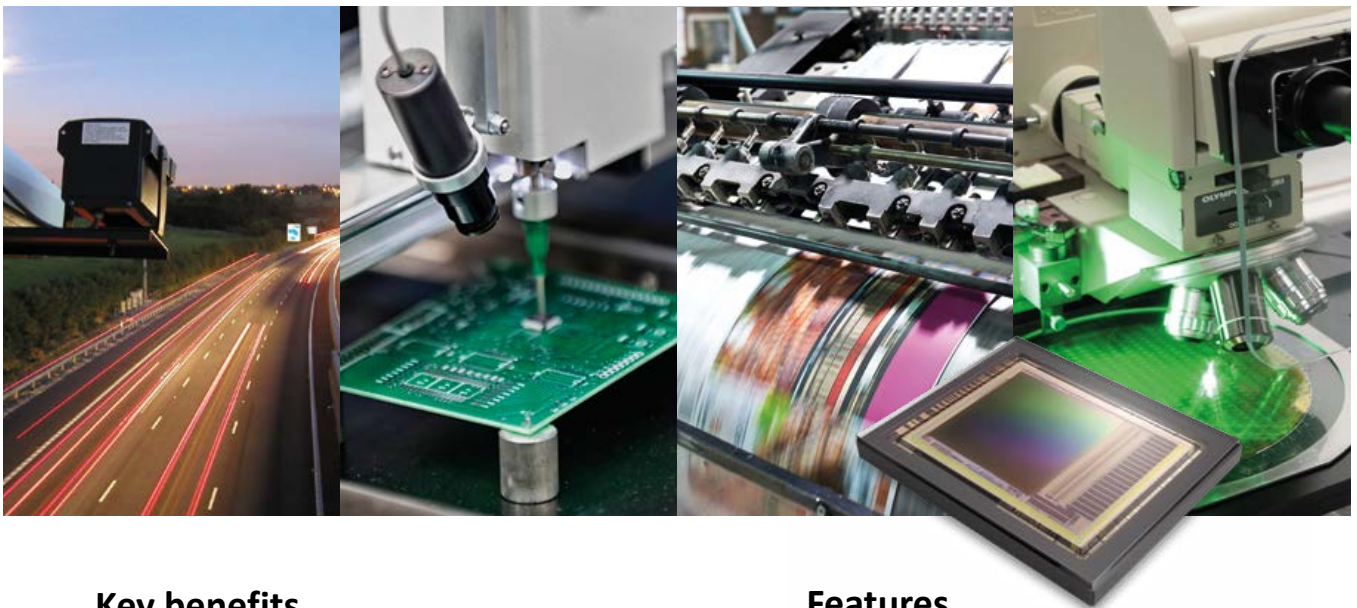


The world's smallest global shutter pixel



Key benefits

- The world's smallest global shutter CMOS pixel (with $2.8\mu\text{m} \times 2.8\mu\text{m}$)
- Versatile, with a selection of 3 high resolution sensor products (8MP, 12MP and 16MP)
- Fast and easy to integrate/migrate with a pin compatible package
- Cost effective due to the ultra-small optical format ($\leq 1''$)
- Feature rich (binning, trigger modes), supporting a broad range of applications
- Exclusive low noise mode to enable low-light imaging, with HDR modes for daylight scenes
- Tracking simultaneous image regions due to multi-ROI mode
- Suitable for high speed interface systems (USB 3.1, 10GigE)

Features

- $2.8\mu\text{m}$ CMOS global shutter pixel
- B&W and colour
- Up to 63fps @ full resolution & 10 bits (12MP)
- 2 speed grades for each resolution (high speed and standard speed)
- 2/4/8/16 sub-LVDS outputs, 800Mbps
- SPI controls
- 3.3V, 1.8V, 1.2V power supplies
- Package: CLGA, 224 pins

Typical applications

- Industrial machine vision
- Intelligent Traffic Systems (ITS)
- Electronic inspection

Teledyne e2v has launched its groundbreaking new Emerald family of CMOS image sensors featuring the world's smallest true global shutter pixel on the market today (2.8µm), offering customers improved performance and reduced system costs due to the smaller optical format and the higher resolutions packed into the Emerald's standard formats.

This new generation of image sensors also marks a significant improvement of Dark Signal Non Uniformity (DSNU), which is more than 10 times improved when compared to previous Teledyne e2v CMOS products. This enables cameras to perform better in high temperature environments and enable long exposures to be used in low-light applications such as microscopes or outdoor cameras for surveillance, speed or traffic applications.

The whole Emerald family features the same pixel, processing, readout structures and ceramic Land Grid Array (LGA) package to simplify integration and offers camera makers the advantage of a reduced development cost for derived product offerings.

Sensor characteristics

	EMERALD 8MP	EMERALD 12MP high speed	EMERALD 12MP	EMERALD 16MP high speed	EMERALD 16MP
Resolution (pixels)	4,096 x 2,160	4,096 x 3,072		4,096 x 4,096	
Pixel size (square)	2.8µm				
Size type (inch)	2/3'	1'			
Aspect ratio	16:9	4:3		1:1	
Max frame rate	TBD	63fps @10 bit 43fps @12 bit	31fps @10 bit 21fps @12 bit	47fps @10 bit 33fps @12 bit	23fps @10 bit 16fps @12 bit
Bit depth	8/10/12				
Readout noise (e-)	5 (normal mode) 2.5 (ultra-low noise mode)				
Qsat (e-)	> 7000				
Dynamic Range (dB)	65 (normal mode) 71 (ultra-low noise mode) 100+ (HDR mode)				
SNRmax (dB)	>39				
Q.E. (% , @550nm)	65				

Order codes

+ Emerald 8MP EV2S08MB-CLV0350 EV2S08MC-CLV0350	+ Emerald 12MP high speed EV2S12MB-CLV0350 EV2S12MC-CLV0350	+ Emerald 12MP EV2S12MB-CLV0150 EV2S12MC-CLV0150	+ Emerald 16MP high speed EV2S16MB-CLV0350 EV2S16MC-CLV0350	+ Emerald 16MP EV2S16MB-CLV0150 EV2S16MC-CLV0150
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