

LED

IC

MEMS

IMAGING

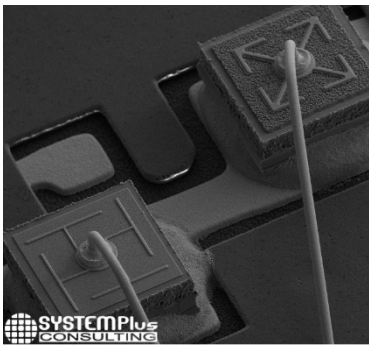
PACKAGING

SYSTEM

POWER

Maxim Integrated MAX30102 Optical Heart-Rate Sensor

*Heart-Rate Monitor and Pulse Oximeter Sensor in LED Reflective Solution
in the Samsung Galaxy S7*



Maxim Integrated is a respected supplier for Samsung's mobile phone flagships. From the 5th generation Galaxy S5 to the latest Galaxy S7, Maxim's heart-rate sensor has always been found in the back of the smartphone. The Galaxy S7 uses the latest version of the heart-rate sensor, designed for both smartphone and wearables but very different to previous versions: the MAX30102.

The Samsung Galaxy S7 heart-rate sensor is located on the main board of the smartphone under the camera. The sensor is an optical heart-rate module and a pulse oximeter sensor in a LED reflective solution.

The main die features a photodiode area and an analysis part, with an integrated ambient light cancellation system comprising a photodetector and a wavelength cut-off filter based on Maxim's proprietary technology. The component features two LEDs: one infra-red (IR) and one red. The LEDs are bonded on silicon substrates, the IR led is manufactured from AlInGaP material and the red LED from GaAs material.

The component is assembled with multiple devices in the package. Compared to the previous generation the design footprint and packaging are totally different. This has made the component more reliable.

Thanks to all these innovations, the MAX30102 is very cost effective, enforcing Maxim's leadership in this domain.

Complete chip fabrication processes and cost estimation are presented in the report. It also includes comparison with the previous generation of the sensor that can be found in the Samsung Galaxy S6, highlighting and measuring all the differences.

Title: Maxim Integrated MAX30102 Optical Heart-Rate Sensor

Pages: 112

Date: May 2016

Format: PDF & Excel file

Price: Full report: EUR 3,290

COMPLETE TEARDOWN WITH:

- Detailed photos
- Precise measurements
- Material analysis
- LED manufacturing process flow
- Module manufacturing process flow
- Supply chain evaluation
- Manufacturing cost analysis
- Selling price estimation
- Comparison with previous generation

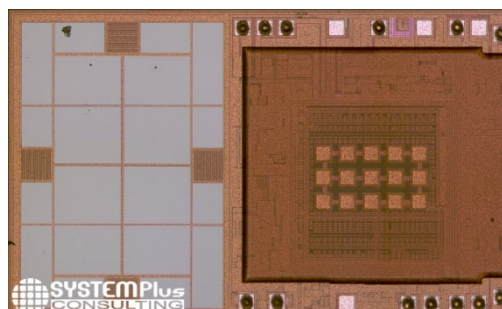
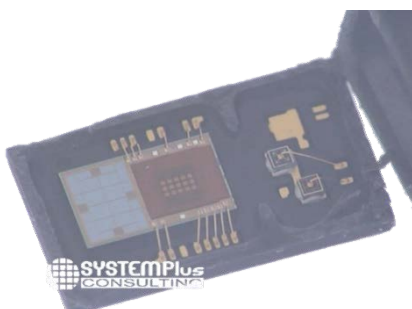


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Stéphane has a deep knowledge of materials characterizations and electronics systems. He holds an Engineering Degree in Electronics and Numerical Technology, and a PhD in Materials for Microelectronics.



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Yvon Le Goff has joined System Plus Consulting in 2011, in order to set up the laboratory of System Plus Consulting. He previously worked during 25 years in Atmel Nantes Technological Analysis Laboratory as fab support in physical analysis, and 3 years at Hirex Engineering in Toulouse, in a DPA lab.

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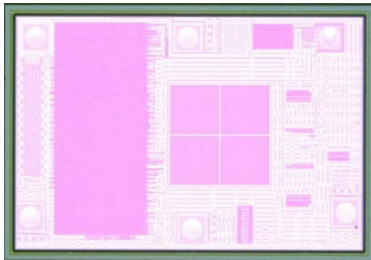
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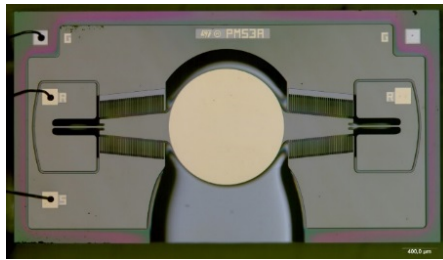
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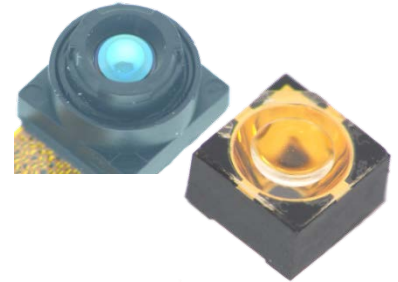
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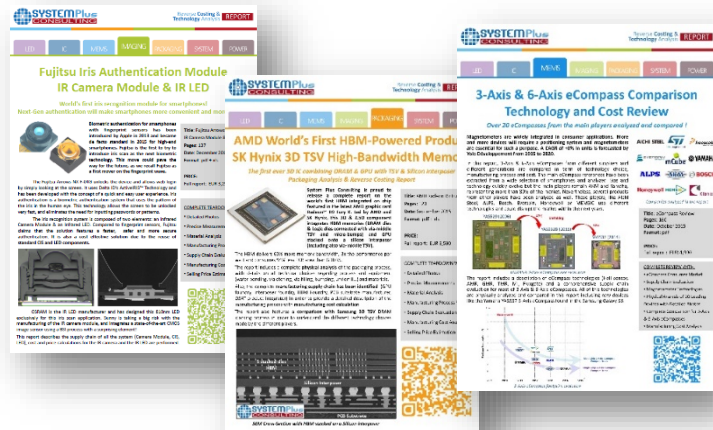
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