



## KLT-IRSW-OS05A20 V2.0

**OmniVision OS05A20 with IR Switch MIPI Interface Fixed Focus  
5MP M12 Camera Module**



|                          |                              |                              |
|--------------------------|------------------------------|------------------------------|
| <b>Camera Module No.</b> | <b>KLT-IRSW-OS05A20 V2.0</b> |                              |
| <b>Image Sensor</b>      | OS05A20                      | <b>IR SWITCH</b>             |
| <b>EFL</b>               | 2.1 mm                       | Input Voltage: 3.5V ~ 12V    |
| <b>F.NO</b>              | 2.2                          | Operating Current: 88~300mA  |
| <b>Pixel</b>             | 2688 x 1944                  | Red Line: Positive           |
| <b>View Angle</b>        | 190°(D) 190°(H) 100°(V)      | Black Line: Negative         |
| <b>Lens Type</b>         | 1/2.7 inch                   |                              |
| <b>Lens Dimensions</b>   | 24.80 x 16.00 x 21.82 mm     | Operation:                   |
| <b>Module Size</b>       | 50.00 x 30.00 mm             | ON: IR Active (Day Time)     |
| <b>Module Type</b>       | Fixed Focus                  | OFF: IR Disable (Night Time) |
| <b>Interface</b>         | MIPI                         |                              |

**Mating Connector Part No. WP7A-S024VA1**



Mating Connector On Main Board. Sold Separately.



# OS05A20 5-megapixel product brief



## New OS05A20 Uses Nyxel™ Technology to Bring Superior Image Quality to Video Surveillance Cameras Day or Night

lead free  
available in  
a lead-free  
package

The 5-megapixel OS05A20 is the world's first image sensor to implement Nyxel™ technology, OmniVision's breakthrough near-infrared (NIR) technology that allows image sensors to see better and farther under low- and no-light conditions. By using Nyxel technology and a 2 x 2 micron pixel, the OS05A20 PureCel® image sensor has the unique ability to capture high-quality, high-resolution day or night, making it ideally suited for professional surveillance systems.

Nyxel technology combines thick-silicon pixel architectures with extended deep trench isolation (DTI) to improve quantum efficiency (QE) up to 3x for 850 nm sensitivity and up to 5x for 940 nm sensitivity, while

maintaining all other image-quality metrics. These improvements deliver unrivaled image quality, extended image-detection range and a reduced light-source requirement, leading to lower power consumption.

Available in a 1/2.7-inch optical format, the OS05A20 is capable of capturing full-resolution 2688 x 1944 video at 60 frames per second (fps), 1080p full high definition (HD) video at 120 fps, and 720p HD video at 180 fps. The sensor comes in a 6.6 x 5.9 mm chip scale package (CSP).

Find out more at [www.ovt.com](http://www.ovt.com).



## Applications

- Security Cameras
- High Resolution Consumer Cameras
- Action Cameras

## Product Features

- 2  $\mu\text{m}$  x 2  $\mu\text{m}$  pixel
- optical size of 1/2.7"
- programmable controls for:
  - frame rate
  - mirror and flip
  - cropping
  - windowing
- supports output formats:
  - 10/12-bit RGB RAW
- supports images sizes:
  - 5MP (2688x1944)
  - 1080p (1920x1080)
  - 720p (1280x720)
- supports 2x2 binning
- standard serial SCCB interface
- 12/10-bit ADC
- up to 4-lane MIPI/LVDS serial output interface (supports maximum speed up to 1500 Mbps/lane)
- 2-exposure staggered HDR support
- programmable I/O drive capability
- light sensing mode (LSM)
- PLL with SCC support
- support for frame sync

# OS05A20



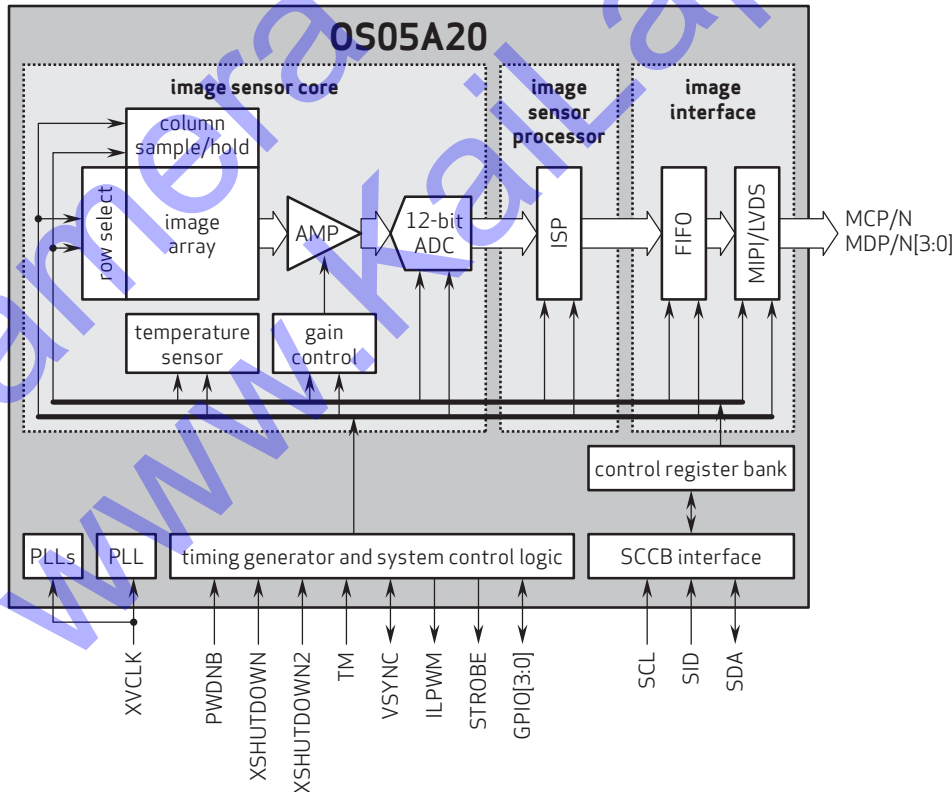
## Ordering Information

- OS05A20-H73A-Z  
(color, lead-free, 73-pin CSP)

## Product Specifications

- active array size: 2688 x 1944
- lens chief ray angle: 11° linear
- max S/N ratio: 39 dB
- dynamic range: 74 dB @ 16x gain
- maximum image transfer rate:
  - 2688x1944: 60 fps
  - 2688x1520: 60 fps
- sensitivity: 13,000 e<sup>-</sup>/Lux-sec
- scan mode: progressive
- maximum exposure interval: VTS - 8
- minimum exposure interval: 4 t<sub>row</sub>
- pixel size: 2.0  $\mu\text{m}$  x 2.0  $\mu\text{m}$
- image area: 5434.56  $\mu\text{m}$  x 3948.05  $\mu\text{m}$
- package dimensions: 6638.8  $\mu\text{m}$  x 5935  $\mu\text{m}$
- power supply:
  - core: 1.2V
  - analog: 2.8V
  - I/O: 1.8V
- power requirements:
  - active: 170 mW
  - standby: 900  $\mu\text{A}$
  - XSHUTDOWN: 80  $\mu\text{A}$
- temperature range:
  - operating: -30°C to +85°C junction temperature
  - stable image: 0°C to +60°C junction temperature
- output formats: 10/12-bit RGB RAW
- lens size: 1/2.7"
- input clock frequency: 6 - 27 MHz

## Functional Block Diagram



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