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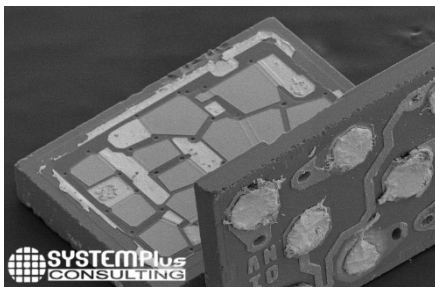
SYSTEM

POWER

Avago AFEM-9040

Avago's New Generation Front-End Module

Avago has introduced a new generation of film bulk acoustic resonator (FBAR-BAW) technology in the Samsung Galaxy S7



In the front-end filter market Broadcom, which was formerly Avago Technologies, shares the leadership with Qorvo. The company has forged its empire on selling its technology to smartphone industry giants like Apple or Samsung. Samsung has integrated the latest AFEM-9040 front-end module from Avago in its new

flagship, the Galaxy S7. The module features Avago's new generation of film bulk acoustic resonator (FBAR) technology.

The front-end module is located on the main board of the smartphone, in which Samsung has proposed a different configuration of its LTE front-end part. The AFEM-9040 from Avago was found in all versions of the Galaxy S7. However, depending on the region, it shared the front-end with Qorvo, Skyworks or Murata.

The AFEM-9040 is dedicated to the LTE mid-band. It is made with several die filters, assembled on a coreless PCB substrate. The filters are still hermetically wafer-level packaged with Avago's Microcap bonded-wafer chip scale packaging (CSP) technology. Through-silicon vias (TSVs) enable electrical contacts. Compared to the previous generation, the FBAR technology features some advances in the piezoelectric material. This allows a better coupling coefficient and better performance.

The front-end module also features an active part comprising a GaAs E-pHEMT and coupling system manufactured with Avago's intellectual property, described in more detail in this report.

The report also includes complete chip and module fabrication processes overviews and cost estimation. It also compares AFEM-9040 technology with the previous generation of FBAR-BAW filter (AFEM-8030) that can be found in the Apple iPhone 6S. All the differences are highlighted and measured.

Title: Avago AFEM 9040 – FBAR New Generation

Pages: 112

Date: June 2016

Format: PDF & Excel file

Price: Full report: EUR 3,290

COMPLETE TEARDOWN WITH:

- Detailed photos
- Precise measurements
- Material analysis
- Manufacturing process flow
- Supply chain evaluation
- Manufacturing cost analysis
- Selling price estimation
- Comparison with Avago's previous generation module

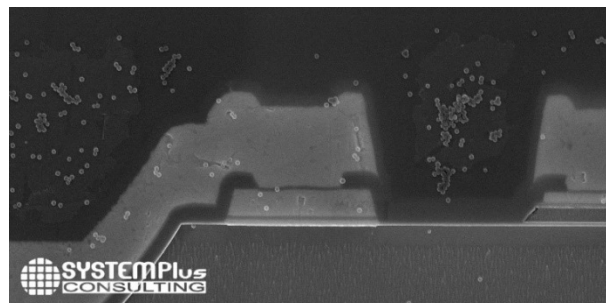
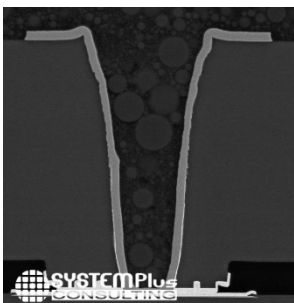


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Technology and Cost Comparison with Previous Generation of Mid Band Front-End Module



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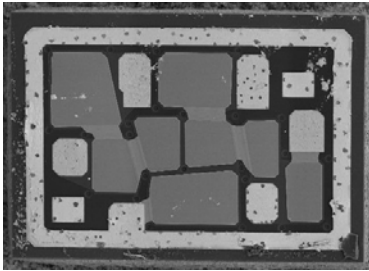
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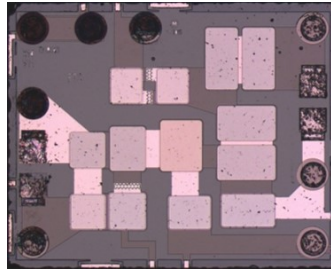
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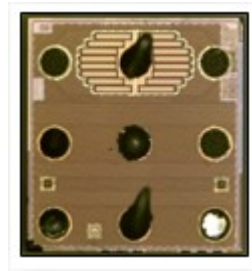
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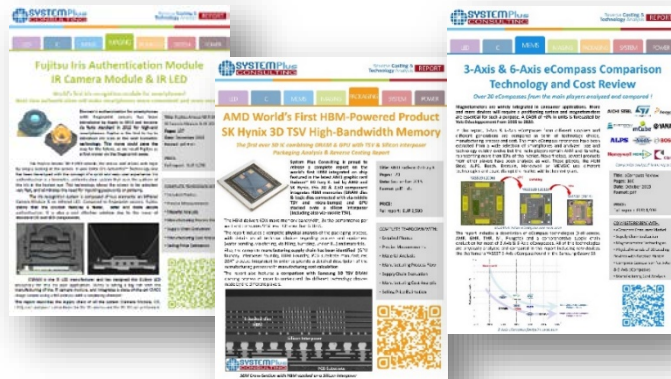
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