

Night Vision Enhancement

# Thermal imaging technology for night-time security and surveillance



Silicon infrared imaging sensor for surveillance & security applications

# Thermal imaging technology, the ideal solution for camera manufacturers

Video surveillance is an important part of providing security to protect people and assets. Daytime security cameras do not operate well during the night when monitoring is most important. The use of additional illumination is often impractical because of the additional expense of light sources, light pollution to surrounding areas, as well as the need to continuously service and replace defective lights. Low-light cameras require some ambient illumination and often do not operate well during the day.

Thermal imaging offers a very desirable alternative. The technology of thermal imaging has significantly matured and today enables the manufacture of security cameras that have impressive performance, are highly reliable and relatively low cost. A camera equipped with an infrared imaging sensor does not require external lighting. Video images are produced as a result of the thermal emissions from objects in the scene. Excellent imaging performance is assured under many different ambient conditions during day or night, as well as in fog, rain or snow.

Infrared security cameras are often configured to have an alarm to detect when a certain movement occurs. Such automatic processing can be used to signal an operator about a possible intrusion. Because of their high temperature sensitivity, they are very difficult to fool.

As a result, infrared technology is important for Security Camera Manufacturers enabling them to offer their customers cameras having ideal performance for night-time security and surveillance.



Visible



FIR



FIR

## The key component - the silicon microbolometer

At the heart of the thermal imaging system is a silicon microbolometer, an infrared imaging sensor that converts infrared radiation into visible images. Even tiny temperature differences can be easily detected, resulting in excellent night vision performance for surveillance and security in low light or night conditions.

First developed over twenty years ago, silicon microbolometers have significantly matured and are now found in many commercial products such as thermal imaging cameras for night vision or temperature measurement, for fire-fighters to see through smoke, for search and rescue, for home energy loss inspection as well as many other strategic applications.

# ULIS, your partner in thermal imaging for higher efficiency in surveillance and security applications

Since its inception in 2002, ULIS has been developing silicon microbolometers for use in a wide range of applications. As a result of its ongoing product development, ULIS now offers high performance and economically priced sensors for strategic applications, and the warranty for a real business partnership.

Today, as component provider, ULIS brings a global solution to meet the growing demand for surveillance and security applications.

## High performance and competitive solutions

- Products delivering crisp, high resolution images at night, in foggy or rainy conditions
- A complete range of solutions comply with all surveillance applications, at long or short distances

## Availability of products guaranteed

- High production capability
- Independent source of supply located in Europe

## Business model

- Infrared sensors provider supporting the needs of Original Equipment Manufacturers
- The warranty for a real business partnership with camera manufacturers

## Privileged support

- Dedicated support to customers, from development to production
- Strong experience with technology business units

## Access to state-of-the-art technology

- Benefit from the latest technologies on the market (extraordinary resolution, 17 $\mu$ m pitch)
- Proven silicon technology based on established semiconductor manufacturing processes

## The performance you need

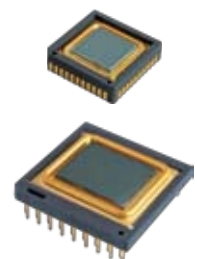
ULIS is the leader of infrared imaging sensor based on amorphous silicon microbolometer technology. Amorphous silicon microbolometers have been developed using MEMS technology and enjoy all the advantages of silicon processing including low cost and high yield. In addition, because they are highly sensitive to infrared radiation, they are ideal for use in thermal imaging cameras.

Designed in a high reliability package qualified for severe environments, amorphous silicon is ideally suited to meet the levels of performance and the reduced cost demands necessary for surveillance and security applications.



### Key performance specifications of ULIS infrared imaging sensors:

- High sensitivity
- Fast response time (capable of producing images at high frame rate)
- Small pixel size (compactness and lowest cost)
- Several array sizes available (VGA/4, VGA, XGA)
- Designed for use in harsh environments (MIL STD 810/883)



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## About ULIS

ULIS manufactures high-volume infrared (IR) imaging sensors for low-cost, low power, lightweight IR cameras. It offers a range of small and large form factor IR products for industrial, professional, and security applications. ULIS is the leader of far infrared imaging sensors based on an amorphous silicon technology called microbolometers, an easy and reliable semiconductor material to manufacture. Customers recognize ULIS' IR sensors for their low weight, low power consumption and availability in large volumes. ULIS offers unique advantages in enabling OEMs, worldwide, to custom-design IR systems, allowing them to achieve true differentiation with their IR camera products.

ULIS is located in Veurey-Voroize, near Grenoble, France.

- A subsidiary of Sofradir and GE Equity
- More than 120 people
- 4,500 m<sup>2</sup> of facility (including 500 m<sup>2</sup> of clean rooms)
- High production capacity

ZI Les Iles Cordées

BP 27 - 38113 Veurey-Voroize - FRANCE

Phone: +33 4 76 53 74 70 - Fax: +33 4 76 53 74 80

[www.ulis-ir.com](http://www.ulis-ir.com) - [ulis@ulis-ir.com](mailto:ulis@ulis-ir.com)

