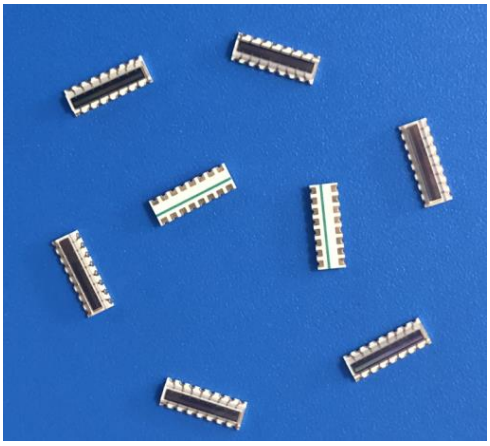
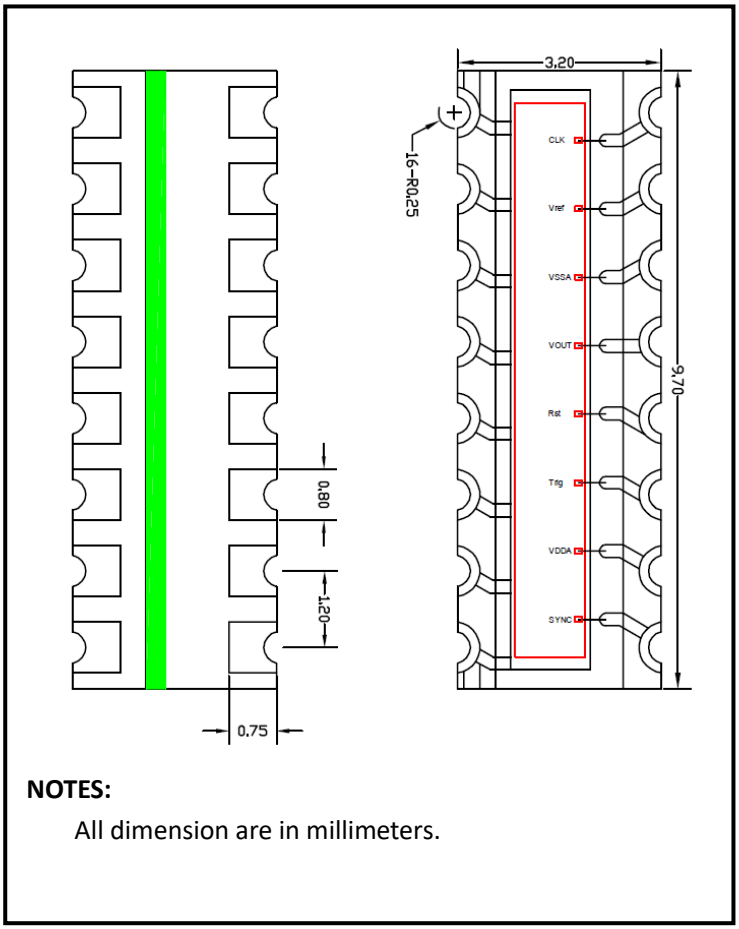
OCD1536

LINE SCAN IMAGE SENSOR IC





NOTES:

All dimension are in millimeters.

Description

The OCD1536 Linear Image Sensor consists of an array of High performance, low dark current photo-diode pixels. The sensor features sample and hold capability, selectable Resolution and advanced power management. The device Can operate at voltages as low as 3V making it ideal For portable applications. A key feature over traditional CCD technology is that the device can be read and reread Non-Destructively, allowing the user to maximize signal to Noise and dynamic range.

Features

* Low Cost Compared to CCD multi-chip systems
* High Sensitivity and high Signal to Noise
* Single Supply Operation, 3.3 Volt
* Non-Destructive Read Capable, extremely low noise capable via signal averaging
* 2MHz Operation
* Control signal for Reset of shift register, pixels, integration period and start of readout.
* Completely Integrated Timing and Control

SUMMARY OF OCD256

Pixel Type	Linear Image Sensor photo diode
Array Size	1 x 1536
Pixel Size (Pitch)	5.5um X 63.5 um
Imaging Active Area	8448 um X 63.5 um
Output	80 ohm output impedance analog into 5 pf max.

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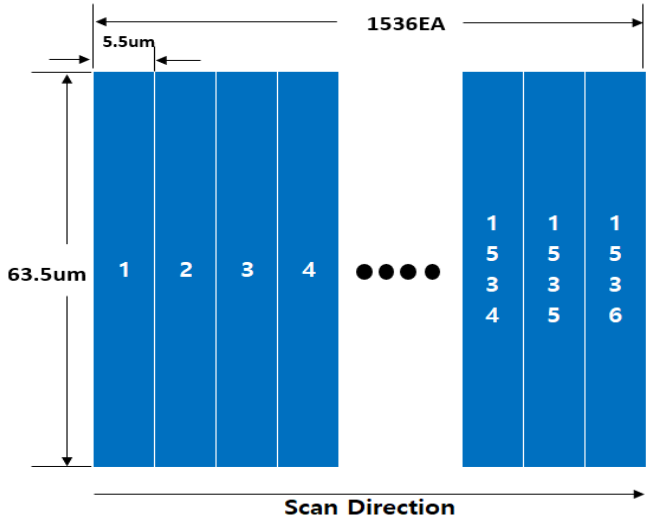
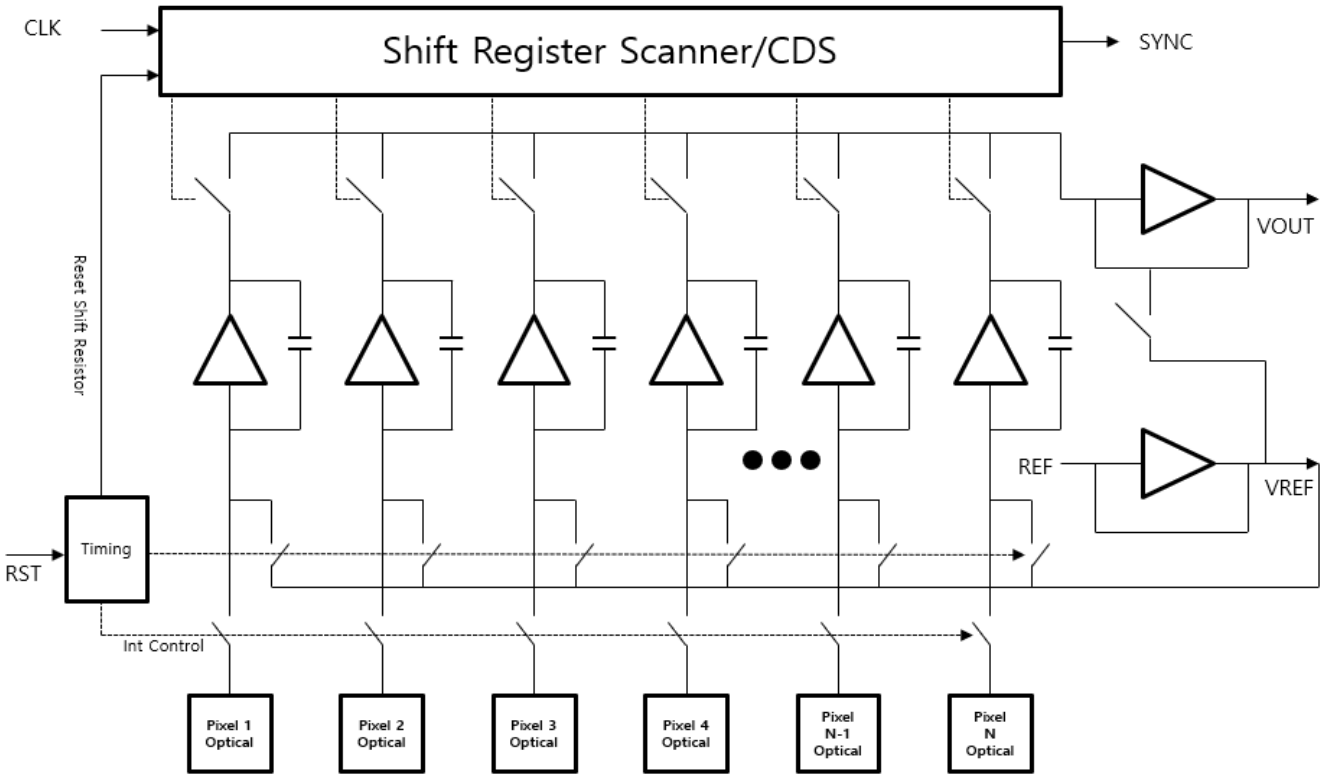
PD SIZE AND SCAN DIRECTION



BLOCK DIAGRAM



Electrical Characteristics/Recommended Operating Conditions

• Ta = 25℃, VDD = 3.3V, CLK = 1MHz, RST = 2us

Parameter	Test conditions	Mn	Typical	Max	Units
Supply Voltage, VDD		3.0	3.3	3.6	V
Supply Current			19.5		mA
Input High Level		2.5			V
Input Low Level				0.7	V
Clock pulse frequency			2		MHz
Analog output impedance			80		Ohms
Output Voltage at Saturation *(1)			1.5(2.1)		V
Output offset voltage *(2)	Analog Out		1.1		V
Conversion efficiency			1.068		uV/e-
Spectral response		400		1000	nm
Peak sensitivity wavelength			680		nm
Saturation charge *(3)			285		fC
Dark output voltage	1ms		20		mV
Photo response nonuniformity *(4)	PRNU		±7		%

*(1) : Difference with respect to offset Voltage

*(2) : Dark state

*(3) : Q = CV

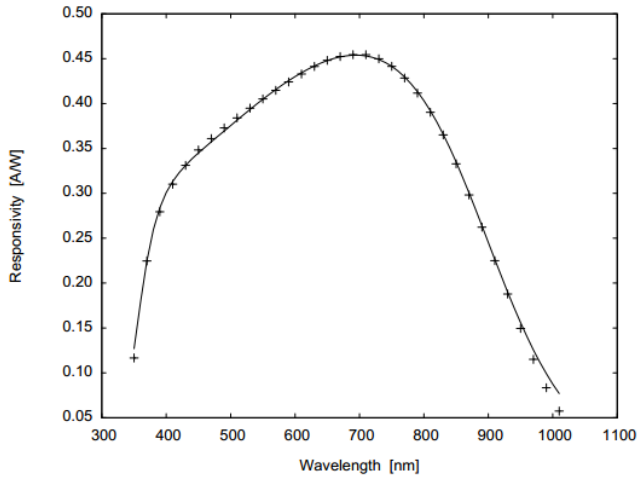
*(4) : Measured with a halogen lamp of 2800K

Photo response nonuniformity (PRNU) is the output nonuniformity that occurs when the entire photosensitive area is uniformly illuminated by light which is 50% of the saturation exposure level. PRNU is measured using 510 pixels excluding the pixels at both ends, and is defined as follows :

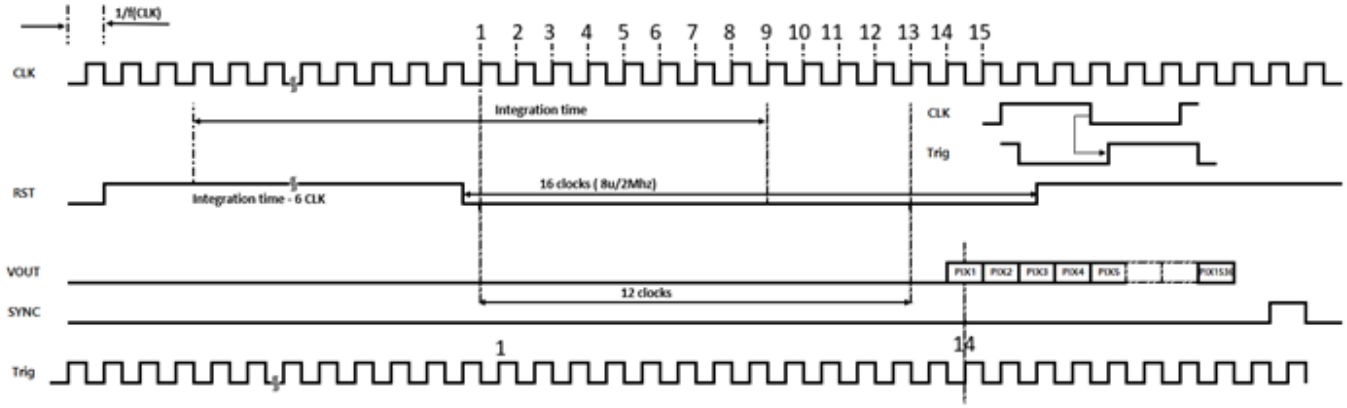
PRNU = ΔX / X * 100(%)

X : average output of all pixels, ΔX : difference between X and maximum or minimum output

Spectral response (typical example)

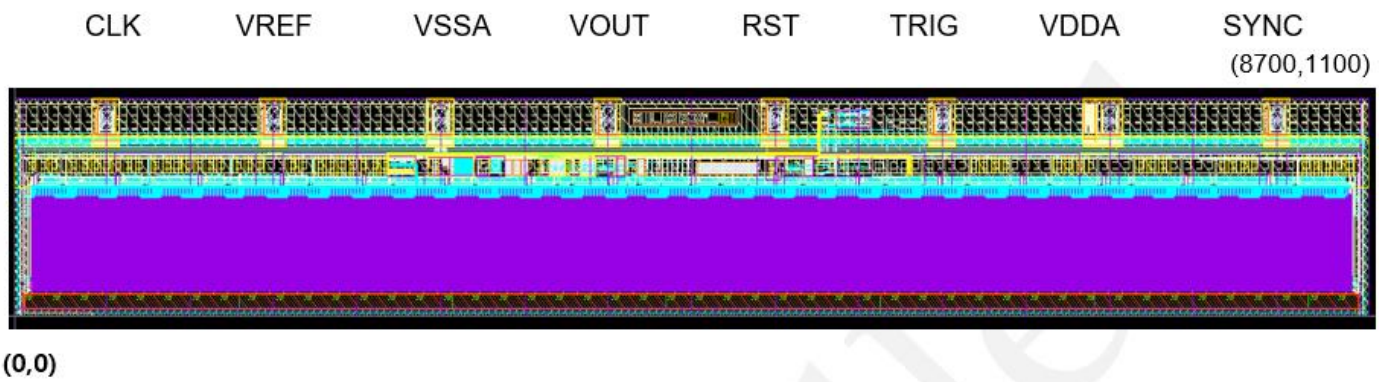


Timing Diagram

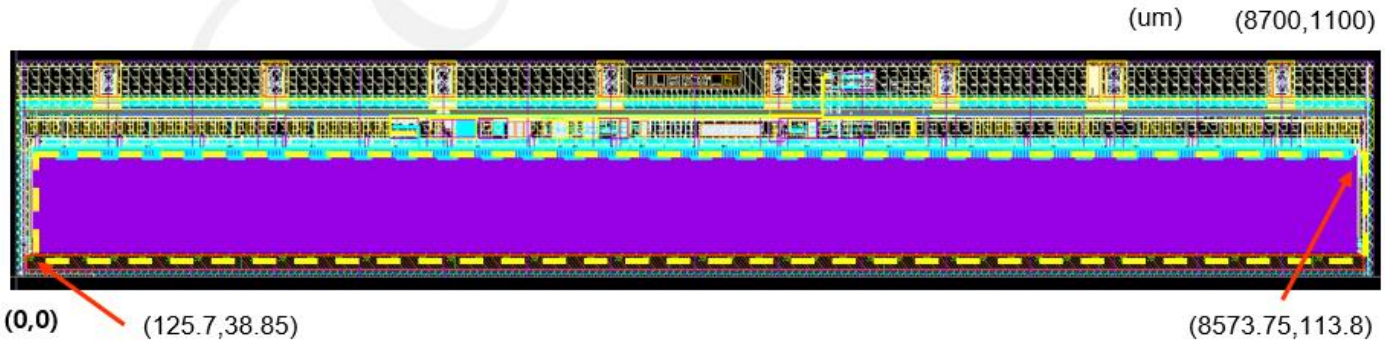


1. CLK
2. RST
3. VOUT : Pixel Output signal. After the RST goes low, the pixel data goes out with SYNC signal.
4. SYNC : Indicate the start /end of pixel data.
5. Trig : The VOUT is captured at the rising edge of the trigger signal

PIN MAP:



PD Position:



		X	Y
1	CLK	607.5	1005.2
2	VREF	1682.45	1005.2
3	VSSA	2757.5	1005.2
4	VOUT	3832.5	1005.2
5	RST	4907.5	1005.2
6	TRIG	5982.5	1005.2
7	VDDA	7057.5	1005.2
8	SYNC	8132.5	1005.2