

Honeywell Microbolometer Patent Portfolio Analysis



Will Honeywell continue to lead the Microbolometer patent landscape with the evolution of a new consumer market ?

REPORT OUTLINE

- Honeywell Microbolometer
- Patent Portfolio Analysis
- June 2015
- PDF & Excel file
- €1,990 (corporate license)
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KEY FEATURES OF THE REPORT

The report provides **essential patent data** for Honeywell Microbolometer patent portfolio including :

- Time evolution of patent publications and countries of patent filings
- Current legal status of patents
- Citation network, IP collaboration and competitive networks
- Key patents
- Patents recently expired
- Granted patents near expiration

The report also provides an extensive **Excel database** with all patents analyzed in the study.

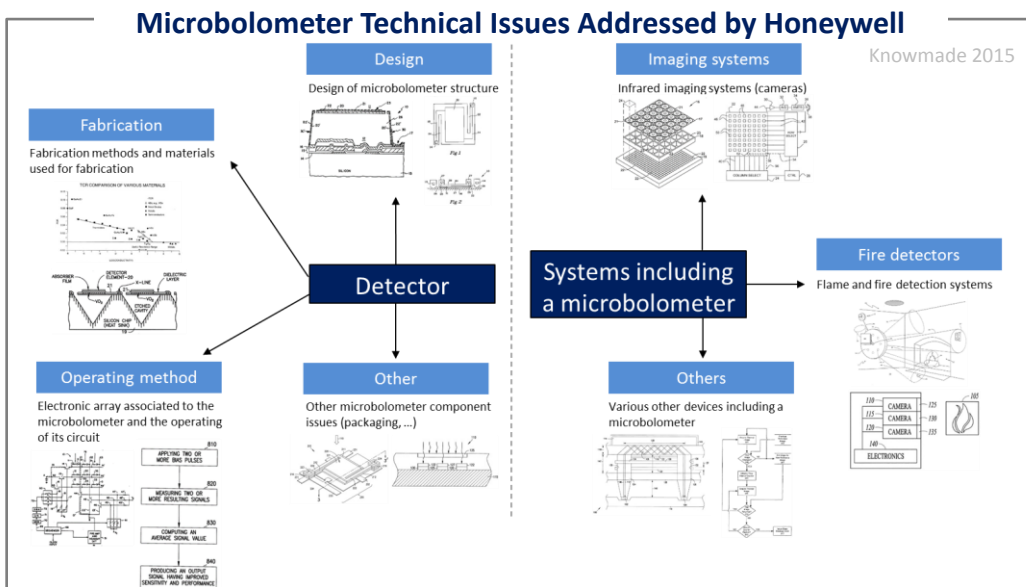
OBJECTIVE OF THE REPORT

- Understand Honeywell IP strategy in the microbolometer technology
- Understand the IP Environment if Honeywell microbolometer portfolio
- Classify the patents of Honeywell by their technical issue as well as their IP Blocking potential for other IP players
- Identify key patents
- Identify recently expired patents and granted patents near expiration

HONEYWELL, PIONEER OF THE VOX MICROBOLOMETER TECHNOLOGY

The American company Honeywell is a pioneer actor in the microbolometer technology. In collaboration with the US Department of Defense, the company started the development of this new uncooled thermal sensor technology in the late 70's. For military purposes, the technology was classified until 1992.

Following the declassification, Honeywell began licensing its patents related to microbolometers to several other companies in the early 90's. A 2nd wave of license agreements took place in the early 2000's. Both periods are linked to publications of Honeywell's microbolometer patents. Nowadays, the VOx infrared sensor developed by Honeywell is the most used compare to other uncooled detector technologies such as amorphous silicon or pyroelectric sensors. Honeywell's portfolio covers a wide range of microbolometer technologies : material, design, fabrication, systems including a microbolometer....



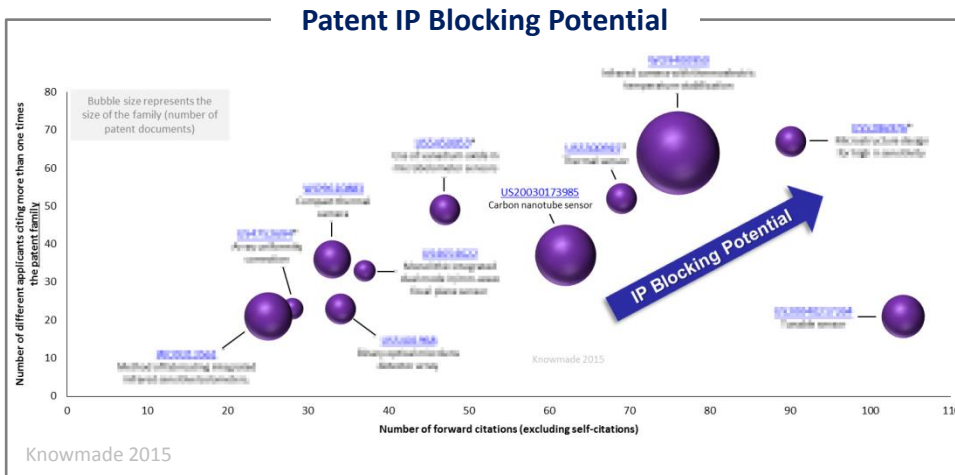
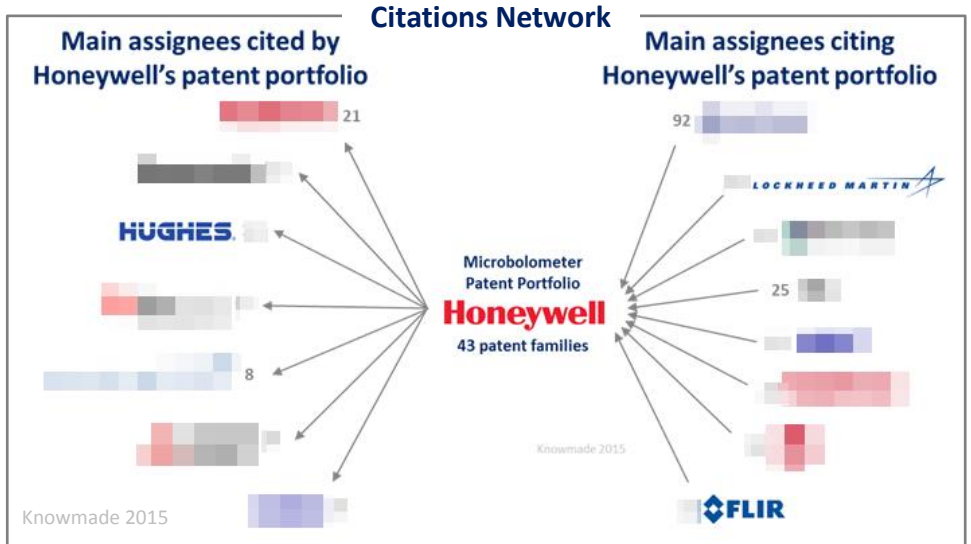
If the development of the microbolometer technology has been lead by the Defense sector and Honeywell, nowadays, the market is fast growing thanks to the development of many new consumer applications : thermography, night vision, surveillance, fire detection, building energy performance,... The global market size for uncooled thermal sensor was estimated to be nearly **\$222 million in 2013** and is estimated to reach \$630 million by 2020, at a **CAGR of 11.6% from 2015-2020**. VOx technology represents 79% of the microbolometer market.

Despite those new applications and its pioneer status, Honeywell hasn't filed many new patent applications in the microbolometer technology recently. The patent average age is 14 years and the number of dead patents is superior to the number of alive patents. Moreover, key patents will expire in the coming years.

While Honeywell makes the most of license agreements from its granted patents with various major actors in the microbolometer domain, the company doesn't give VOx microbolometer technology an intense focus nowadays. However, Honeywell has also developed other MEMS technologies, including packaging or optics, which are particularly interesting for microbolometers. Therefore, the IP environment and the market for microbolometer and infrared imaging should be changing in the near future.

CITATIONS NETWORK & IP COMPETITIVE ENVIRONMENT

The microbolometer portfolio of Honeywell is cited by more than 300 patent assignees in more than 600 patent families. For its part, Honeywell cites 325 patent families in its portfolio, representing around 250 assignees. Combining the Citations Network with the analysis of the content of citing/cited patents, the IP competitors of Honeywell in the microbolometer domain have been ranked in order to establish a general view of the IP Competitive Environment. Thus IP competitor developing microbolometer technologies have been identified.



IDENTIFY IP BLOCKING PATENTS


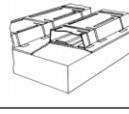

Analyzing citations and citing applicants, patents with an IP blocking potential for other patent applicants in the microbolometer domain have been identified. Most of those patents are related to the manufacture or the design of a microbolometer array. Other patents are related to devices including a thermal sensor of the microbolometer type. Patents of Honeywell's portfolio have also been classified according to the technical issues addressed by the company.

IDENTIFY KEY PATENTS

Key patents have been identified based on several indicators, including family size, legal status, citations analysis and impact on microbolometer technology. Patents recently expired and patents expiring in the next few years have also been analyzed. About 10 keys patents have been identified, some of which will expire in the next 3 years, thus the technology disclosed will be free to be used.

Our report also includes an **Excel database** containing all of the analyzed patents. This database allows for multi-criteria searches and includes patent publication number, hyperlinks to the original documents, priority date, title, abstract, patent assignees, technological segments and legal status for each member of the patent family.

Key Patents

Patent Family	Key Features
<p>US20030173985 (Reissue US20040173985) Microstructure design for high in sensitivity (1999)</p> 	<ul style="list-style-type: none"> A two-level microstructure infrared bolometer array. The structure increases the sensitivity to produce absorbance levels Patent reissue US20040173985 is granted in the USA Patent reissue US20040173985 was included in the lawsuit against L-3 (US) Forward Citations : 90 citing families (main assignees : L-3, NEC)
<p>US20030173986 (Reissue US20040173986) Thermal sensor (1999)</p> 	<ul style="list-style-type: none"> A two-level infrared bolometer array based on a pitless microbridge detector structure with integrated circuitry on a silicon substrate Patent reissue US20040173986 is granted in the USA Patent reissue US20040173986 was included in the lawsuit against L-3 (US) Forward Citations : 69 citing families (main assignees : L-3, BAE Systems)
<p>US20030173987 (Reissue US20040173987) Use of vanadium oxide in microbolometer sensors (1993)</p> 	<ul style="list-style-type: none"> Use of a new detector material (ABx) The new detector material is preferably VO₂. Patent reissue US20040173987 is granted in the USA Forward Citations : 47 citing families (main assignees : L-3, Raytheon)

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ASSIGNEES CITED IN THE REPORT :

Honeywell, Raytheon, Hughes, Panasonic, Texas Instruments, NEC, CEA, Fluke, Mitsubishi Electric, L-3 Communications, BAE Systems, Toshiba, Lockheed, Qualcomm, US Army

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