

# Contact Image Sensor Heads for narrow-width scanners

## LSH2004-AA30A

These image sensor heads feature high-speed scanning (1000mm/s) and are compatible with A6 size media. They are center connector type units with no frame protrusion, simplifying assembly.

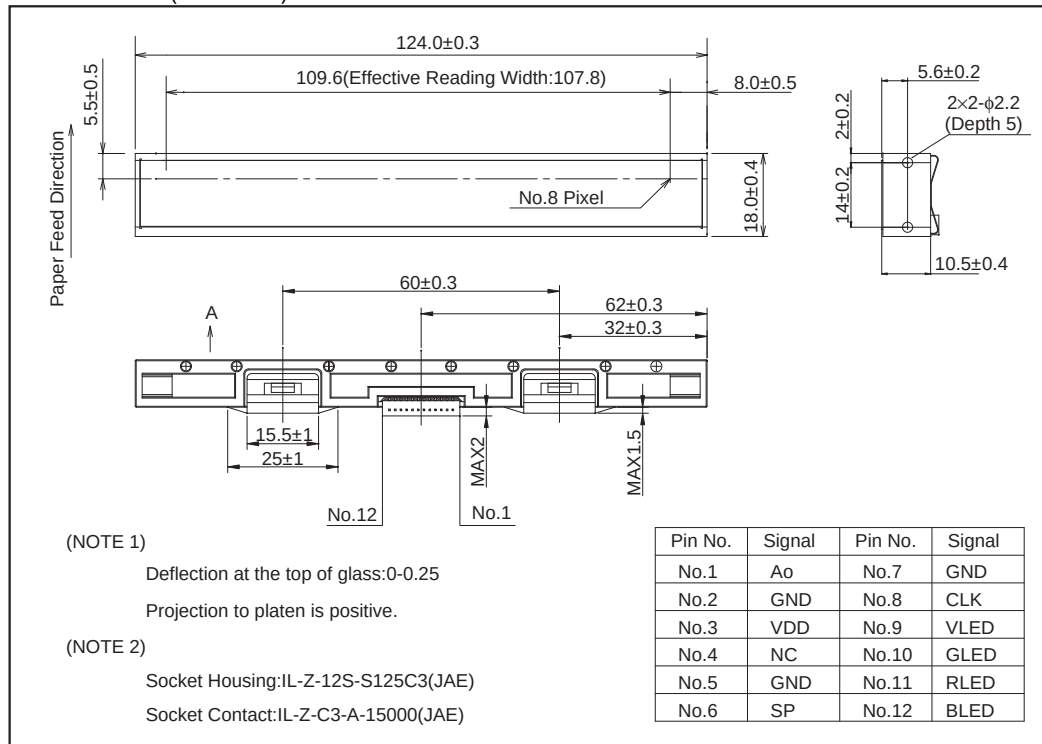
### ●Applications

Check readers, card scanners, and a variety of other image input devices.

### ●Features

- 1) Signal amplifier integrated into each sensor IC in order to eliminate external noise ; compatible with 3.3V interface.
- 2) LED light source mounted on the same substrate as the sensor chip itself, resulting in a more compact, lightweight package.
- 3) Utilizes proprietary prism for improved lighting efficiency.
- 4) Ceramic substrate used, ensuring excellent dimensional and thermal stability.

### ●Dimensions (Unit : mm)



### ●Characteristics

| Parameter                | Symbol          | Typ.    | Unit        |
|--------------------------|-----------------|---------|-------------|
| Effective scanning width | –               | 107.8   | mm          |
| Primary scan dot density | –               | 200     | dpi         |
| Total dot number         | –               | 864     | dots        |
| Power supply voltage     | V <sub>DD</sub> | 3.3     | V           |
| Scanning speed           | SLT             | 0.125x3 | ms / line * |
| Clock frequency          | CLK             | 8       | MHz         |
| Maximum dynamic range    | VRMax.          | 0.5     | V           |
| Minimum dynamic range    | VRMin.          | 0.25    | V           |
| Dark output              | V <sub>od</sub> | 0.8±0.2 | V           |
| Operating temperature    | –               | 5 to 45 | °C          |

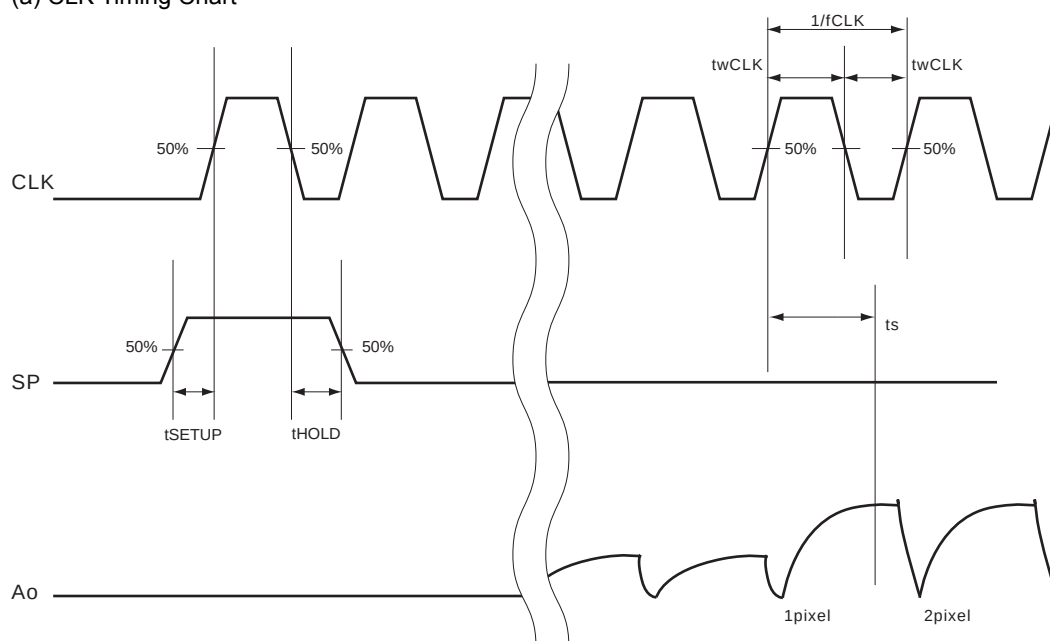
\* Analog signals are produced output at double rate of clock frequency.

### ●Pin assignments

| No. | Circuit         | I / O | Functions        |
|-----|-----------------|-------|------------------|
| 1   | Ao              | O     | Analog Output    |
| 2   | GND             | I     | Ground           |
| 3   | V <sub>DD</sub> | I     | Power Supply     |
| 4   | NC              | –     | Non connect      |
| 5   | GND             | I     | Ground           |
| 6   | SP              | I     | Start pulse      |
| 7   | GND             | I     | Ground           |
| 8   | CLK             | I     | Clock            |
| 9   | VLED            | I     | LED power supply |
| 10  | GLED            | I     | LED ground       |
| 11  | RLED            | I     | LED ground       |
| 12  | BLED            | I     | LED ground       |

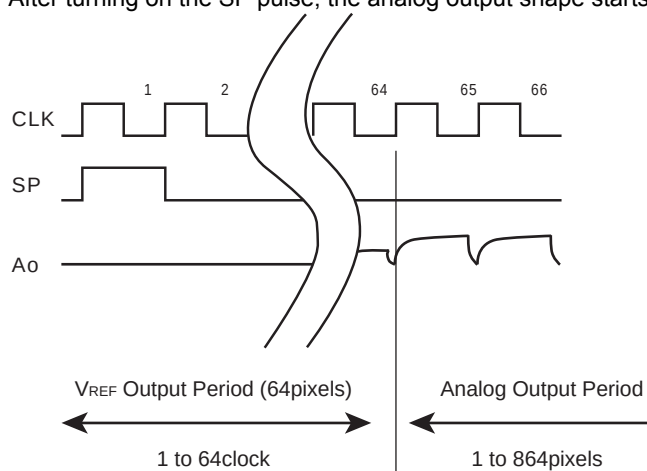
# **●Timing chart**

## **(a) CLK Timing Chart**



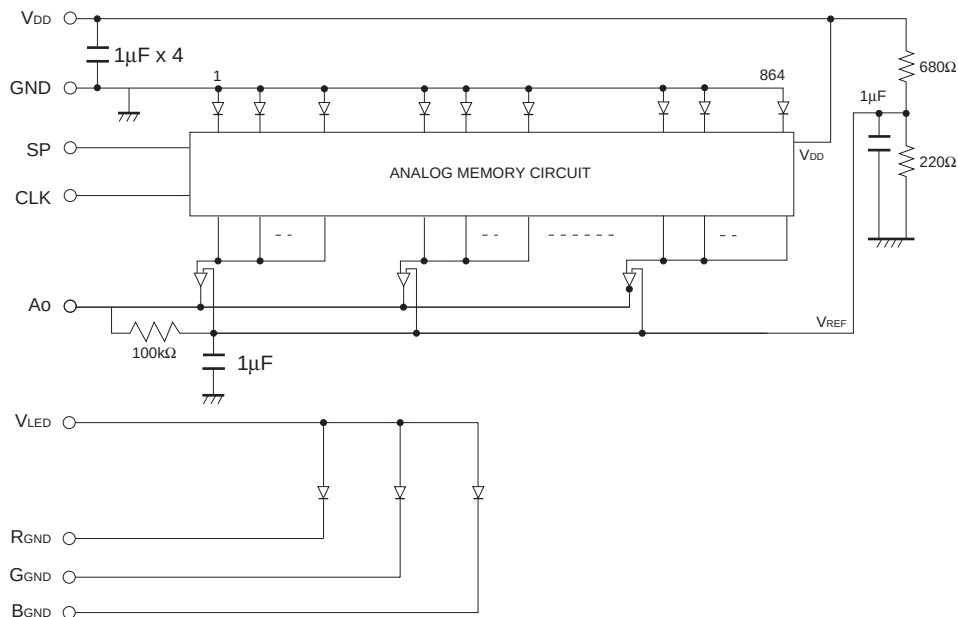
## **(b) Data Output Timing Chart**

After turning on the SP pulse, the analog output shape starts from the setting up point of 65 clock pulse.

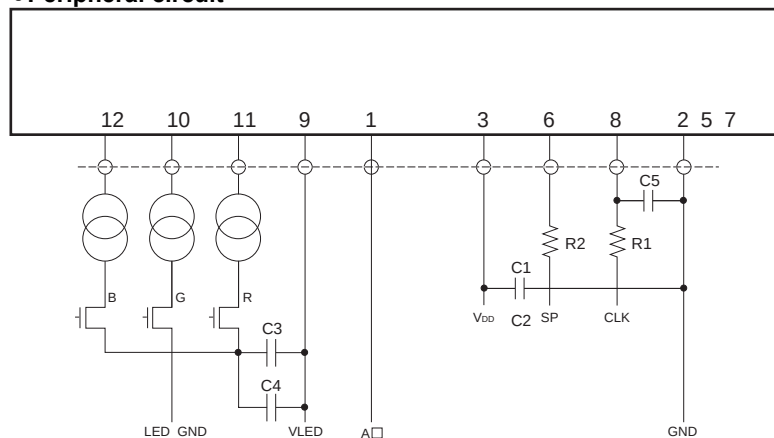


Note) Output blank part cannot be used as the analog output standard level.

# ●Inner circuit



# ●Peripheral circuit



\* R1=R2=100Ω  
C1=47μF  
C3=100μF, C4=0.1μF, C5=100pF

\* Please adjust the value of resistance to fit your interface circuit.

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