrome, NIR image sensor with global shutter, designed to meet the latest in-cabin requirements with a highly cost-efficient structure. Its superior pixel performance supports multiple sensing configurations, from cost-effective DMS designs to advanced 2.5 Mp implementations.

KEY FEATURES & BENEFITS

- Monochrome global shutter optimized for 940 nm sensing
- 1.1 Mp resolution (1152 × 920) delivering 2.5 Mp-class performance with ST DeepNIR pixel technology
- Embedded ISP with auto exposure, PWL, and dark calibration
- Compact 3.7 × 3.2 mm form factor for easy integration
- Dual-lane MIPI CSI-2 / CSE FSED interface up to 1.5 Gbps per lane
- WLCSP package for compact integration
- AEC-Q100 Grade 2 qualified
- Compliant with ISO 21434 cybersecurity standards

PERFORMANCE

- Market-leading 41% quantum efficiency at 940 nm, supporting single-LED and low-power LED designs
- Outstanding MTF performance
- Up to 80 frames per second at full resolution
- Typical power consumption of 100 mW at 60 fps

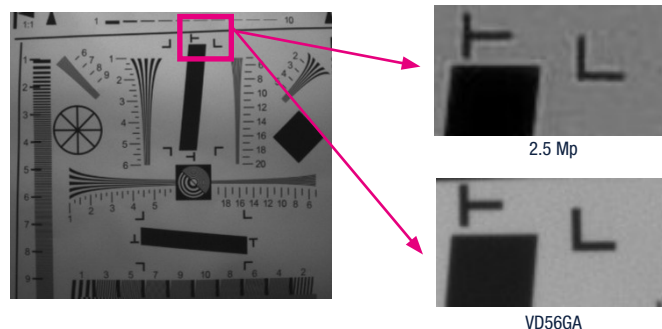
KEY APPLICATIONS

- Driver monitoring system (DMS)
- Occupancy monitoring system (OMS)
- In-cabin face identification

Performance meets cost efficiency for sharper, more sensitive imaging with +35% MTF and +60% quantum-efficiency sensitivity powered by **ST DeepNiR** pixel technology.

Achieving 2.5 Mp class performance at a 1.1 Mp cost

Powered by **ST DeepNiR** pixel technology, VD56GA delivers industry-leading modulation transfer function (MTF) and quantum efficiency performance. The result is a sharper, more sensitive sensor capable of detecting finer details at longer distances, with performance comparable to higher-resolution sensors such as 2.5 Mp.



Designed to simplify customer integration

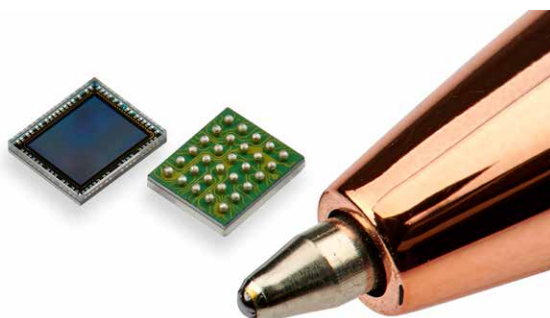
ST VD56GA has been engineered for effortless integration thanks a set of design features that include:

VD56GA feature	Benefits for customer integration
High MTF	Sharper images, reduced bandwidth needs, and more relaxed assembly constraints
High quantum efficiency	Supports single-LED operation and enables under-display integrations
Low power consumption	Simplifies thermal management
3.7 x 3.2 mm WLCSP package	Ultra-compact footprint for integration in space-constrained designs
Embedded ISP	Faster development and reduces host processing

In addition, VD56GA delivers proven compatibility with the automotive ecosystem players, including multiple DMS and OMS algorithm vendors and lens makers, making it ready for deployment.

Getting started

ST supports developers with the tools and hardware needed to accelerate evaluation, simplify testing, and streamline integration, from SDKs and evaluation software to sensor drivers and dedicated evaluation platforms.



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