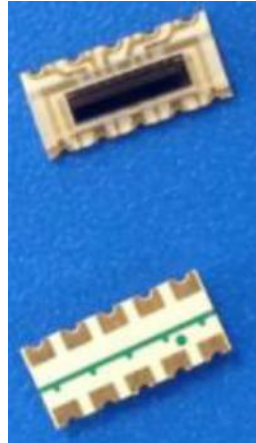
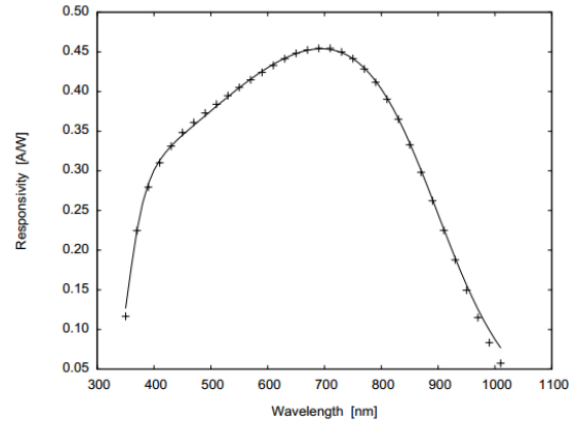


ARRAY



TYPICAL SPECTRAL RESPONSE



DESCRIPTION

The OCD128 Linear Image Sensor consists of an array of high performance, low dark current 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 out non-destructively, allowing the user to maximize signal to noise and dynamic range.

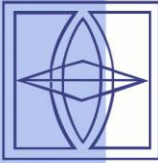
FEATURES

- \* Low cost compared to CCD multi-chip systems
- \* High sensitivity
- \* High signal-to-noise ratio (SNR)
- \* Non-destructive read capability, 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)

OVERVIEW ASPECTS

Pixel Type	Linear Image Sensor photo diode
Array Size	1 x 128
Pixel Size (Pitch)	31.2um X 500 um
Imaging Active Area	3980 um X 500 um
Output	80 Ohm output impedance analog into 5 pF max.

OEC

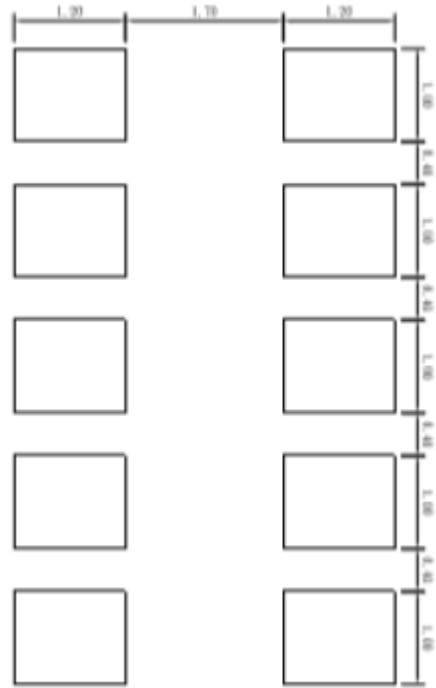
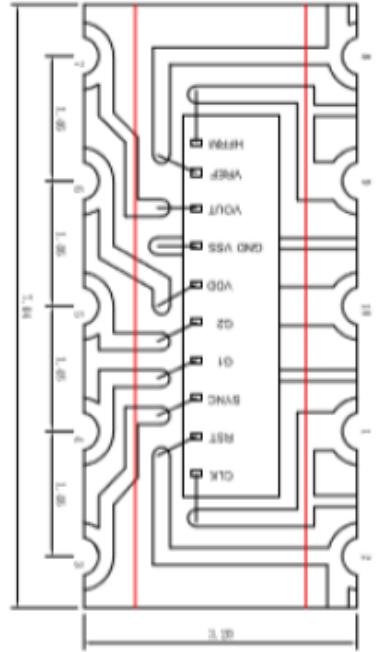
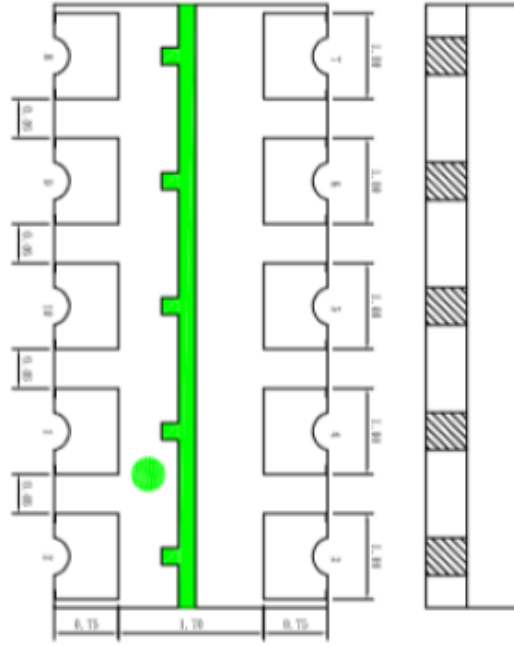


Opto-Electronic  
Components



### Outline Image

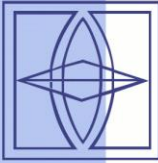
1. LÖTLÖTSTREIFEN  
2. LÖTLÖTSTREIFEN  
3. LÖTLÖTSTREIFEN



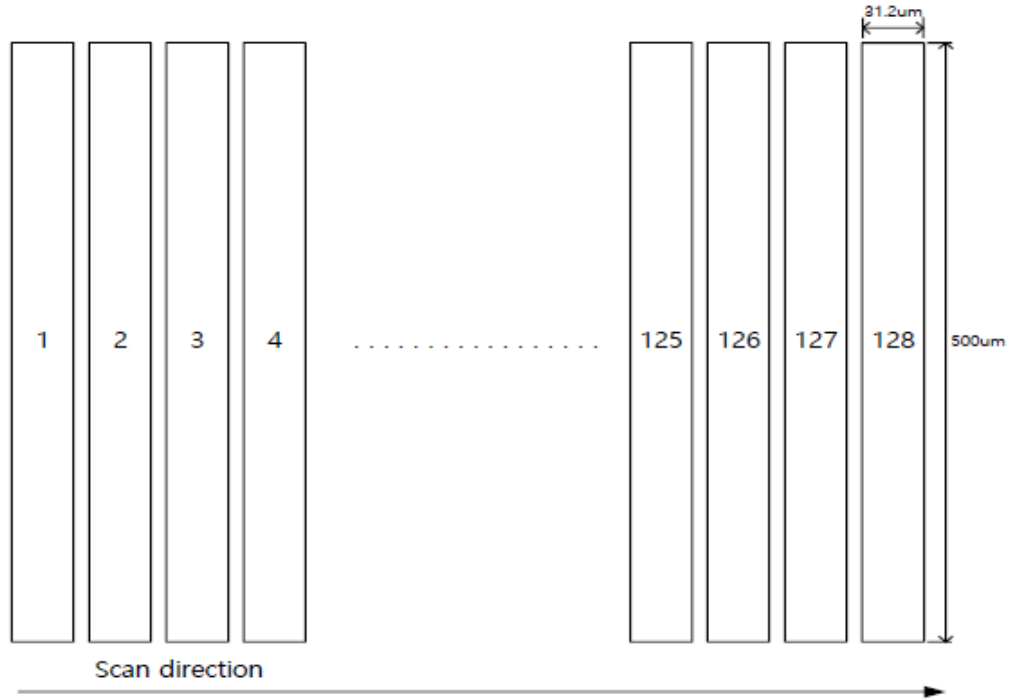
Dimensionierter Solder Pad



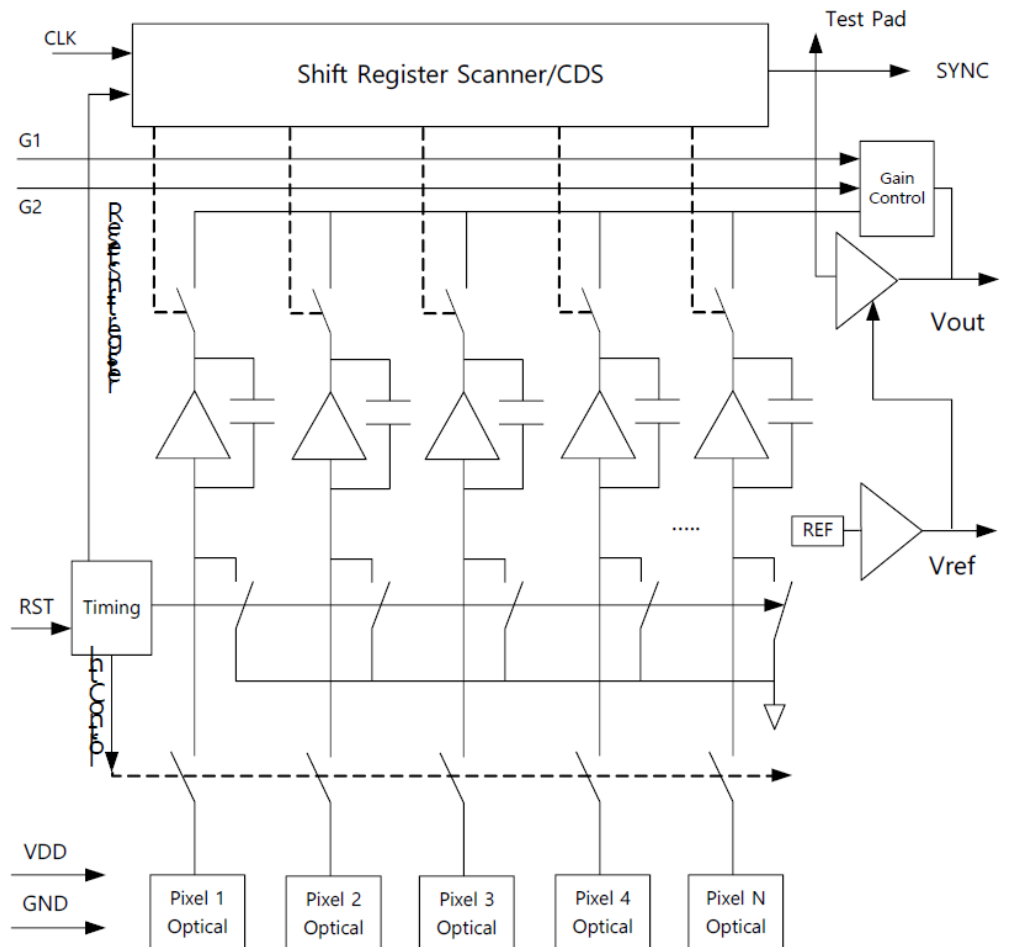
**OEC**  
**YOUR PARTNER**



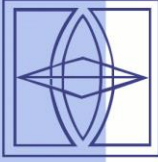
### PIXEL SIZE & SCAN DIRECTION



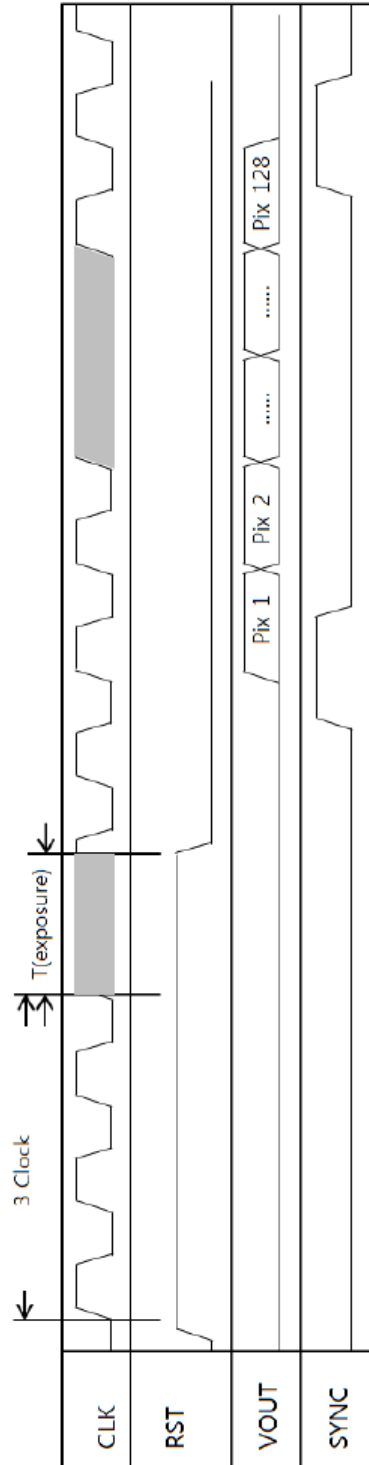
### BLOCK DIAGRAM



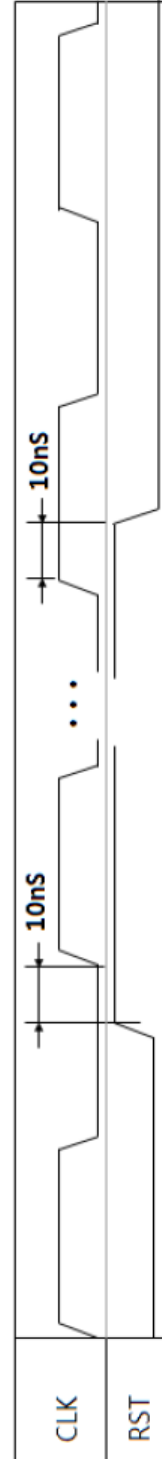
OEC YOUR PARTNER



## TIMING DIAGRAM



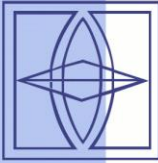
1. CLK
2. RST
3. VOUT : Pixel Output signal. After the RST goes low, the pixel data goes out with SYNC signal.
4. SYNC : Indicate the start /end of pixel data.



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

## ELECTRO-OPTICAL CHARACTERISTICS

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Components


 $T_a = 2+25^{\circ}\text{C}$ ,  $V_{DD} = 3,3\text{V}$ ,  $\text{CLK} = 1\text{ MHz}$ ,  $\text{RST} = 2\mu\text{s}$ 

Parameter	Test Condition	Min	Typ	Max	Units
Supply voltage, VDD		3.0	3.3	3.6	V
Supply current			12		mA
Input high level		2.5			V
Input low level				0.7	V
Clock pulse frequency		1K		20M	Hz
Analog output impedance			80		Ohm
Output voltage at saturation	*(1)		3.1		V
Output offset voltage	*(2) Analog Out		1.1		V
Conversion efficiency			1.068		$\mu\text{V}/\text{e-}$
Spectral response		350		1000	nm
Peak sensitivity wavelength			680		nm
Saturation charge	*(3)		285		fC
Dark output voltage	1ms		20		mV
Photoresponse nonuniformity	*(4) PRNU		$\pm 7$		%

\*(1) : Difference with respect to offset voltage

\*(2) : Dark state

\*(3) :  $Q = CV$

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

Photoresponse 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:

$$\text{PRNU} = \Delta X / X * 100(\%)$$

X : average output of all pixels,  $\Delta X$  : difference between X and maximum or minimum output

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