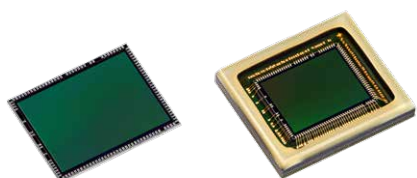# VD5943, VB5943

Feature-rich 5MP monochrome image sensor with dual global & rolling shutter

ST Bright Sense

Unlock next-level innovation with 5MP monochrome image sensor featuring dual shutter, on-chip HDR, and a powerful feature set

Introducing the **VD5943** and **VB5943**, groundbreaking 5MP monochrome CMOS image sensors that set a new standard in imaging innovation. With versatile dual global and rolling shutter, high dynamic range, and a rich feature set, they deliver superior image quality straight from the sensor for optimized, high-performance vision systems.

KEY FEATURES
- Output:
  - MIPI CSI-2 (2 or 4 lanes)
- Image enhancement:
  - Dual global & rolling shutter
  - Linear HDR
  - Multi-exposure
  - Dark calibration
  - Noise reduction
- Data optimization:
  - Image statistics
  - Binning
  - Subsampling
  - Cropping
- Synchronization:
  - Context management
  - Illumination control output
  - GPIOs x4
  - Multiple trigger modes

KEY APPLICATIONS
- Barcode scanning
- Robotics
- Machine Vision
- 3D stereo vision
- Security
- Biometrics
- Traffic monitoring
- Smart building
- Drones
- Medical imaging

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VD5943 and VB5943 at a glance

Dual global and rolling shutter

Dual shutter technology ensures flawless, vibrant images anytime by combining high-speed, artifact-free clarity from the global shutter with the rolling shutter's superior dynamic range and low-light performance, all boosted by on-chip HDR. This ensures exceptional image quality in varying light, from daylight to nighttime, making it ideal for outdoor applications like security, traffic monitoring, and drones.
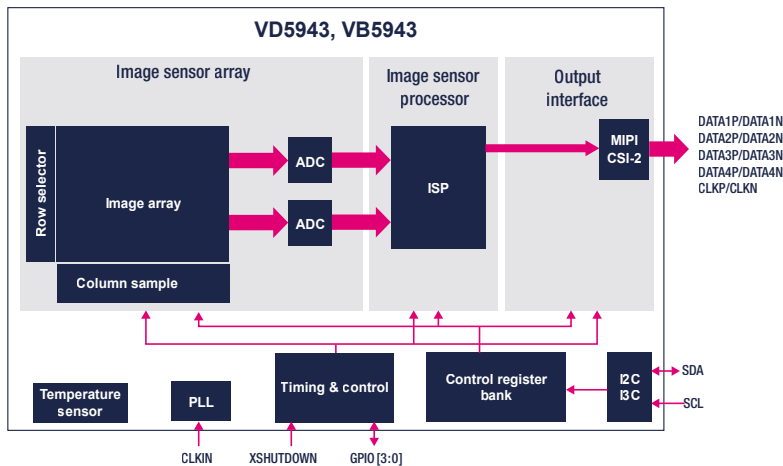
Sharp images in every light

Leveraging advanced 2.25µm pixels featuring BSI and CDTI technologies, the sensor offers leading-edge sensitivity and MTF across visible to near-infrared wavelengths. Paired with on-chip HDR, it delivers crisp, detailed images straight from the sensor. This makes it perfectly suited for demanding, battery-powered applications such as barcode scanners and 3D stereo obstacle avoidance systems in robotics.
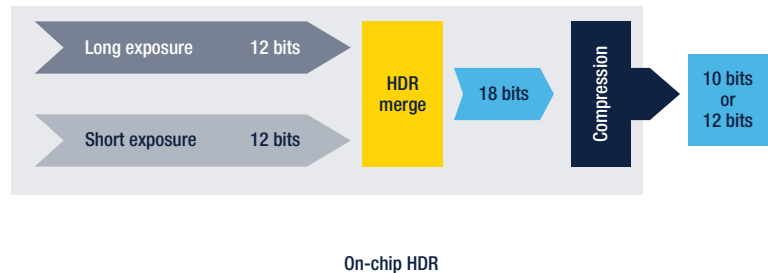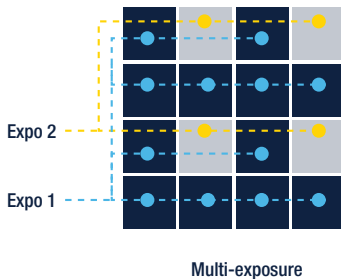
Computer vision made easy

Designed to simplify development, this sensor combines powerful on-chip processing with a streamlined MIPI CSI-2 output for faster and more efficient integration with embedded platforms. By reducing processing and power demands, it enables smarter, more efficient embedded vision solutions. With RGB-IR versions (VD1943, VB1943) available, it offers versatile options to meet diverse project needs.

Block diagram

Imaging capabilities

Multi-exposure

On-chip HDR

Ordering codes

Category	Item	Deliverable	Description	Part number
Product	VD5943	Die	5MP, monochrome, sensor bare die in reconstructed wafer	VD5943CE/RW
	VB5943	Packaged sensor	5MP, monochrome, OBGA packaged sensor	VB5943CAJX/1
Evaluation tools	Soon available for online purchase			

FSC MIX Paper from responsible sources FSC® C003379

Order code: FL2510VDVB5943

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