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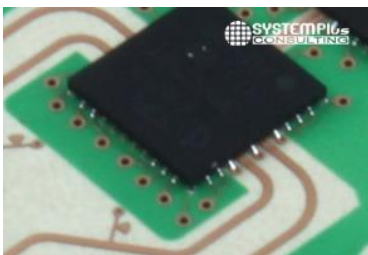
PACKAGING

**SYSTEM**

POWER

# Bosch LRR4 77GHz Long Range Radar Sensor

*The fourth generation of Bosch long range radar sensor sets new standards for a more elegant, compact and cost effective module*



The LRR4 is a monostatic multimodal radar in a very compact and elegant housing and uses, like its predecessors, the 77 gigahertz (GHz) frequency band. The main innovation in this fourth generation is the number of radar beams used, with six fixed radar

antennas instead of four for the third generation. The LRR4 can detect other vehicles at a distance of roughly 250 meters. It enables Adaptive Cruise Control (ACC) at speeds of more than 160km/h, which can make up for large differences in speed without any intervention by the driver. The radar is equipped with a heated lens which ensures full sensor availability, even in poor weather conditions, such as snow and ice.

The system integrates two electronic boards, including NXP Semiconductor and STMicroelectronics microcontrollers and Bosch power management ICs. The radio-frequency (RF) board is manufactured with an asymmetric structure using a hybrid PTFE/FR4 substrate and is equipped with planar antennas.

Infineon 77GHz SiGe Monolithic Microwave Integrated Circuits (MMICs) are used as high-frequency transmitter and receiver. The two RF dies are packaged in the latest version of the eWLB Fan-Out Wafer Level Package developed and manufactured by Infineon.

Based on a complete teardown analysis of the Bosch radar, the report provides the bill-of-material (BOM) and the manufacturing cost of the radar sensor as well as a comparison with Continental's ARS4-A and Bosch's MRR1Plus modules.

A complete physical analysis and manufacturing cost estimation of the Infineon MMICs is available in a separate report.

**Title:** Bosch LRR4 77GHz Radar

**Pages:** 88

**Date:** April 2017

**Format:** PDF & Excel file

**Price:** Full report: EUR 2,990

**Bundle Offer:** EUR 4,490 with Infineon RRN7745P & RTN7735P eWLB Fan-Out Package report

## COMPLETE TEARDOWN WITH:

- Detailed photos
- Material analysis
- MMIC die views and RF chipset analysis
- Comparison with Continental ARS4-A and Bosch MRR1Plus
- PCB cross-sections
- MCU physical analysis and cost estimate
- Complete and priced bill-of-materials
- Manufacturing process flow
- Manufacturing cost analysis
- Estimated cost and sales price



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### AUTHORS:



#### David Le Gac

David is in charge of reverse costing with a focus on boards and systems. He worked for Lacroix Electronics where he was in charge its components database



#### Stéphane Elisabeth

Stéphane has a deep knowledge of materials characterizations and electronics systems.



#### Véronique Le Troadec (Lab)

Véronique is in charge of structure analysis of semi-conductors. She has deep knowledge of chemical and physical technical analyses. She previously worked for 20 years at Atmel's Nantes Laboratory.

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## RELATED REPORTS

### Continental ARS4-A 77GHz Radar

The ARS4-A is a 77 GHz radar sensor offering simultaneous long and short range detection.



Pages: 85  
Date: March 2017  
Full report: EUR 2,990\*

### Autoliv 77GHz Multi Mode Radar

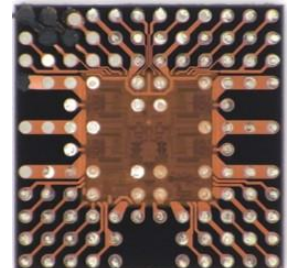
A compact, cost-effective and high-performance driving assistance system combining medium- and long-range detection.



Pages: 80  
Date: January 2017  
Full report: EUR 2,990\*

### Infineon RRN7745P & RTN7735P, eWLB Fan-Out Package - 77GHz Radar Dies

New receiver & transmitter components with a SiGe:C HBT technology from Infineon.



Pages: 104  
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