



Press Release

**European Microwave Week**

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**Booth 438C**

## **X-FAB Now Positioned to Provide Foundry Service for Passive Device Integration**

*Highly optimized solution achieves major miniaturization objectives*

Tessenderlo – September 13, 2023

[X-FAB Silicon Foundries SE](#), the leading analog/mixed-signal and specialty foundry, has further added to its broad proficiency in RF by announcing new integrated passive device (IPD) fabrication capabilities. Just ahead of European Microwave Week (17 to 22 September, Berlin), it has unveiled the XIPD process. Those attending the event will be able to talk with the company's technical staff about this innovation (situated at booth 438C).

XIPD is derived from the popular X-FAB XR013 130nm RF SOI process and leverages an engineered substrate along with a thick copper metallization layer. The technology enables customers to integrate passive elements (inductors, capacitors and resistors) directly into their device designs, resulting in significant space and cost savings. Fabrication is undertaken at X-FAB's facility in Corbeil-Essonnes, France, capitalizing on the company's extensive experience in copper metallization.

The ongoing roll-out of 5G cellular infrastructure along with the development of 6G communications and the emergence of the latest generation of radar and satellite communications technology, have meant that devices are needed that exhibit wider frequency support. Through use of the XIPD platform, demands for more compact RF/EMI



filtering, matching networks, baluns and couplers can be met - via the fabrication of fully integrated high-quality passive components with improved performance characteristics.

Instead of having to rely on the use of surface-mount or discrete passive components, which can prove inconvenient due to component deviation at high frequency or increased component sourcing complexity, XIPD enables a much more effective route that streamlines overall system design, accelerates development cycles, simplifies manufacturing and curbs the engineering expenses involved. Operation across an extensive frequency range, from the sub-6GHz band all the way to the high-end of the mmW band, can be accommodated.

X-FAB is unique in offering a European-based foundry service for any-size-volume integrated passive production. A comprehensive process design kit (PDK) is available. This supports both the Cadence and Keysight ADS design environments, enabling customers to make accurate simulations and achieve first-time-right design of the complete RF sub-system. Initial prototyping with several key customers has now commenced.

“Though RF semiconductor devices continue to shrink, the passive components that accompany them still remain relatively large. This mismatch doesn’t fit well with the need for sleeker electronic equipment, causing excess board area to be taken up,” Rudi De Winter, CEO of X-FAB, notes; “By adopting our XIPD technology, not only is it possible to achieve space savings of multiple orders of magnitude, but it also translates into reductions in the associated costs too. This has the potential to be a real game-changer for our customer base, permitting the co-packaging of active and passive dies together, while achieving high yields.”

X-FAB’s RF Technology Director, Greg U’Ren, adds: “Furthermore, current acoustic-based technology solutions for filtering are not capable of mmW frequency operation and satisfying next-generation communication standards. Our XIPD solution adds value to the market by enabling our customers to realize compact RF system designs, minimizing losses through incorporation of fully integrated hardware. We are already working on projects



needing 70-80GHz operation, which would be unthinkable using a discrete passive arrangement.”

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### **Acronyms**

ADS - Advanced Design System

EMI - Electromagnetic Interference

IPD - Integrated Passive Device

PDK – Process Design Kit

RF - Radio Frequency

SOI - Silicon-on-Insulator

### **About X-FAB**

X-FAB is the leading analog/mixed-signal and MEMS foundry group manufacturing silicon wafers for automotive, industrial, consumer, medical and other applications. Its customers worldwide benefit from the highest quality standards, manufacturing excellence and innovative solutions by using X-FAB’s modular CMOS and SOI processes in geometries ranging from 1.0 µm to 110 nm, and its special silicon carbide and MEMS long-lifetime processes. X-FAB’s analog-digital integrated circuits (mixed-signal ICs), sensors and micro-electro-mechanical systems (MEMS) are manufactured at six production facilities in Germany, France, Malaysia and the U.S. X-FAB employs about 4,200 people worldwide. Learn more at [xfab.com](https://www.xfab.com).

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