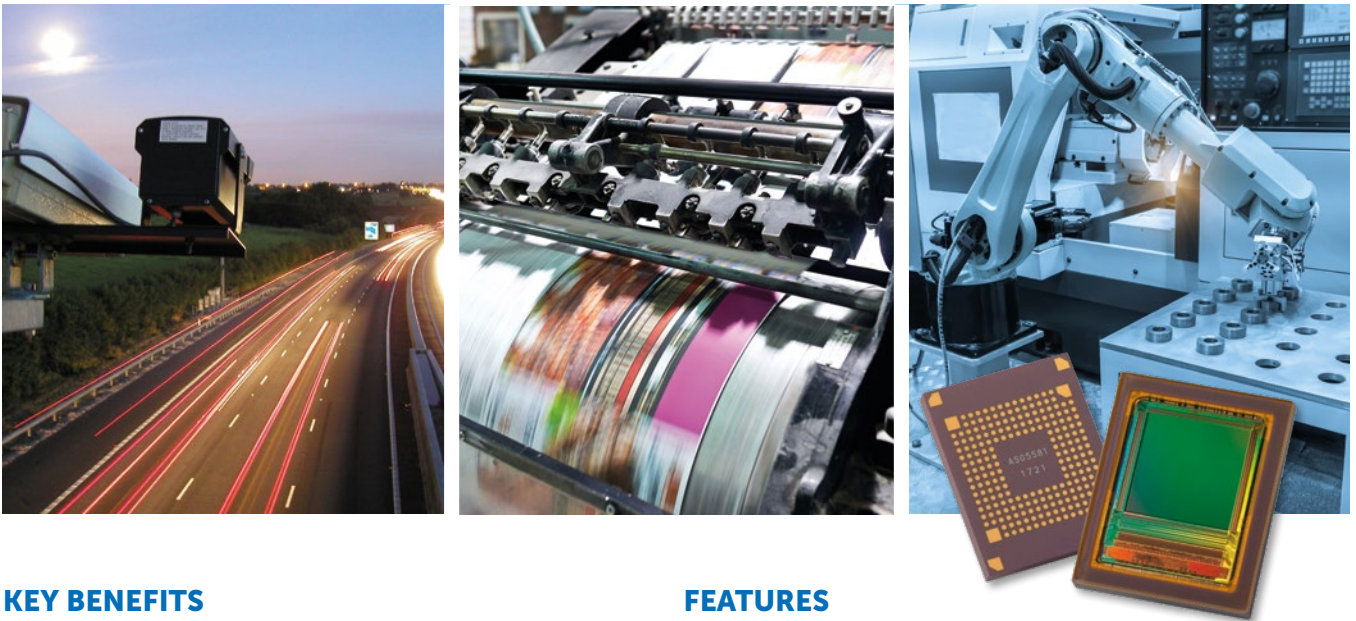


# Compact with a Small Global Shutter CMOS Pixel



## 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 124fps @ full resolution & 10 bits
- » 2 speed grades (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.

| SENSOR CHARACTERISTICS |   |                                 |
|------------------------|---|---------------------------------|
|                        | EMERALD<br>8.9MP  | EMERALD<br>8.9MP<br>high speed  |
| Resolution – pixels    | 2,160 (V) x 4,096 (H)   |                                 |
| Pixel size – square    | 2.8µm   |                                 |
| Size type – inch       | 2/3   |                                 |
| Aspect ratio           | 17:9  |                                 |
| Max frame rate         | 62fps @10 bit<br>34fps @12 bit  | 124fps @10 bit<br>68fps @12 bit |
| Bit depth              | 8/10/12   |                                 |
| Readout noise – e-     | 2.8 (standard mode)<br>1.7 (ultra-low noise mode)                         |                                 |
| Qsat – e-              | > 6,000   |                                 |
| Dynamic range – dB     | 67.5 (normal mode)<br>71.9 (ultra-low noise mode)<br>up to 120 (HDR mode) |                                 |
| SNRmax – dB            | >39   |                                 |
| Q.E. – %, @500nm       | 65  |                                 |

## ORDER CODES

- |                  |                            |
|------------------|----------------------------|
| » Emerald 8.9MP  | » Emerald 8.9MP high speed |
| EV2S8M9B-CLV0150 | EV2S8M9B-CLV0350           |
| EV2S8M9C-CLV0150 | EV2S8M9C-CLV0350           |