

VGA iToF Global Shutter CMOS Image Sensor

Preliminary

SENSOR DESCRIPTION

GTOF0503 is a VGA featuring a 5 μm 3-tap state-of-the-art iToF pixel incorporating a pixel array with a resolution of 640 x 480 pixels. The BSI technology provides excellent sensitivity at NIR wavelengths. In addition, the wafer stacking enables very high modulation frequencies of up to 165 MHz and 30 depth frames per second which results in industry-leading depth accuracy at short, mid and long-range distances even in challenging ambient light conditions by using pulse modulation iToF technique. On-chip binning further increases SNR for low light image environments. Advanced features such as multiple acquisition modes, depth with single and dual frequency, low-power standby modes and an industry standard MIPI CSI-2 interface, allow very versatile and flexible operation, providing a cost-effective all-in solution, making this product the ultimate choice for various 3D imaging applications.

SENSOR SPECIFICATION

Resolution	640 (H) × 480 (V)	Optical format	1/4"
Pixel size	5 μm × 5 μm	Quantum efficiency	>24% @ 940 nm
Pixel type	3-tap iToF Global Shutter	Modulation contrast	> 80% at 3 ns (TBD)
Full well capacity	>10k e^-	Modulation frequency	Up to 165 MHz
Dark noise	<7 e^-	Binning	2x2 and 4x4
Dynamic range	>60 dB @ 10bit	Frame rate	30 fps
Output interface	4ch CSI-2 MIPI, RAW10, RAW12 @ 1.6 Gbps	Region of Interest	Up to 4 ROI vertically
ADC	10/11 bit	Die area	5.344 x 4.32 mm
Chroma	Mono	Package	TBD – 139 pads
Power supply	2.8V / 1.8V / 1.2V Dedicated pixel supplies	Power consumption	± 330 mW

APPLICATIONS

- Machine Vision
- Automated Guided Vehicle
- Industrial Automation
- Bin Picking
- Logistics
- Smart Factory

