

IRay Technology 12 μ m and 17 μ m Thermal Sensors

Comparison between 12 μ m and first and second generation 17 μ m LWIR microbolometers from Chinese manufacturer IRay Technology's

Founded in 2009, Yantai iRay Technology Co., Ltd. is now a leader of infrared technology in China and the world. During the last six years, IRay Technology has upgraded its technologies from 17 μ m to 12 μ m processes. This report highlights the quick evolution of microbolometer technology in China.

IRay Technology has a broad range of products from thermal camera plug-ins for smartphones to Focal Plane Array (FPA) detectors, cores and thermal cameras for military applications. IRay Technology already has a camera for today's high growth market, health security, and tomorrow's high growth market, automotive and Advanced Driver Assistance Systems (ADAS). All the products integrate the Raytron Technology microbolometer dies. Today, the 17 μ m and 12 μ m node microbolometers are the most widely used sensors in IRay Technology products.

This full reverse costing study has been conducted to provide insight into technology data, the manufacturing cost and selling price of three IRay Technology/Raytron Technology microbolometers. These include the RTD611 and RTD3172, two different generations of 17 μ m microbolometers, and the RTD6122, a 12 μ m microbolometer.

Metallic and ceramic package technologies are studied in this report

followed by the choice of material for the windows and the filters.

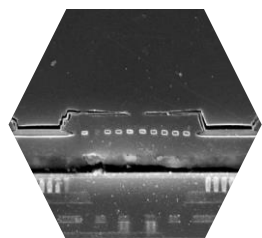
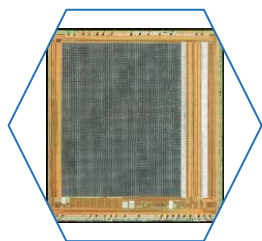
The three microbolometers use all Vanadium Oxide (VOx) technology. The newest generation in 17 μ m technology and the 12 μ m dies have an umbrella structure above the VOx that increases the sensitivity of the components.

With a definition between 640x512 and 384x288 pixels the three microbolometers are designed for large markets, including consumer, industrial, automotive and security.

Along with the complete technical analysis of the three microbolometer components, this report analyses their cost and estimates their price. Finally it includes a technical and cost comparison between the three microbolometers.

COMPLETE TEARDOWN WITH

- Analysis of the three microbolometer components, including microbolometer die, package and window.
- Detailed optical and SEM photos.
- Precise measurements.
- Supply chain evaluation.
- Manufacturing cost analysis.
- Estimated selling price.
- Technology comparisons between the three technologies, 12 μ m, 17 μ m with umbrella and 17 μ m.



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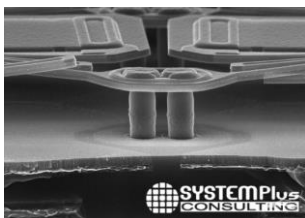


Sylvain Hallereau has been Project Manager at System Plus Consulting since 2000. He is in charge of costing analyses for Integrated Circuits, Power semiconductors and LEDs. He has significant experience in the modeling of manufacturing costs for electronics components, Sylvain holds a Master degree in Microelectronics from the University of Nantes, France.



Dr. Youssef El Gmili has joined System Plus Consulting's team in 2019 after ten years passed on high level research and development on microelectronics. He has a deep knowledge in the study and analysis of semiconductors Materials. He holds a Master Degree in Microelectronics, and a Phd in Physics/Materials Science.

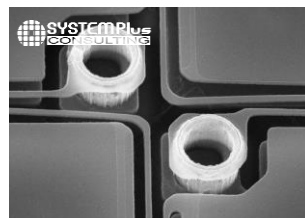
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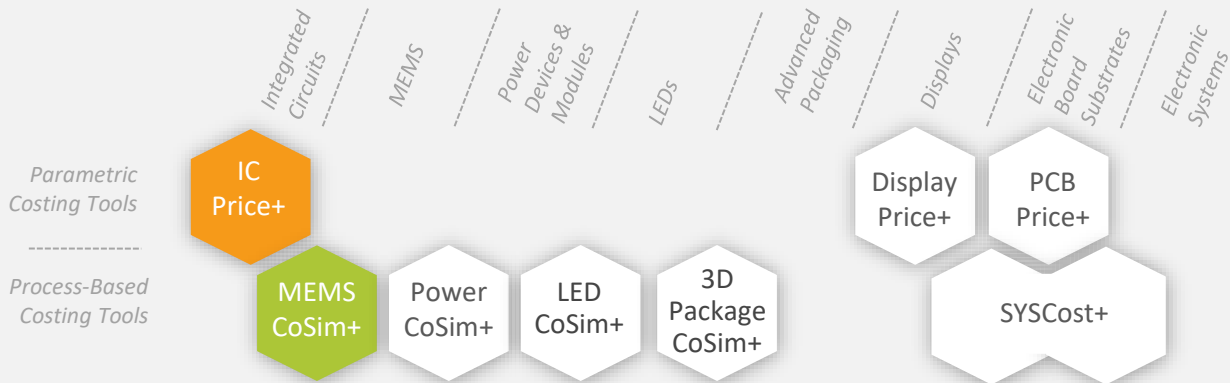


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