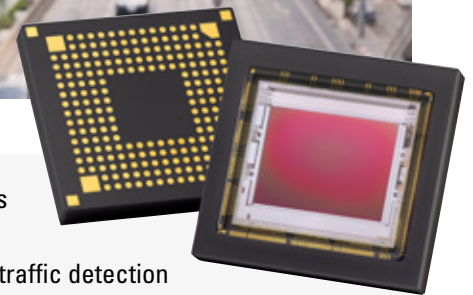
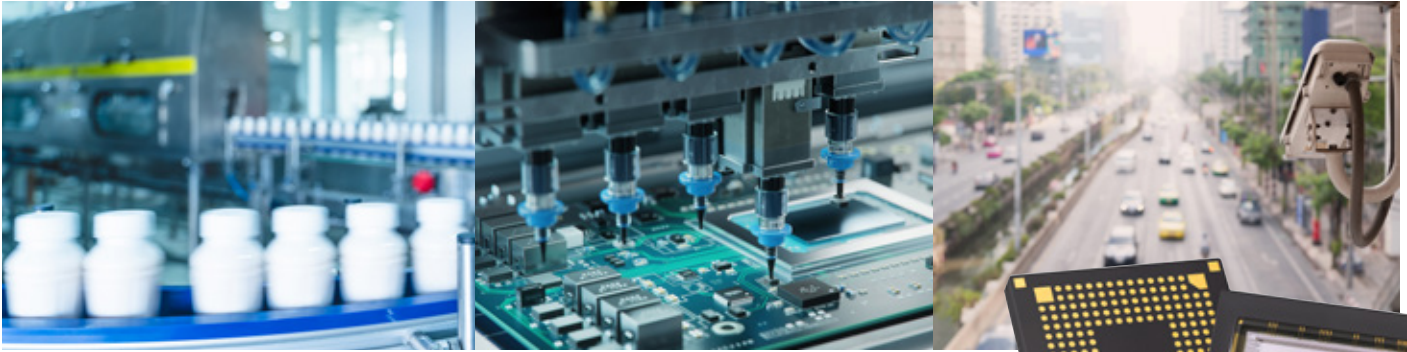


EMERALD GEN2

THE NEXT GENERATION OF HIGH-PERFORMANCE GLOBAL SHUTTER CMOS IMAGE SENSORS



Emerald™ Gen2 is a new state-of-the-art CMOS image sensor family built on Teledyne e2v's advanced imaging technologies. This new family delivers enhanced performance, making the new sensors ideal for a wide range of machine vision uses, outdoor surveillance, and traffic detection and monitoring cameras. Emerald Gen2 is available in 8.9-Megapixels (4,096 x 2,160) or 12-Megapixels (4,096 x 3,072), in monochrome or color. There are two-speed grades (standard and high) for demanding applications that require sharp images at very high speeds, such as food sorting, inspection, and Intelligent Traffic Systems.

SENSOR FEATURES

High image processing throughput with 100 fps frame rate @ 8.9M resolution

Compact 21 x 20 mm² Ceramic Land Grid Array (CLGA) package with centered matrix

A state-of-the-art low noise global shutter

LVDS and MIPI CSI 2 output

CUSTOMER BENEFITS

Quick and accurate inspection capabilities

Compatible with 1-inch C-mount optics for easy integration and reduced costs

Delivering excellent low-light SNR and the ability to work in high-contrast scenes

Flexibility in the choice of system architecture



Sensor Characteristics

PARAMETER	EMERALD GEN2-8.9M	EMERALD GEN2-12M
Resolution – pixels	4,096 (H) x 2,160 (V)	4,096 (H) x 3,072 (V)
Pixel size – square	2.8 μm	2.8 μm
Aspect ratio	17:9	4:3
Max frame rate @ 10bits – FPS (standard speed)	65 ¹	33 ¹
Max frame rate @ 10bits – FPS (high speed)	100 ¹	70 ¹
Bit depth	8/10/12	8/10/12
Readout noise – e-	3 ¹	3 ¹
Qsat – e-	7,200 ¹	7,200 ¹
Dynamic range – dB	67.5 ¹	67.5 ¹
SNRmax – dB	38.6 ¹	38.6 ¹
Q.E. – %, @ 550 nm	65 ¹	65 ¹

¹ Preliminary

KEY SPECIFICATIONS

- Two resolutions (8.9M & 12M) pin-to-pin compatible
- 2.8 μm CMOS global shutter pixel enabling true CDS
- Up to 65 fps @ full resolution (8.9M) at 10 bits
- Two different speed grades
- Compact ceramic LGA package 20 x 21 mm²
- Two different interfaces (LVDS & MIPI CSI-2)
- 16 LVDS outputs @850 Mbps per lane
- Power consumption: ≤2W @full speed & full resolution

EMBEDDED FEATURES

- Single Integration Multiple ROI (SIMR): up to 4, non-overlapping and the same integration for each ROI, improving frame rate
- Multi Integration Multiple ROI (MIMR): 2 independent ROI's with possible overlapping and with separated exposure, gain and repetition numbers for each ROI, improving frame rate
- High Dynamic Range mode (dual exposure with MIMR)
- Row sub sampling
- Look-up table
- Improved defective pixel correction
- FPN correction
- Flipping/mirroring
- Image statistics and context output
- Multiple trigger modes

APPLICATIONS

- Machine vision
- Product inspection and sorting
- Pick and place robot guidance
- Outdoor surveillance
- Intelligent Transportation Systems

ORDER CODES

Description	Part Number
Emerald Gen2 - 8.9M, Mono, Standard speed	EV2S8M9B-CLM0150-T
Emerald Gen2 - 8.9M, Mono, High speed	EV2S8M9B-CLM0350-T
Emerald Gen2 - 8.9M, Color, Standard speed	EV2S8M9C-CLM0150-T
Emerald Gen2 - 8.9M, Color, High speed	EV2S8M9C-CLM0350-T
Emerald Gen2 - 12M, Mono, Standard speed	EV2S12MB-CLM0150-T
Emerald Gen2 - 12M, Mono, High speed	EV2S12MB-CLM0350-T
Emerald Gen2 - 12M, Color, Standard speed	EV2S12MC-CLM0150-T
Emerald Gen2 - 12M, Color, High speed	EV2S12MC-CLM0350-T

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