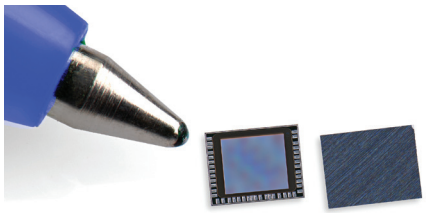
VD65G4

Ultralow-power 800x700 color sensor for always-on vision

Enable intelligent awareness with a compact color image sensor designed to unlock intuitive, battery-friendly vision experiences

Designed for battery-powered and energy-harvesting devices, the **VD65G4** brings richer visual context and AI-ready color data to compact systems while extending operating time and reducing power consumption.

Its compact global-shutter design makes it well suited for wearables, AR/VR, smart home devices, and other space-constrained applications.



KEY FEATURES

- Interface options:
  - MIPI CSI-2
  - MIPI I3C
  - SPI
- On-chip image processing:
  - Auto-exposure
  - Noise reduction
  - HDR
  - Defect & gamma correction
- Power saving features:
  - Low-power mode
  - Auto-wake up
- Data optimization:
  - Background removal
  - Image difference
  - Image statistics

KEY APPLICATIONS

- Wearables
- AI smart glasses
- XR/AR/VR headsets
- Smart home appliances
- Medical devices
- Security cameras
- IoT vision nodes
- Edge AI devices
- Smart buildings

www.st.com/vd65g4

VD65G4 at a glance

Ultralow power

Featuring a low-power mode and optimized architecture, the VD65G4 helps extend battery life in compact devices while delivering fast autoexposure and efficient operation even at high frame rates.
It typically consumes around 35 mW in operating mode and 1–2 mW in Auto-wakeup mode, helping reduce system-level power by keeping the SoC from processing data continuously.
The sensor remains in an ultralow-power sleep state until needed, then automatically switches to full streaming mode.

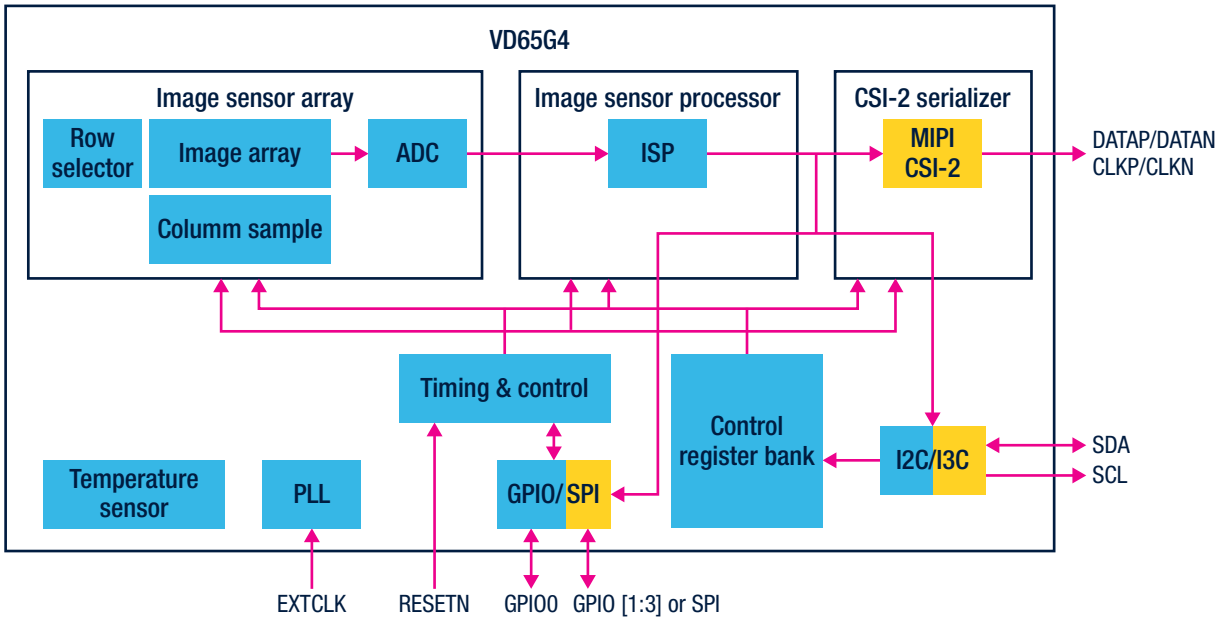
Versatile interfaces

With MIPI CSI-2, MIPI I3C, and SPI, the VD65G4 offers flexible connectivity for both vision SoCs and microcontroller-based designs.
MIPI CSI-2 supports high frame rates of up to 184 fps, enabling highly responsive processing on vision SoCs.
MIPI I3C and SPI provide simple 2- to 4-wire connectivity that helps optimize electronic design and simplify integration into compact, low-power MCU-based systems.

Smarter color vision

Ideal for compact, space-constrained designs, the VD65G4 delivers rich color capture at the edge, helping bring more visual context to connected devices.
Its global-shutter format and microcontroller-friendly interfaces simplify integration, while on-chip image processing reduces the workload on the main processor.
A complete ecosystem of boards, modules, software, drivers, and SDKs helps accelerate prototyping and implementation.
A monochrome version is also available as the **VD55G4**.

Block diagram



Device summary

Category	Deliverable	Item	Description	Part number
Products	Sensor	VD65G4	800x700 color sensor, bare die in reconstructed wafer	VD65G4CCC0/RW
Evaluation Tools	Evaluation camera module	CAM-65G4 promodules	Promodule, VD65G4 sensor, 80° DFOV lens, visible filter	CAM-65G4-080VIS
			Promodule, VD65G4 sensor, 160° DFOV lens, visible filter	CAM-65G4-160VIS
	Evaluation board	VD65G4 S-Board	VD65G4 sensor evaluation board with M12 holder, lens, and MIPI CSI-2/I3C/SPI output	Coming soon
		P-Board	Generic evaluation board for any promodule with MIPI CSI-2 output	STEVAL-CAM-M0I1
		EVK Main	Generic evaluation board for connecting any S-Board or promodule to computer with USB3 output	STEVAL-EVK-U0I1

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