



## B21-256S Data Sheet

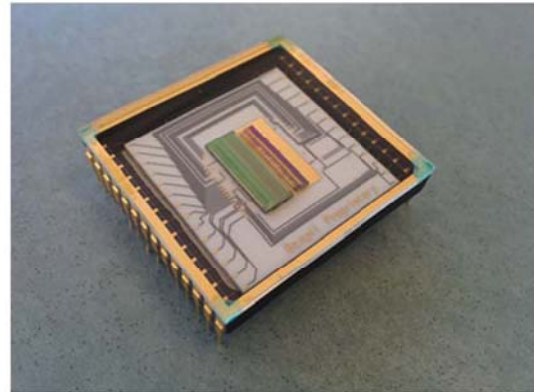
### Linear Array Image Sensor

#### Key Features

- 1 (H) x 256 (V) Active Pixels
- 1 inch Optical Format
- SWIR Spectral Coverage: 900 – 1,700 nm
- VIS-SWIR Optional: 400 – 1,700 nm
- Quantum Efficiency in visible & NIR/SWIR (>95% @ 1,550 nm)
- Min. Detectable Threshold: 0.001 lux
- High Dynamic Range: 97 dB - Clear vision in fog, rain, shadows, excess light.
- Electronic Global Shutter
- -40°C to +85°C Operational Temperature Range
- 28-Pin LCC Package
- Power Dissipation: < 55 mW
- These Devices are Pb-Free and are RoHS Compliant

#### Applications

- SWIR Imaging, Night Vision /Fog Vision
- Homeland Security – Security & Surveillance, Military
- First-responders, Law Enforcement & Public Safety
- Automotive – Autonomous & Non-Autonomous Driving Sensors – Safety, Collision, Obstacle Avoidance
- Machine Vision
- Inspection – Solar Cell & Si ingot
- Agricultural QC & Food Sorting
- Process Control – Semiconductor
- Spectroscopy, Microscopy, Scientific Imaging, Raman Chemical ID - Pharma
- Space & Atmospheric Remote Sensing
- Bio - Medical Imaging



#### Description

The Banpil *B21-128S* Image Sensor is a next generation linear array high performance, multispectral sensor to replace CCD and designed for a wide range of image sensing applications in the 0.4 $\mu$ m to 1.7 $\mu$ m wavelength band.

The sensor is built with a truly unique technology employing a single monolithic sensor that detects Visible, Near Infrared (NIR) and Shortwave IR (SWIR) light with high quantum efficiency and broad range of peak response.

The *B21-128S* sensor produces more than 2x consistently clearer, sharper, enhanced images than CCD sensors in visible light and clearer, sharper NIR images where CCD fails.

With a highly sensitive minimum detectable threshold of 0.001 lux, this sensor is able to “see” in practically total darkness. No light projection is needed. It also produces higher quality images in changing bright and dark conditions giving visibility in poor lighting.



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### SPECIFICATIONS

GENERAL SPECIFICATIONS		ELECTRO-OPTICAL SPECIFICATIONS	
Parameters	Specification	Parameters	Typical Specifications
Sensor Type	InGaAs	Spectral Response (Optional)	Standard 0.9 - 1.7 $\mu\text{m}$ VIS/SWIR 0.4 - 1.7 $\mu\text{m}$
Active Pixels / Resolution	1 $\times$ 256 - Linear Array	Line Rate	342 kHz
Pixel Size/Pitch	100 $\mu\text{m}$ $\times$ 100 $\mu\text{m}$	Pixel Rate	2.5 MHz
Active Area (H $\times$ V)	0.1 mm $\times$ 13 mm	Fill Factor (FF)	90%
Pixel Type	Rolling progressive shutter pixel	Saturation Voltage Exposure	2.5 V
Integration Modes (Readout)	Integrate-Then-Read Integrate-While-Read	Fill Factor (FF)	90%
Output Format	Buffered Analog Differential	Quantum Efficiency (QE)	>95% @ 1,550 nm
Power Supply	5 V , -5V, 0 V nominal supplies	Photo Response Nonuniformity (PRNU)	10% of Signal
Power Dissipation	$\leq$ 55 mW	Min Detectable Range	0.001 lux
Package Type	28 LCC; Glass Lid	Dynamic Range	97 dB

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