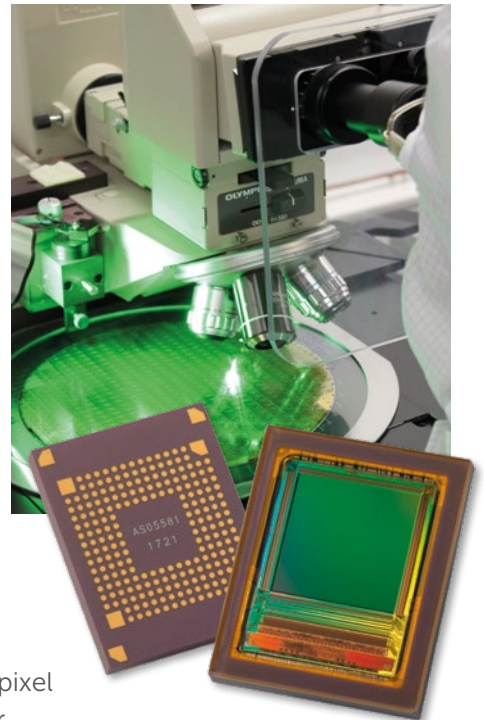
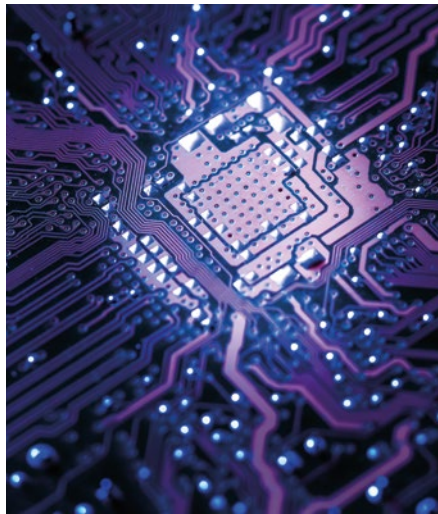


# Compact with a Small Global Shutter CMOS Pixel



## KEY BENEFITS

- » Small 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 (8.9MP, 12MP and 16MP)
- » Fast and easy to integrate/migrate with a pin compatible package
- » Cost-effective due to the ultra-small optical format (2/3")
- » 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 color
- » Up to 62fps @ 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 which feature a small true global shutter pixel (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.

<b>SENSOR CHARACTERISTICS</b>				
	<b>EMERALD 12MP high speed</b>	<b>EMERALD 12MP</b>	<b>EMERALD 16MP high speed</b>	<b>EMERALD 16MP</b>
Resolution – pixels	3,072 (V) x 4,096 (H)		4,096 (V) x 4,096 (H)	
Pixel size – square	2.8µm			
Size type – inch	1			
Aspect ratio	4:3		1:1	
Max frame rate	62fps @10 bit 43fps @12 bit	30fps @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-	2.8 (standard mode) 1.7 (ultra-low noise mode)			
Qsat – e-	> 6,000			
Dynamic range – dB	67.5 (standard mode) 71.9 (ultra-low noise mode) up to 120 (HDR mode)			
SNRmax – dB	>39			
Q.E. – %, @500nm	65			

## ORDER CODES

» Emerald 12MP high speed EV2S12MB-CLV0351 EV2S12MC-CLV0351	» Emerald 12MP EV2S12MB-CLV0151 EV2S12MC-CLV0151	» Emerald 16MP high speed EV2S16MB-CLV0351 EV2S16MC-CLV0351	» Emerald 16MP EV2S16MB-CLV0151 EV2S16MC-CLV0151
--	--	--	--