

Midgets in size, giants in innovation

Whenever SAW technology takes new approaches to applications, EPCOS is available as a competent and reliable partner that can develop and deliver innovative, customized products for the shortest time to market.

MARKETS

STRONG IN GROWTH MARKETS

Whatever the application – mobile phones, automobiles or multimedia – SAW filters and RF modules are essential to modern electronics. Wireless networking in industrial electronics is likewise boosting demand for radio-based systems. SAW components are therefore key components in the growth markets of our mobile information society. With a world market share topping 40%, EPCOS is undisputed global leader in this sector.



SAW FILTERS have conquered one application after another over the past 30 years, first in television and later in mobile phones and multimedia. In automotive electronics too, SAW applications such as radio-based tire pressure monitoring are finding their way into more and more vehicles. Mobile communication is no longer restricted to the exchange of information between people. Market researchers forecast that by 2005, there will be more devices than humans communicating with each other wirelessly. And that also paves the way to large-scale use of SAW components in industrial electronics.

The latest development in SAW technology is the FBAR filter, which combines the advantages of SAW and microwave ceramic filters. EPCOS has developed this technology up to the stage of marketable products and is a leader in this field.

The principle of operation of SAW filters is amazingly simple, but development and production of them require processes whose complexity and sophistication can only be compared with those used in semiconductor fabrication. The quintessential condition for top-quality products is a perfect base material - in this case, monocrystalline wafers of quartz, lithium tantalate or lithium niobate. EPCOS obtains this material from Crystal Technology, Inc. (CTI), a wholly owned subsidiary based in Palo Alto, California.

Products & Technologies



PORTFOLIO | SAW FILTERS

The unique product portfolio of the SAW Components Division ensures solutions of convincing quality and economy for all market segments. Progressive miniaturization and systematic integration of SAW filters and their surrounding electronic components into modules characterize this range of technologically advanced products.



SAW technology offers overwhelming advantages over conventional filter designs based on capacitors and inductors, such as high selectivity and a high frequency range up into the gigahertz range. So the component count is dramatically reduced, as even baluns can be integrated. Components manufactured in this way are distinguished by extremely compact dimensions. Two packaging technologies - CSSP (chip-size SAW package) and CSSPlus - are the secret of this successful miniaturization by EPCOS.

Miniaturization remains the key demand, especially in the mobile phone industry, so that handsets can be made even smaller and their functionality in particular increased. EPCOS thus offers complete front-end modules based on low-temperature co-fired ceramics (LTCC) for mobile phones and WLAN devices. All the passive components of a complete front-end are integrated into these modules. As well as space savings of up to 95% on the circuit board, fail-safe reliability, shorter time to market and considerably reduced design expenditure are key customer benefits.

Conventional microwave ceramic filters have been replaced in many applications by SAW filters which offer special advantages thanks to their miniaturized design, high selectivity and low passband attenuation. Solutions based on microwave ceramic components are now used mainly where lower-cost solutions are required, sufficient space is available and output power exceeds 2 W.