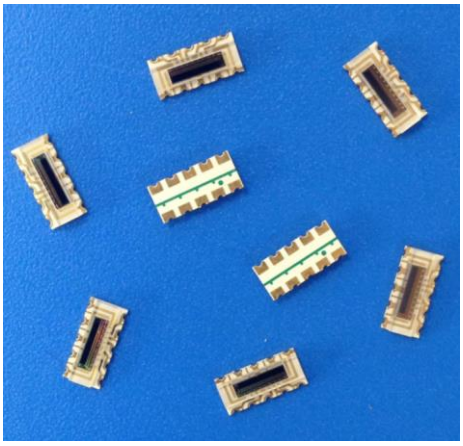
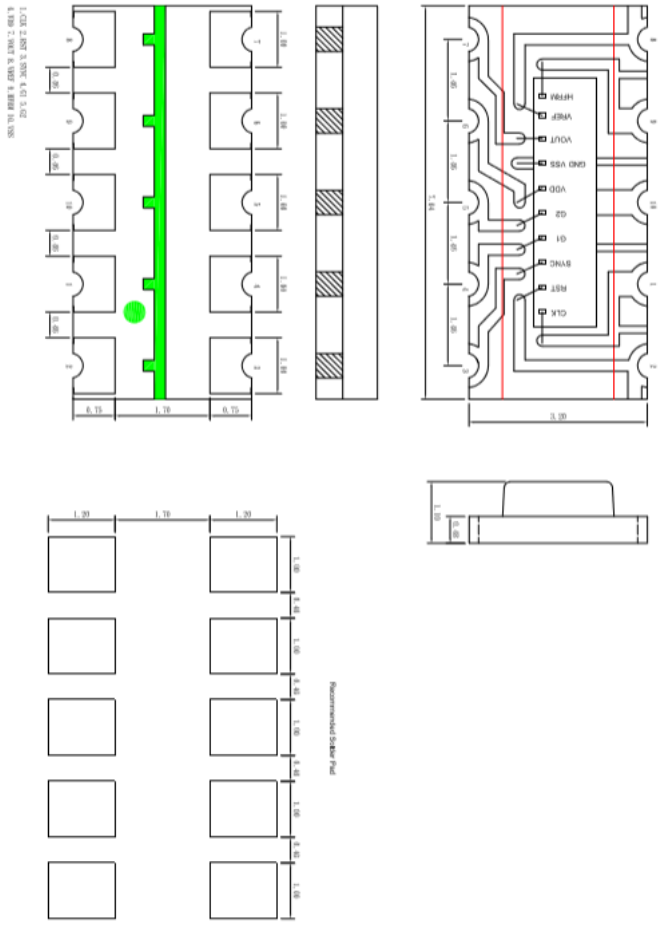
OCD512

LINE SCAN IMAGE SENSOR IC





NOTES:

All dimension are in millimeters.

Description

The OCD512 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 3.3V 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

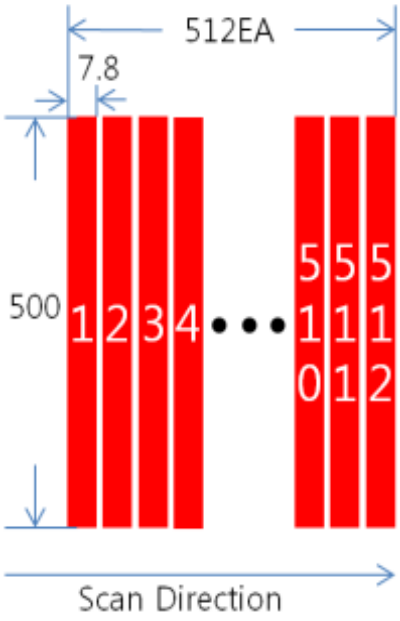
* Low Cost Compared to CCD multi-chip systems
* High Sensitivity and high Signal to Noise
* Single Supply Operation, 3.0 to 3.6 Volt
* selectable Resolutions of 256 or 512 pixels
* Non-Destructive Read Capable, extremely low noise capable via signal averaging
* 1.0KHz to 20MHz Operation
* Control signal for Reset of shift register, pixels, integration period and start of readout.
* Completely Integrated Timing and Control
* Gain Mode (X1, X2, X5, X10)

SUMMARY OF OCD128

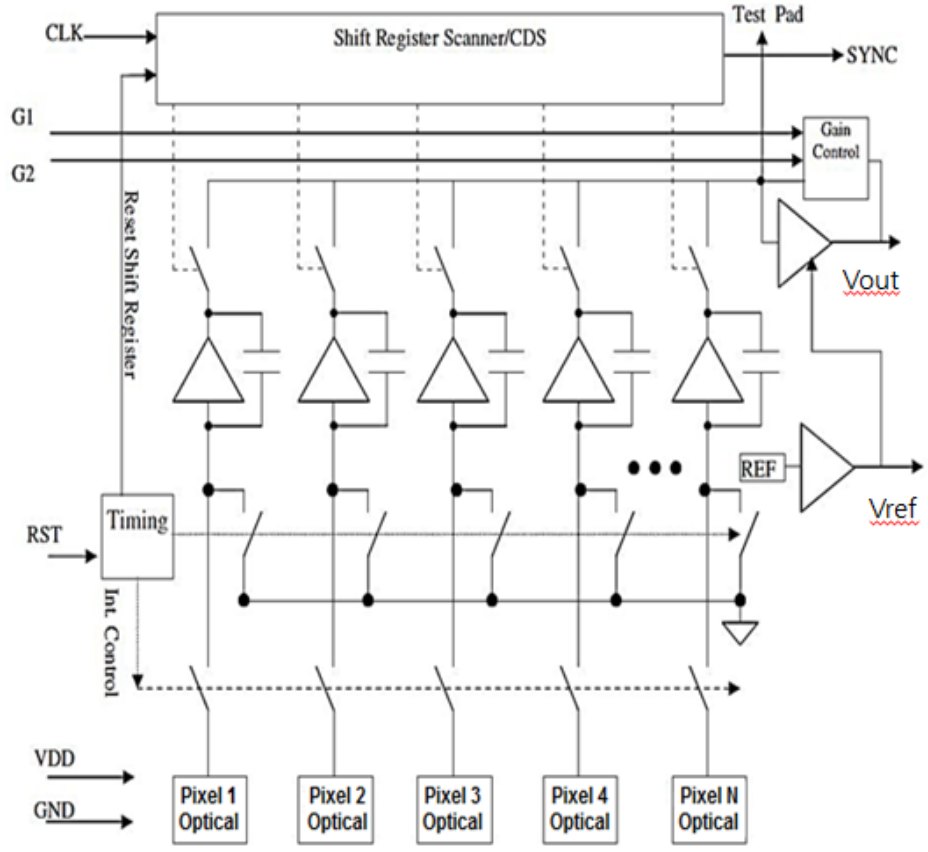
Pixel Type	Linear Image Sensor photo diode
Array Size	1 x 512
Pixel Size (Pitch)	7.80um X 500 um
Imaging Active Area	3993 um X 500 um
Output	80 ohm output impedance analog into 5 pf max.

OTRON ELECTRONIC TECHNOLOGY CO., LTD
TEL:+86-21-54971821
FAX:+86-21-54971823
EMAIL: frank.shuai@e-otron.com
http://www.e-otron.com

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			24		mA
Input High Level		2.5			V
Input Low Level				0.7	V
Clock pulse frequency		1K		20M	Hz
Analog output impedance			80		Ohms
Output Voltage at Saturation *(1)			3.1		V
Output offset voltage *(2)	Analog Out		1.1		V
Conversion efficiency			1.068		uV/e-
Spectral response		350		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 :

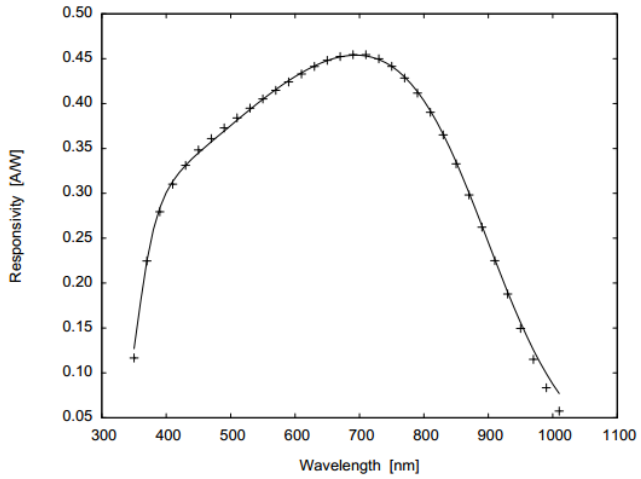
PRNU = ΔX / X * 100(%)

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

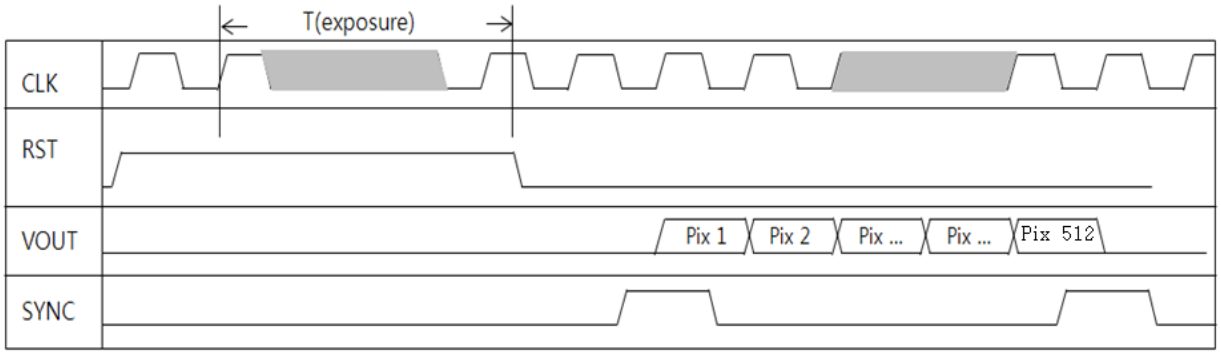
- **Gain selection table**

G1 pin	G2 pin	Gain
0V	0V	X1
0V	VDD	X2
VDD	0V	X5
VDD	VDD	X10

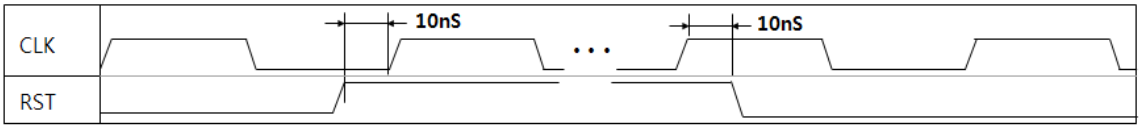
Spectral response (typical example)



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.



1. Minimum RST duration is 1 clock.
2. The CLK and RST Timing details are shown above, at least 10ns hold time required.