



# SCI640B ROIC

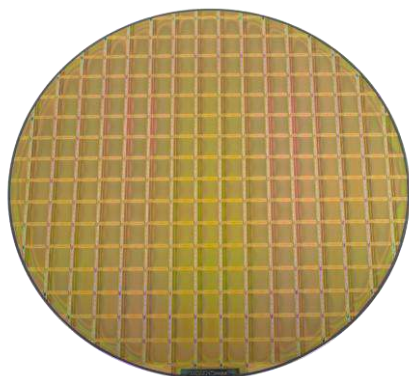
## VGA Readout Integrated Circuit

### Analog Out

Attollo's SCI640B Readout Integrated Circuit (ROIC) is designed for SWIR focal plane arrays with a resolution of 640 x 512 pixels with a pitch of 15 microns.

The SCI640B ROIC pixels have a Capacitive Transimpedance Amplifier (CTIA), designed for P on N polarity diodes. Very short exposure time windows with programmable start and stop can be controlled with integrate then read (ITR) or integrate while read (IWR) snapshot functionality. Groups of 2x2 pixels can also be binned to enhance sensitivity. Other ROIC operating modes include non-destructive Read (NDR) and high dynamic range (HDR) imaging.

The ROIC is well-suited for SWIR applications using detector materials such as InGaAs and CQDs. Attollo can deposit customized metallization stacks for your application.



## Characteristics

- VGA: 640 x 512
- Pixel pitch: 15  $\mu\text{m}$
- Low noise: 20  $e^-$
- Snapshot shutter for fast moving images

## Detector Materials

InGaAs

CQDs

Attollo ROICs are designed in our Camarillo, California facility and fabricated in US foundries. Attollo Engineering specializes in infrared imaging and laser sensing products and is AS9100 certified.

# Specifications

## SCI640B ROIC

Pixel pitch	15 $\mu\text{m}$
Array Format	640 x 512
Detector Polarity	P-on-N (hole integration)
Die Size	11.1 mm x 11.6 mm
Exposure Time Control	Snapshot Shutter, ITR or IWR
Minimum Integration Time	$\leq 10$ usec
Charge Capacity	Programmable High gain: 12 ke <sup>-</sup> Medium gain: 90 ke <sup>-</sup> Low gain: 1,000 ke <sup>-</sup>
Input Referred Read Noise	High gain: 20 e <sup>-</sup> Medium gain: 45 e <sup>-</sup> Low gain: 280 e <sup>-</sup>
Max Full Frame Rate	120 Hz (4 output channels)
Minimum Window Size	1 row (via fast clocking)
Output	Analog
Number of Output Channels	1, 2, or 4 (programmable)
Master Clock	5 MHz
Power Supply	3.3V / 1.8V
Logic I/O Levels	0.0V / 3.3V
Nominal Operating Temperature	300K
Power Dissipation	220 mW (4 outputs)
Serial Interface	Single serial word
Die per Wafer (unyielded)	182

*The listed parameters are representative of an average device.  
Individual ROIC performance may slightly deviate.*

## Availability

Part Number (full wafer): RIC005816-3  
Part Number (half wafer): RIC005816-2  
Part Number (quarter wafer): RIC005816-1

Pricing information, contact Sales at:  
[sales@attolloengineering.com](mailto:sales@attolloengineering.com)

Made in the USA



**Attollo Engineering**  
160 Camino Ruiz  
Camarillo, California  
805-384-8046  
[www.attolloengineering.com](http://www.attolloengineering.com)  
[sales@attolloengineering.com](mailto:sales@attolloengineering.com)

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