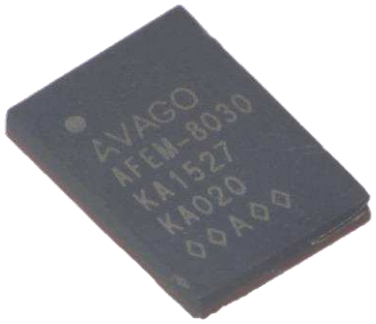
SYSTEMPlus CONSULTING

Reverse Costing & Technology Analysis REPORT

LED | IC | MEMS | IMAGING | PACKAGING | SYSTEM | POWER

Avago AFEM8030 in iPhone 6s Plus FBAR-BAW Mid-Band Filter

Apple integrates in its smartphone the innovative Film Bulk Acoustic Resonators developed by Avago



After a first introduction of Avago's power amplifier in the iPhone 4S and an integration in iPhone 5 series, Apple integrates again Avago's LTE Mid Band Front-End Module in the iPhone 6s series. With the acquisition of Broadcom (Apple's Wifi FEM first suppliers), Avago becomes a top competitor in wireless communication thanks to its FBAR BAW filter knowledge.

Located on the main board of the smartphone, the Front-End Module of the Apple iPhone 6s Plus for mid-band LTE application is a complete Front-End Module. The component is made with several filter dies, assembled on a coreless PCB substrate.

The filters are hermetically wafer-level packaged with Avago's Microcap bonded-wafer CSP technology allowing the assembly of all components of the Front-End Module on the same chip with an area of less than 35 mm².

TSVs are etched in the cap two times in order to report electrical contacts. Also specific milling steps in FBAR fabrication give control of the AlN thickness.

Thanks to its design and manufacturing process, Avago device is very accurate and cost effective in respect to competitors.

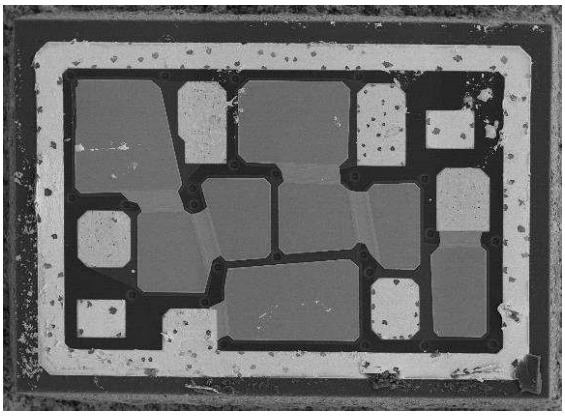
The report includes comparisons with the BAW filter from Qorvo, also found in the Apple iPhone 6s Plus and the evolution of Avago's BAW filters since 2013.

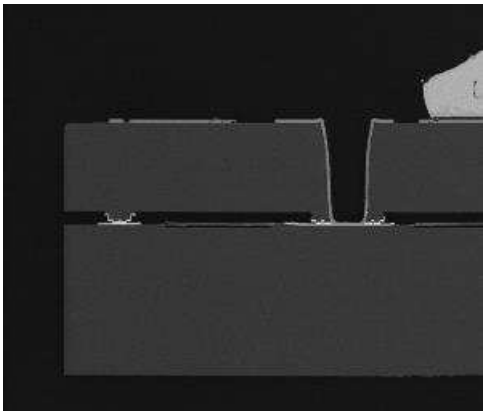
Title: Avago AFEM8030 – FBAR BAW Mid-Band Filter
Pages: 90
Date: March 2016
Format: pdf + xls

PRICE:
Full report: EUR 2,990

COMPLETE TEARDOWN WITH:

- Detailed Photos
- Precise Measurements
- Material Analysis
- Manufacturing Process Flow
- Supply Chain Evaluation
- Manufacturing Cost Analysis
- Selling Price Estimation
- Comparison with Qorvo's SMR BAW filter





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Technology and Cost comparison with Qorvo's BAW filter

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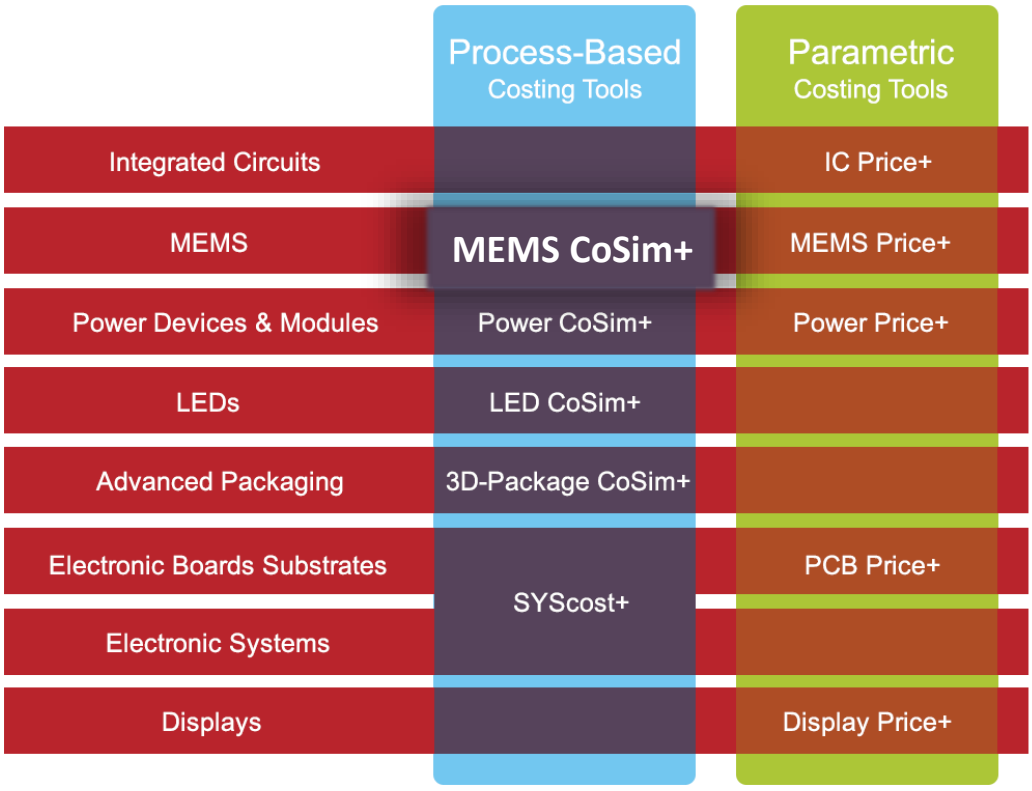
ANALYSIS PERFORMED WITH OUR COSTING TOOLS MEMS CoSim+



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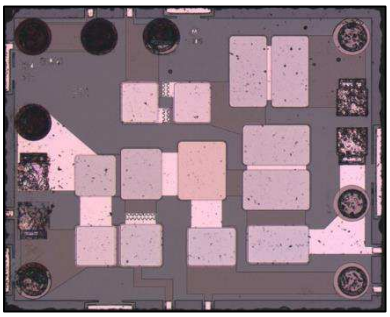
Qorvo TQF6405 SMR-BAW Filter High Band

Since the beginning of the actual flagship of Apple, the IPhone, Qorvo (former Triquint) are always integrate in the last series. For the 6th, it's an entire high band LTE FEM based on Qorvo's Cu-flip™ technology.



Pages: 86
Date: November 2015
Full report: EUR 2,990*

Cavendish Kinetics 32CK417R Antenna Tuner

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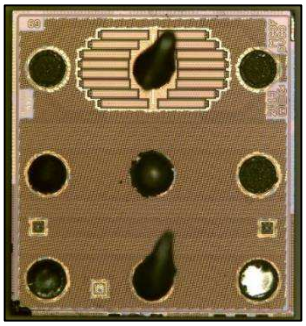
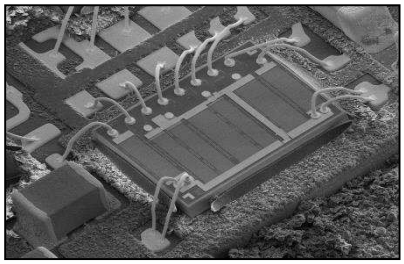


Pages: 102
Date: June 2015
Full report: EUR 2,990*

Epcos D7005 Closed-Loop Antenna Tuner

Introduced with the beginning of 4G, the closed-loop antenna Tuner from Epcos is the first which supported all mobile protocol



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