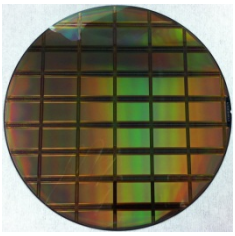
Sensor Creations



SCI1920A_A_15_V0

General Description

The SCI1920A_A_15_V0 is a Readout Integrated Circuit (ROIC) for detector arrays with a resolution of 1920x1080 pixels and a pitch of 6.5um. It provides up to 100 frames per sec through 8 single ended analog output channels. Many different operating modes and conditions can be programmed via serial interface. Important features that can be changed are: full well capacity (FWC); rolling line shutter mode, i.e. Integrate Then Read (ITR), Integrate While Read (IWR) and Non-Destructive Read (NDR), column amplifier gain. All biases are generated on-chip and derived from a bandgap reference. These biases can be programmed to optimize power dissipation and output voltage swing for each operating mode. The exposure time is defined by the pulse length of the external control signal “exp”. Readout of Regions of Interest (ROI) with a center coinciding with the center of the entire active array is supported. The ROI size is controlled by the pulse length of the readout control signals “line” and “frame”. Shortest detectable pulse length is 100nsec..

Features

An overview of the SCI1920A_A_15_V0 specifications is given in Table 1. The listed parameters are representative for an average device. Individual ROIC performance may slightly deviate.

Parameter	Value
Array Size	1920x1080
Pixel pitch	6.5 µm
Detector polarity	P or N
Die Size	~15 x 12 mm^2
Exposure time control	10µsec to 100msec
Shutter type	IWR/NDR/ITR, rolling line
Windowing	ROI Capability
minimum	1 rows x 24 columns
increments	1 rows x 24 columns
Minimum integration time	> 10µsec
Charge capacity	programmable
	<20k e^- (gain mode 0)
	<5k e^- (gain mode 0)
Input Referred Noise	
High gain mode	40 e^- (high gain)
Low gain mode	140 e^- (low gain)
Integration time range	10 µs – 30 ms
Frame rate	10 Hz to <100Hz
Output	Analog
Output format	Raw, un-encoded bit stream
Output data rate	10Mpixel/sec
Number of Output channels	8 (programmable)
Master Clock	<13 MHz
Power Supply	3.3V/1.8V
Logic I/O levels	0.0V/3.3V
Power Dissipation	350mW @ 100Hz frame rate
Serial Interface Format	Single long word

Table 1: SCI1920A_A_15_V0 datasheet