

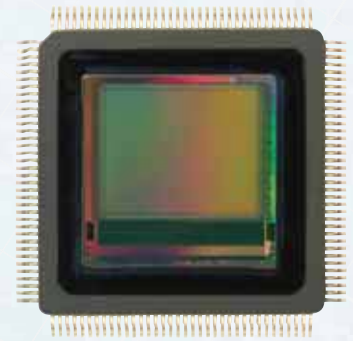
CMOS Image Sensor

A1312

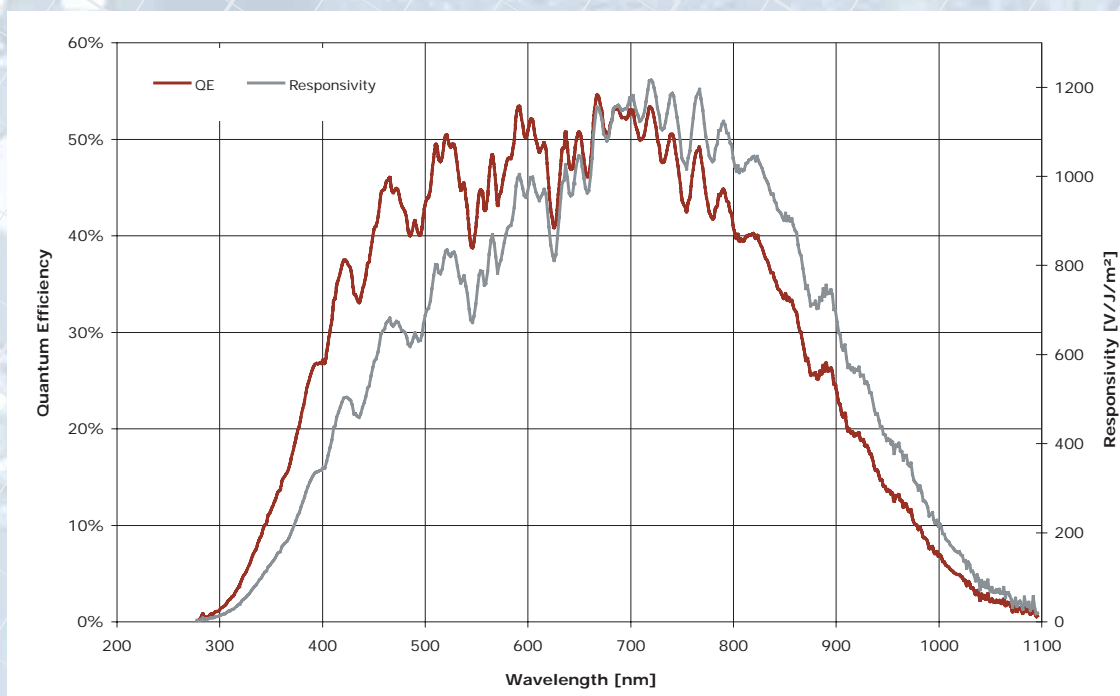
Monochrome 1.4 Megapixel Sensor

Features

- 1312 x 1082 pixel resolution
- 8 μm x 8 μm square pixel
- Over 60% fill factor without microlenses
- Dynamic range up to 120 dB via LinLog[®]
- Fast global shutter
- Sequential or simultaneous read out (during exposure)
- Up to 110 fps @ full resolution
- High frame rates through: horizontal and vertical windowing, Flexible Region of Interest (ROI) in X and Y, Multiple ROI
- Integrated test pattern, temperature sensor and black level reference
- Good Near Infra Red (NIR) response
- Spectral range from under 350 nm to over 1000 nm
- Sensor without cover glass



Spectral response





A1312-40	A1312-160
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Image Sensor

Technology	CMOS Active Pixel (APS)	
Scanning system	Progressive scan (normal operation) Arbitrary row addressing, Multiple Regions of Interest (MROI) in X and Y and multiple (nondestructive) readouts possible	
Optical format	1" (13.6 mm diagonal) maximum resolution 2/3" (11.6 mm diagonal) 1024 x 1024 resolution	
Resolution (active pixels)	1312 x 1082 maximum	
Pixel size	8 µm x 8 µm	
Active optical area	10.48 mm x 8.64 mm (maximum)	
Output swing	1.05 V (typical application)	
Random noise (RMS)	1.1 mV	
FPN (RMS, uncorrected)	13.5 mV	
Dark current	0.65 fA/pixel ⁽¹⁾	
Full well capacity	140 ke ⁻ (2)	
Spectral Range	320 to 1030 nm	
Responsivity	819 V/J/m ² (4)	
Quantum efficiency of pixel	> 50 % (4)	
Sensitivity (for 10dB SNR)	4.0 µJ/m ² (3) (4)	
Shutter efficiency	99.85 % (5)	
Optical fill factor	> 60 % (3) (4)	
Dynamic range	60 dB in linear mode: 120 dB with LinLog [®] (3)	
Colour format	monochrome	
Characteristic curves	Linear, LinLog [®] , Skimming	
Shutter mode	Global Shutter	
Readout mode	Sequential read out or simultaneous read out (read out during exposure)	
Analog taps	1	4 (1 or 4 taps active)
Pixel clock	40 MHz maximum	
Maximum frame rate	27.5 fps @ maximum resolution 37.5 fps @ 1024 x 1024 resolution	110 fps @ maximum resolution 150 fps @ 1024 x 1024 resolution
Supply voltages	3.1 V, 3.3 V, 4.6 V	
Power consumption	< 480 mW during full-speed readout	< 600 mW during full-speed readout
Operating temperature range	Industrial (-20 °C to +85 °C)	
Package	144-pin COFP	
Cover glass	No cover glass	

- (1) Varies strongly with temperature. Value given applies at 27 °C.
- (2) When configured for 1.1 V output swing.
- (3) Provisional information, to be confirmed.
- (4) Under red illumination (850 nm).
- (5) Under white LED illumination.