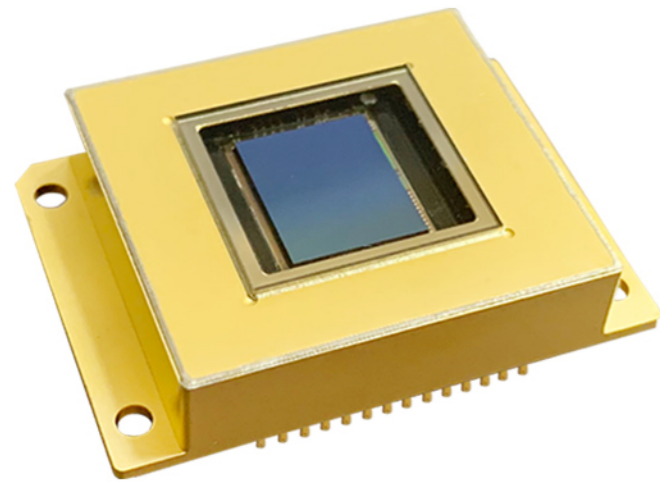
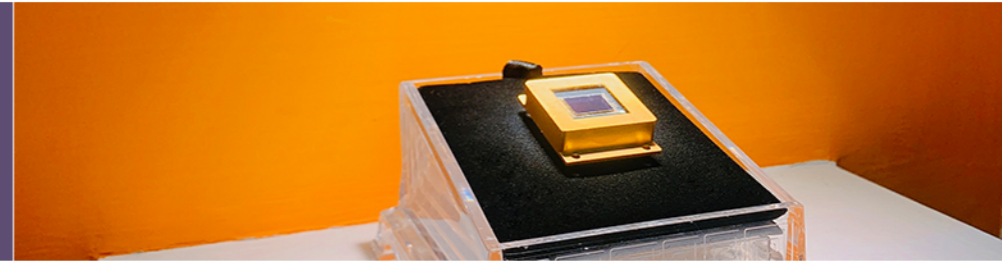


# GHOPTO InGaAs SENSORS



GHOPTO is well known as the first commercial InGaAs imaging manufacturer in China. We offer three main modes of business to other companies, universities and institutions: FOUNDRY SERVICES, STANDARD InGaAs IMAGERS and CUSTOM IR IMAGERS. We provide linear and focal plane arrays and extended wavelength InGaAs image sensors and cameras. The applications include security, surveillance, scientific, spectral imaging, machine vision, line-scan inspection, laser beam profiling and process monitoring.



Satellite



Security & Surveillance



Smoke & Haze Penetration



Eye-safe Laser Sources



Machine Vision



Plastic Sorting



Fluorography



Fire Fighting

## ARRAY FEATURES

	GH-SW320	GH-SW640H	GH-SW1280	GH-SW1024
Sensor Type	InGaAs PIN-Photodiode	InGaAs PIN-Photodiode	InGaAs PIN-Photodiode	InGaAs PIN-Photodiode
Format	320 x 256	640 x 512	1280 x 1024	1024 x 1
Pixel Pitch	15 $\mu\text{m}$	15 $\mu\text{m}$	15 $\mu\text{m}$	12.5 $\mu\text{m}$
Spectral Response	0.9 $\mu\text{m}$ ~ 1.7 $\mu\text{m}$ 0.4 $\mu\text{m}$ ~ 1.7 $\mu\text{m}$ ( optional )	0.9 $\mu\text{m}$ ~ 1.7 $\mu\text{m}$ 0.4 $\mu\text{m}$ ~ 1.7 $\mu\text{m}$ ( optional )	0.9 $\mu\text{m}$ ~ 1.7 $\mu\text{m}$	0.9 $\mu\text{m}$ ~ 1.7 $\mu\text{m}$

## ROIC ( Read-Out Integrated Circuit )

	GH-SW320	GH-SW640H	GH-SW1280	GH-SW1024
Integration Type	Snapshot	Snapshot	Snapshot	Snapshot
Readout Modes	ITR, IWR, CDS	ITR, IWR, CDS	ITR, IWR, CDS	ITR, IWR
Exposure Time	0.2 $\mu\text{s}$ to full frame	100 $\mu\text{s}$ to full frame	2 $\mu\text{s}$ to full frame	5 $\mu\text{s}$ to full frame
Maximum Full Frame Rate	500 Hz	358 Hz	100 Hz	20 KHz / 40 KHz
Maximum Pixel Rate	18MHz	20MHz	22MHz	14MHz
Output Signal Swing	$\leq 2\text{V}$	$\leq 2\text{V}$	$\leq 2\text{V}$	$\leq 2\text{V}$
Temperature Sensor Output	Yes	Yes	Yes	Yes

## TYPICAL PERFORMANCES

	GH-SW320	GH-SW640H	GH-SW1280	GH-SW1024
Quantum Efficiency	>70% ( 1.0 $\mu\text{m}$ ~ 1.6 $\mu\text{m}$ )	>70% ( 1.0 $\mu\text{m}$ ~ 1.6 $\mu\text{m}$ )	>70% ( 1.0 $\mu\text{m}$ ~ 1.6 $\mu\text{m}$ )	>70% ( 1.0 $\mu\text{m}$ ~ 1.6 $\mu\text{m}$ )
Noise with ROIC	35e- @HG	40e- @HG	40e- @HG	48e- @HG
Dark Current	30fA@0.1V&18°C	30fA@0.1V&18°C	30fA@0.1V&18°C	30fA@0.1V&18°C
Array Operability	> 99.5% ( Minimum )	> 99.5% ( Minimum )	> 99.5% ( Minimum )	> 99%
Non Uniformity Without Correction	< 5%	< 5%	< 5%	< 5%

## PACKAGING

	GH-SW320	GH-SW640H	GH-SW1280	GH-SW1024
Dimension	36 mm x 25.4 mm x 7.2 mm	36 mm x 25.4 mm x 7.2 mm	40 mm x 36 mm x 7.2 mm	36 mm x 25.4 mm x 7.2 mm
Windows	Quartz / Sapphire	Quartz / Sapphire	Quartz / Sapphire	Quartz
Cooler	Single Stage TE Cooler	Single Stage TE Cooler	Single Stage TE Cooler	Single Stage TE Cooler
Number of Pins	28-pin Metal DIP Package	28-pin Metal DIP Package	30-pin Metal DIP Package	28-pin Metal DIP Package
Packaging Characteristics	Hermetically Sealed	Hermetically Sealed	Hermetically Sealed	Hermetically Sealed
Operating Temperature	- 40°C ~ 70°C	- 40°C ~ 70°C	- 40°C ~ 70°C	- 40°C ~ 70°C
Storage Temperature	- 40°C ~ 70°C	- 40°C ~ 70°C	- 40°C ~ 70°C	- 40°C ~ 70°C